Supplementary Environmental and Social Impact Assessment

Morocco Lithium-Ion Anode Battery Materials Project

PREPARED FOR

BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY

DATE
05 November 2026

REFERENCE
0798554



DOCUMENT DETAILS

DOCUMENT TITLE	Supplementary Environmental and Social Impact Assessment
DOCUMENT SUBTITLE	Morocco Lithium-Ion Anode Battery Materials Project
PROJECT NUMBER	0798554
Date	05 November 2026
Version	04
Author	ERM China
Client name	BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY

DOCUMENT HISTORY

				ERM APPROVAL TO ISSUE		
VERSION	REVISION	AUTHOR	REVIEWED BY	NAME	DATE	COMMENTS
01	000	Various	Minlei Du	Yang Shen	09.04.2026	Approve to issue
02	001	Various	Minlei Du	Yang Shen	10.15.2026	Updated based on comments
03	002	Various	Minlei Du	Yang Shen	10.29.2026	Updated based on comments
04	003	Various	Minlei Du	Yang Shen	11.05.2026	Updated based on comments

SIGNATURE PAGE

Supplementary Environmental and Social Impact Assessment

Morocco Lithium-Ion Anode Battery Materials Project

0798554



Yang Shen
Partner

ERM (Shanghai) Limited
Litong Plaza, 20th floor, No. 1350 Sichuan North Road
Shanghai, Hongkou District, China

© Copyright 2026 by The ERM International Group Limited and/or its affiliates ('ERM'). All Rights Reserved.
No part of this work may be reproduced or transmitted in any form or by any means, without prior written permission of ERM.

CONTENTS

1.	INTRODUCTION	1
1.1	BACKGROUND	1
1.2	OBJECTIVES OF ASSIGNMENT	1
1.3	APPLICABLE STANDARDS	1
1.4	REPORT STRUCTURE	2
1.5	ASSUMPTIONS AND LIMITATIONS	3
1.5.1	Scope of Activity	3
1.5.2	Limitations of Use	4
2.	INSTITUTIONAL AND LEGAL FRAMEWORK	5
2.1	MOROCCO LAWS AND REGULATIONS	5
2.1.1	Institutional Framework	5
2.1.2	Morocco Regulatory Framework	8
2.2	INTERNATIONAL STANDARDS	13
2.2.1	AIIB Environmental and Social Framework("ESF")	13
2.2.2	IFC Performance Standards	17
2.2.3	Equator Principles (2020)	20
2.2.4	World Bank EHS Guidelines	20
3.	PROJECT DESCRIPTION	22
3.1	PROJECT OVERVIEW AND LOCATION	22
3.2	PROJECT COMPONENTS	25
3.3	ASSOCIATED FACILITIES	28
3.4	PROJECT PROCESS	30
3.5	PROJECT SCHEDULE	31
3.6	PROJECT ACTIVITY	31
3.6.1	Construction Phase	31
3.6.2	Operation Phase	31
3.7	RESOURCE REQUIREMENT	32
3.7.1	Land	32
3.7.2	Water Supply and Discharge	34
3.7.3	Power Supply	34
3.7.4	Workforce and Security Personnel	35
3.7.5	Equipment and Supplies	38
3.8	CONSIDERATION OF ALTERNATIVE	38
3.8.1	Consideration of Project Location and Layout	38
3.8.2	"No Project" Scenario	39
3.9	AREA OF INFLUENCE	39
4.	GAP IDENTIFICATION AND SCREENING	41
5.	ENVIRONMENTAL AND SOCIAL BASELINE	55
5.1	ENVIRONMENTAL BASELINE	55
5.1.1	Ambient Noise basline	55
5.1.2	Ambient Air baseline	62

5.2 SOCIAL BASELINE 69
5.2.1 Overview of Social Area of Influence 69
5.2.2 Data Collection Methodology 70
5.2.3 Demographics and Vulnerability 72
5.2.4 Ethnicity, Religion and Language 79
5.2.5 Indigenous People 81
5.2.6 Land Use 81
5.2.7 Education 82
5.2.8 Community Health, Safety and Security 87
5.2.9 Livelihood and Local Economy 90
5.2.10 Infrastructure 93
5.2.11 Occupational Health and Safety 97
5.2.12 Cultural Heritage 98
5.3 BIODIVERSITY BASELINE 100
5.3.1 Globally Recognised Sites and Legally Protected Areas 100
5.3.2 Habitats 105
5.3.3 Biodiversity Condition of the Region 107
5.3.4 Scoping Site visit 110
5.3.5 Critical Habitat related long-list sepecies 111
5.3.6 Baseline survey 117
5.3.7 Biodiversity Baseline Summary 121
6. STAKEHOLDER ENGAGEMENT AND GRIEVANCE REDRESS MECHANISM 123
6.1 STAKEHOLDER IDENTIFICATION 123
6.2 SUPPLEMENTARY ESIA STAKEHOLDER ENGAGEMENT 123
6.2.1 Key Findings 124
6.3 FUTURE STAKEHOLDER ENGAGEMENT 126
6.4 GRIEVANCE REDRESS MECHANISM 126
6.4.1 The Grievance procedure 127
6.4.2 Communication of the Grievance Redress Mechanism 129
7. ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION 131
7.1 IMPACT ASSESSMENT METHODOLOGY 131
7.1.1 Impact Prediction 131
7.1.2 Impact Evaluation 132
7.1.3 Mitigation and Enhancement 138
7.1.4 Residual Impact Evaluation 139
7.2 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES 140
7.2.1 Ambient Air 140
7.2.2 Noise 169
7.2.3 Waste 177
7.2.4 Greenhouse Gas Emissions 184
7.3 SOCIAL IMPACTS AND MITIGATION MEASURES 200
7.3.1 Community Cohesion and Social Structure 200
7.3.2 Community Health, Safety and Security 208
7.3.3 Occupational Health and Safety 216
7.3.4 Public Infrastructure and Services 220
7.3.5 Employment and Local Economy 229
7.3.6 Land Use and Livelihood 231
7.3.7 Project Gender Analysis 235
8. CUMULATIVE IMPACT ANALYSIS 240
8.1 INTRODUCTION 240
8.1.1 Methodology and Approach 240
8.1.2 CIA Scoping 241

8.1.3 Determining Present Conditions of VECS 246
8.1.4 Assessment of the Significance of Cumulative Impacts 246

9. UNPLANNED EVENT IMPACT ASSESSMENT 257
9.1 ASSESSMENT APPROACH AND CRITERIA 257
9.2 HAZARD IDENTIFICATION 259
9.3 FIRE AND EXPLOSION 260
9.3.1 Source of Impact 260
9.3.2 Embedded Controls 260
9.3.3 Significance of Impacts 260
9.3.4 Mitigation Measures 261
9.3.5 Residual Impacts 261
9.4 SPILLS AND LEAKS 262
9.4.1 Source of Impact 262
9.4.2 Embedded Controls 262
9.4.3 Significance of Impacts 262
9.4.4 Mitigation Measures 263
9.4.5 Residual Impacts 264
9.5 TRAFFIC ACCIDENT 264
9.5.1 Source of Impact 264
9.5.2 Embedded Controls 264
9.5.3 Significance of Impacts 265
9.5.4 Mitigation Measures 266
9.5.5 Residual Impacts 267

10. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN 268
10.1 OBJECTIVES AND PRINCIPLES 268
10.2 PLANNING 269
10.2.1 Plan-Do-Check-Act 269
10.2.2 Impact Assessment, Mitigation Measures and Planning 270
10.3 IMPLEMENTATION 272
10.3.1 Roles and Responsibilities 272
10.3.2 Training and Awareness 274
10.3.3 Communication 275
10.3.4 Documentation 276
10.3.5 Management of Change 277
10.3.6 Monitoring and Corrective Actions during the Project Execution 277
10.4 SUMMARY OF IMPACTS AND MITIGATION MEASURES 278

APPENDIX A STAKEHOLDER ENGAGEMENT PLAN
APPENDIX B HUMAN RIGHTS IMPACT ASSESSMENT
APPENDIX C CLIMATE CHANGE RISK ASSESSMENT
APPENDIX D POTENTIAL BIRD LIST IN THE REGION

LIST OF TABLES

TABLE 1-1 REPORT STRUCTURE 2
TABLE 2-1 SUMMARY OF AIIB ESF REQUIREMENTS 13
TABLE 2-2 SUMMARY OF IFC PERFORMANCE STANDARDS REQUIREMENTS 17
TABLE 3-1 PROJECT PRODUCTION CAPACITY 22

TABLE 3-2	PROJECT COMPONENTS	25
TABLE 3-3	SCREENING OF POTENTIAL ASSOCIATED FACILITIES	29
TABLE 3-4	RAW MATERIAL CONSUMPTION	30
TABLE 3-5	POWER CONSUMPTION AND SOURCES	34
TABLE 3-6	MANPOWER PLAN FOR CONSTRUCTION AND OPERATION PHASES	37
TABLE 3-7	EQUIPMENT FOR ANODE MATERIAL PRODUCTION	38
TABLE 3-8	PROJECT AREA OF INFLUENCE	39
TABLE 4-1	GAP ANALYSIS AND SCREENING	41
TABLE 5-1	NOISE DESCRIPTORS	55
TABLE 5-2	NOISE MEASUREMENT AND NOISE SENSITIVE RECEIVERS' LOCATIONS	56
TABLE 5-3	NOISE LEVEL STANDARDS FROM IFC GUIDELINES	57
TABLE 5-4	RESULTS OF NOISE MEASUREMENT	59
TABLE 5-5	ASSESSMENT OF EXCEEDING HOUR DATA	59
TABLE 5-6	LOCATIONS OF AMBIENT AIR MONITORING POINTS	62
TABLE 5-7	MONITORING RESULTS OF AMBIENT AIR QUALITY – GASEOUS POLLUTANTS	64
TABLE 5-8	MONITORING RESULTS OF AMBIENT AIR QUALITY-PM	64
TABLE 5-9	MONITORING RESULTS OF AMBIENT AIR QUALITY-SO_2 AND NO_2	65
TABLE 5-10	AMBIENT AIR QUALITY STANDARD (NATIONAL)	66
TABLE 5-11	REFERENCE STANDARDS FOR OTHER POLLUTANTS	66
TABLE 5-12	SUMMARY OF EXISTING AIRSHED CLASSIFICATION	67
TABLE 5-13	PROJECT SOCIAL AOI	70
TABLE 5-14	POPULATION OF MOROCCO IN 2014 AND 2024	72
TABLE 5-15	POPULATION OF TTAH REGION AND TANGIER-ASSILAH PREFECTURE IN 2014 AND 2024	73
TABLE 5-16	POPULATION OF LAAOUAMA COMMUNE AND SEBT AZZINATE COMMUNE IN 2014 AND 2024	75
TABLE 5-17	ESTIMATED NUMBER OF VULNERABLE INDIVIDUALS IN LAAOUAMA COMMUNE AND SEBT AZZINATE COMMUNE	78
TABLE 5-18	SUMMARY OF KBAS IN THE VICINITY OF THE PROJECT	101
TABLE 5-19	SUMMARY OF THE PROTECTED AREAS IN THE VICINITY OF THE PROJECT	104
TABLE 5-20	HABITATS WITHIN THE STUDY AREA AND WITHIN A 2-KILOMETER BUFFER ZONE AROUND THE AREAS (NOVEMBER 2024)	107
TABLE 5-21	AMPHIBIANS AND REPTILES LIKELY TO OCCUR IN PROJECT' AOI	109
TABLE 5-22	THRESHOLDS FOR CRITICAL HABITAT	113
TABLE 5-23	NUMBER OF SPECIES RECORDS AT EACH SURVEY POINT	118
TABLE 6-1	CONSULTATIONS CONDUCTED FOR THE PROJECT	123
TABLE 6-2	SUMMARY OF KEY FINDINGS DURING STAKEHOLDER ENGAGEMENT	124
TABLE 7-1	IMPACT MAGNITUDE	132

TABLE 7-2	IMPACT FREQUENCY	133
TABLE 7-3	IMPACT DURATION	133
TABLE 7-4	IMPACT EXTENT	134
TABLE 7-5	SENSITIVITY OF RECEPTORS / RESOURCES	136
TABLE 7-6	IMPACT SIGNIFICANCE EVALUATION	136
TABLE 7-7	IMPACT SIGNIFICANCE	136
TABLE 7-8	AMBIENT AIR QUALITY STANDARD (NATIONAL)	140
TABLE 7-9	REFERENCE STANDARDS FOR OTHER POLLUTANTS	141
TABLE 7-10	SUMMARY OF REPRESENTATIVE AIR/NOISE SENSITIVE RECEPTORS	144
TABLE 7-11	STACK EMISSION INVENTORY-1	146
TABLE 7-12	STACK EMISSION INVENTORY-2	148
TABLE 7-13	AIR DISPERSION MODEL SETUP	149
TABLE 7-14	MODELLING RESULTS	152
TABLE 7-15	AIR EMISSION MONITORING PROGRAMME	167
TABLE 7-16	POTENTIAL SOURCES OF NOISE FROM THE PROJECT LIFECYCLE	169
TABLE 7-17	NOISE LEVEL STANDARDS FROM THE WBG GENERAL EHS GUIDELINES	169
TABLE 7-18	IMPACT SIGNIFICANCE FOR NOISE – DISTURBANCE IMPACTS	170
TABLE 7-19	IMPACT SIGNIFICANCE FOR NOISE - AMENITY IMPACTS	171
TABLE 7-20	CONSTRUCTION EQUIPMENT NOISE PREDICTION RESULTS	172
TABLE 7-21	MAIN NOISE SOURCES FROM OUTDOOR EQUIPMENT	174
TABLE 7-22	PREDICTED NOISE LEVEL	174
TABLE 7-23	WASTE INVENTORY	177
TABLE 7-24	IMPACT MAGNITUDE FOR WASTE	179
TABLE 7-25	RECEPTOR SENSITIVITY FOR LOCAL COMMUNITIES	179
TABLE 7-26	GHG QUANTIFICATION BOUNDARY	188
TABLE 7-27	PROJECT ACTIVITY DATA BY EMISSION SOURCE DURING CONSTRUCTION	188
TABLE 7-28	GLOBAL WARMING POTENTIALS	190
TABLE 7-29	ASSUMPTIONS	190
TABLE 7-30	EMISSIONS BREAKDOWN BY SCOPE AND ACTIVITY DURING CONSTRUCTION	193
TABLE 7-31	EMISSIONS BREAKDOWN BY SCOPE AND ACTIVITY DURING OPERATION	194
TABLE 8-1	SCREENING OF PROJECTS WITH POTENTIAL CUMULATIVE IMPACTS	244
TABLE 8-2	MODELLING RESULTS	248
TABLE 9-1	SIGNIFICANCE CRITERIA FOR UNPLANNED EVENTS – LIKELIHOOD	257
TABLE 9-2	CONSEQUENCE OF UNPLANNED EVENTS	258
TABLE 9-3	IMPACT SIGNIFICANCE OF UNPLANNED EVENTS	259
TABLE 9-4	IMPACT ASSESSMENT OF TRAFFIC ACCIDENT	266
TABLE 10-1	ROLES AND RESPONSIBILITIES OF THE ESMP	272

TABLE 10-2	ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN	279

LIST OF FIGURES

FIGURE 3-1	PROJECT LOCATION	23
FIGURE 3-2	PROJECT SURROUNDINGS	24
FIGURE 3-3	PROJECT LAYOUT	27
FIGURE 3-4	PROCESS FLOWCHART	30
FIGURE 5-1	NOISE SAMPLING LOCATIONS AND NOISE SENSITIVE RECEIVERS	56
FIGURE 5-2	NOISE MEASUREMENT	57
FIGURE 5-3	HOURLY AMBIENT NOISE LEVELS AT BASELINE MONITORING LOCATIONS	58
FIGURE 5-4	AIR QUALITY SAMPLING	63
FIGURE 5-5	AMBIENT AIR BASELINE MONITORING LOCATIONS	64
FIGURE 5-6	PROJECT LOCATION AND SOCIAL AOI	69
FIGURE 5-7	URBAN-RURAL POPULATION DISTRIBUTION ON NATIONAL, REGIONAL, AND PROVINCIAL LEVELS	74
FIGURE 5-8	AGE DISTRIBUTION ON NATIONAL, REGIONAL, PROVINCIAL, AND COMMUNE LEVELS	76
FIGURE 5-9	HOUSES IN GOUARET MEHARZA	76
FIGURE 5-10	CHINESE RESTAURANTS IN GOUARET AREA	77
FIGURE 5-11	MOSQUE IN GOUARET MECHAHLA	80
FIGURE 5-12	HISTORIAL LAND USE	82
FIGURE 5-13	HIGHEST LEVELS OF EDUCATION ATTAINMENT ON NATIONAL, REGIONAL, PROVINCIAL, AND COMMUNE LEVELS	86
FIGURE 5-14	INTEGRATED PRIMARY AND HIGH SCHOOL IN GOUARET MECHAHLA AND SCHOOL BUS IN LAAOUAMA COMMUNE	87
FIGURE 5-15	HEALTHCARE CENTRE LOCATED IN GOUARET CENTRE	88
FIGURE 5-16	LOCAL SHOPS AND SOUK	91
FIGURE 5-17	LIVESTOCK REARING IN THE PROJECT AOI	91
FIGURE 5-18	SMALL-SCALE CULTIVATED PLOT IN THE PROJECT AOI	92
FIGURE 5-19	FORMER COMMUNAL WELL IN GOUARET	93
FIGURE 5-20	TRANSMISSION/DISTRIBUTION LINE IN GOUARET MEHARZA	94
FIGURE 5-21	HOUSES OF DIFFERENT TYPES IN AOI VILLAGES	95
FIGURE 5-22	ROADS IN THE AOI	96
FIGURE 5-23	POOR WASTE MANAGEMENT IN GOUARET MEHARZA	97
FIGURE 5-24	MOSQUE AND CEMETERY IN GOUARET MECHAHLA	99
FIGURE 5-25	THE MAP OF GLOBALLY RECOGNISED SITES AND LEGALLY PROTECTED AREA CLOSE TO THE PROJECT SITE	101
FIGURE 5-26	MAP OF LANDCOVER TYPE WITH THE PROJECT'S AOI	106
FIGURE 5-27	POTENTIAL AVIFAUNA OF THE TANGIER REGION: NUMBER OF SPECIES PER FAMILY	

109

FIGURE 5-28	VEGETATION IN BAREGROUND OBSERVED ADJACENT TO THE PROJECT'S SITE	111
FIGURE 5-29	RIVER/CHANNEL OBSERVED WITHIN THE PROJECT'S AOI	111
FIGURE 5-30	LOCATION OF BASELINE SURVEY TRANSECTS	118
FIGURE 5-31	NATURAL AND MODIFIED HABITAT TYPES WITHIN THE PROJECT'S AOI	121
FIGURE 7-1	AQIA METHODOLOGY FOR INDUSTRIAL EMISSION SOURCES	143
FIGURE 7-2	LOCATIONS OF AIR SENSITIVE RECEPTORS	145
FIGURE 7-3	LOCATIONS OF EMISSION SOURCES	149
FIGURE 7-4	WIND ROSE DIAGRAM	151
FIGURE 7-5	CONTOUR OF 24-HOUR AVERAGE PM_{10} PROJECT CONTRIBUTION (MG/M^3)	161
FIGURE 7-6	CONTOUR OF ANNUAL AVERAGE PM_{10} PROJECT CONTRIBUTION (MG/M^3)	161
FIGURE 7-7	CONTOUR OF 24-HOUR AVERAGE $PM_{2.5}$ PROJECT CONTRIBUTION (MG/M^3)	162
FIGURE 7-8	CONTOUR OF 24-HOUR AVERAGE NO_2 PROJECT CONTRIBUTION (MG/M^3)	162
FIGURE 7-9	CONTOUR OF ANNUAL AVERAGE NO_2 PROJECT CONTRIBUTION (MG/M^3)	163
FIGURE 7-10	CONTOUR OF 24-HOUR AVERAGE SO_2 PROJECT CONTRIBUTION (MG/M^3)	163
FIGURE 7-11	CONTOUR OF ANNUAL AVERAGE BAP PROJECT CONTRIBUTION (MG/M^3)	164
FIGURE 7-12	CONTOUR OF 8-HOUR AVERAGE TVOC PROJECT CONTRIBUTION (MG/M^3)	164
FIGURE 7-13	CONTOUR OF ONE HOUR AVERAGE H_2S PROJECT CONTRIBUTION (MG/M^3)	165
FIGURE 7-14	CONTOUR OF ANNUAL AVERAGE H_2S PROJECT CONTRIBUTION (MG/M^3)	165
FIGURE 7-15	CONTOUR OF ONE HOUR AVERAGE NH_3 PROJECT CONTRIBUTION (MG/M^3)	166
FIGURE 7-16	CONTOUR OF ANNUAL AVERAGE NH_3 PROJECT CONTRIBUTION (MG/M^3)	166
FIGURE 7-17	LOCATION OF EPC ACCOMMODATION CAMPS	202
FIGURE 8-1	THE SIX STEPS FOR THE CUMULATIVE IMPACT ASSESSMENT	241

ACRONYMS AND ABBREVIATIONS

Acronyms	Description
A2O	Anaerobic-Anoxic-Oxic
AAQS	Ambient Air Quality Standard
AAGR	Average Annual Growth Rate
ABHL	Loukkos River Basin Agency
AIIB	Asian Infrastructure Investment Bank
ANEF	National Agency for Water and Forests
AoI	Area of Influence
AQ	Air Quality
AQIA	Air Quality Impact Assessment

ASR	Air-Sensitive Receptor
ASU	Air Separation Unit
AZE	Alliance for Zero Extinction
BaP	Benzo[a]pyrene
BS	British Standard
BTR	BTR New Material Group Co., Ltd.
CCRA	Climate Change Risk Assessment
CH	Critical Habitat
CIA	Cumulative Impact Assessment
CLO	Community Liaison Officer
CNE	National Council for Environment
CNEIE	National Committee for Environmental Impact Studies
CoC	Code of Conduct
CPC	Calcined Petroleum Coke
CR	Critically Endangered
CRI	Regional Investment Centre
CRUI	Unified Regional Investment Commission
CSCEC	China State Construction Engineering Corporation
dB	Decibel
dB(A)	A-Weighted Decibel
DD	Data Deficient
DEFRA	Department for Environment, Food and Rural Affairs
E&S	Environmental and Social
EAAA	Ecologically Appropriate Area of Analysis
EC	European Community
EHS	Environmental, Health and Safety
EHSG	Environmental, Health, and Safety Guideline
EIA	Environmental Impact Assessment
EIS	Environmental Impact Study
EN	Endangered

EOO	Extent of Occurrence
EP	Equator Principles
EP4	Equator Principles, Fourth Edition
EPC	Engineering, Procurement and Construction
ERP	Emergency Response Plan
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESL	Effects Screening Level
ESMP	Environmental and Social Management Plan
ESMPF	Environmental and Social Management Planning Framework
ESP	Environmental and Social Policy
ESS	Environmental and Social Standard
ESSP	Primary Healthcare Facility
FGD	Focus Group Discussion
FI	Financial Intermediary
FPIC	Free, Prior and Informed Consent
FSR	Feasibility Study Report
GBV	Gender-Based Violence
GHG	Greenhouse Gas
GIIP	Good International Industry Practice
GIS	Geographic Information System
GPC	Green Petroleum Coke
GPS	Global Positioning System
GRM	Grievance Redress Mechanism
GWP	Global Warming Potential
H_2S	Hydrogen Sulphide
HCl	Hydrogen Chloride
HCP	High Commission for Planning
HDI	Human Development Index
HRIA	Human Rights Impact Assessment

HVAS	High-Volume Air Sampler
IAZ	Industrial Acceleration Zone
IBA	Important Bird and Biodiversity Area
IBAT	Integrated Biodiversity Assessment Tool
IAQM	Institute of Air Quality Management
ICP	Informed Consultation and Participation
IEC	International Electrotechnical Commission
IFC	International Finance Corporation
ILO	International Labour Organisation
IP	Indigenous Peoples
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organisation for Standardisation
IUCN	International Union for Conservation of Nature
KBA	Key Biodiversity Area
KII	Key Informant Interview
KPI	Key Performance Indicator
L_{Aeq}	A-Weighted Equivalent Continuous Sound Level
L_{max}	Maximum Sound Level
L_{min}	Minimum Sound Level
L_{90}	Sound Level Exceeded for 90% of the Measurement Period
LFP	Lithium Iron Phosphate
LPG	Liquefied Petroleum Gas
LRI	Labour Rights Index
MAB	Man and the Biosphere Programme
MBR	Membrane Bioreactor
NDC	Nationally Determined Contribution
NGO	Non-Governmental Organisation
NH_3	Ammonia
NMHC	Non-Methane Hydrocarbon
NMP	N-Methyl-2-pyrrolidone

NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
NSR	Noise-Sensitive Receptor
NT	Near Threatened
ODT	Organisation Démocratique du Travail
OHS	Occupational Health and Safety
ONEE	Office National de l'Électricité et de l'Eau Potable
PA	Protected Area
PAP	Project-Affected Person
PC	Project Contribution
PCR	Regional Climate Plan
PDCA	Plan-Do-Check-Act
PEC	Predicted Environmental Concentration
PET	Polyethylene Terephthalate
PM	Particulate Matter
PM_{10}	Particulate Matter with an Aerodynamic Diameter of 10 Micrometres or Less
$PM_{2.5}$	Particulate Matter with an Aerodynamic Diameter of 2.5 Micrometres or Less
PNL	Project Noise Level
PNRC	National Plan to Combat Global Warming
PPE	Personal Protective Equipment
PS	Performance Standard
PV	Photovoltaic
R&D	Research and Development
RBIM	Réserve de Biosphère Intercontinentale de la Méditerranée
RCO	Regenerative Catalytic Oxidiser
RTO	Regenerative Thermal Oxidiser
S.A.	Société Anonyme
SATT	Société d'Aménagement Tangier Tech
SEA	Sexual Exploitation and Abuse
SEP	Stakeholder Engagement Plan

SIA	Social Impact Assessment
SGS	SGS S.A.
SH	Sexual Harassment
SIBE	Site of Biological and Ecological Interest
SO_2	Sulphur Dioxide
STI	Sexually Transmitted Infection
STD	Sexually Transmitted Disease
TA	Tangier-Assilah
TBD	To Be Determined
TCEQ	Texas Commission on Environmental Quality
TIAC	Toxi-Infection Alimentaire Collective
TMU	Tangier Med Utilities
TSP	Total Suspended Particulates
TTAH	Tangier-Tétouan-Al Hoceïma
TVOC	Total Volatile Organic Compounds
UK	United Kingdom
UKAS	United Kingdom Accreditation Service
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNGPs	United Nations Guiding Principles on Business and Human Rights
US EPA	United States Environmental Protection Agency
USD	United States Dollar
UV	Ultraviolet
VEC	Valued Environmental and Social Component
VOC	Volatile Organic Compound
VU	Vulnerable
WB	World Bank
WBG	World Bank Group
WHO	World Health Organisation
WWTF	Wastewater Treatment Facility

1. INTRODUCTION

1.1 BACKGROUND

Founded in 2000, BTR New Material Group Co., Ltd. ("BTR" or the "Headquarters") is a globally recognised provider of integrated battery material solutions with a well-established product and industry chain layout. Its main products include lithium-ion battery anode materials, cathode materials, and other advanced battery materials.

BTR has resolved to establish a lithium-ion battery anode material manufacturing project (the "Project") located in Phase I of the Industrial Acceleration Zone (IAZ) in Tangier-Assilah, Morocco. BTR Mediterranean Anode New Material Technology, a wholly owned subsidiary of BTR, was established (the "Project Company", the "Client" or "BTR Anode") to develop and operate the Project. The Project will produce lithium-ion battery anode material with a planned annual production capacity of 60,000 tonnes. The Project has completed a regulatory Environmental Impact Assessment (the "Regulatory EIA") and obtained approval from the competent authority in January 2026.

ERM (Shanghai) Limited ("ERM") has been engaged by the Client to undertake a Supplementary Environmental and Social Impact Assessment ("Supplementary ESIA") for the Project. The objective of the supplementary ESIA is to ensure that the Project's environmental and social impacts and risks have been adequately identified, assessed, and managed in accordance with Applicable Standards described in ***Section 1.3***, to support the Project's compliance with international lender requirements and facilitate the financing process.

In accordance with the AIIB Environmental and Social Framework (ESF), the Project has been classified as Category B. The Project is located within a planned industrial area and is not expected to result in significant, irreversible, cumulative or unprecedented environmental and social impacts. Anticipated impacts are generally site-specific and can be effectively mitigated through established engineering controls and management measures.

1.2 OBJECTIVES OF ASSIGNMENT

The supplementary ESIA assesses the environmental and social risks and impacts of the Project not included in the regulatory EIA, and covers, in an integrated manner, all relevant direct, indirect, and/or cumulative environmental and social impacts, throughout the Project lifecycle and achieve compliance with the Reference Framework requirements. The purpose of this supplementary ESIA is to ensure the environmental and social impacts and risks of a project, including any associated facilities, are identified, avoided, minimised, reduced or mitigated.

1.3 APPLICABLE STANDARDS

The following applicable standards will be used in this Assignment:

- Applicable local and national environmental and social laws, regulations and standards;
- AIIB Environmental and Social Framework, which includes Environmental and Social Policy (ESP), applicable Environmental and Social Standards (ESSs), and Environmental and Social Exclusion List (ESEL), 2024;
- Equator Principles (EP) version 4 (EP4, 2020);

- International Finance Corporation (IFC) Performance Standards (PSs) on Environmental and Social Sustainability (2012);
- World Bank Group (WBG) Environmental, Health, and Safety (EHS) Guidelines General Guidelines;
- Good International Industrial Practices (GIIP) of the Project's sector;
- The regulatory EIA developed for the IAZ and BTR's Project, including the conditions in the Government's approval of such documents; and
- Relevant international conventions and protocols that Morocco is a signatory to.

1.4 REPORT STRUCTURE

This supplementary ESIA report is structured as follows:

TABLE 1-1 REPORT STRUCTURE

ESIA Structure	ESIA Report Chapter Number	Description
Introduction	Chapter 1	This section provides an introduction to the supplementary ESIA assignment (this Chapter).
Institutional and Legal Framework	Chapter 2	This section provides a detailed analysis of the environmental and social legislation applicable to the Project, and of the administrative context and institutional framework in Morocco.
Project Description	Chapter 3	This section describes the project background, technical details on the location, project elements and activities, the Area of Influence (AoI) of the Project in addition to a description and analysis of alternatives to the Project, in terms of environmental and social impacts.
Gap Identification and Screening	Chapter 4	This section lists the potential gaps of the regulatory EIA against the applicable standards and determines the scope of the supplementary ESIA.
Environmental and Social Baseline	Chapter 5	This section describes the environmental and social baseline for each topic studied.
Stakeholder Engagement and Grievance Mechanism	Chapter 6	This section describes stakeholder engagement for activities and consultations conducted to date during the ESIA. It also describes Project stakeholders and the grievance mechanism developed for the Project. This section also outlines how the Project owner team will engage with stakeholders throughout the

		construction and operation phases of the Project, identifying the key stakeholders, the methods of engagement, and the timeline for engagement.
Impact Assessment	Chapter 7	This section presents the findings of the environmental and social impact assessment, the recommended mitigation and enhancement measures, and the conclusions as to the significance of impacts after implementation of mitigation measures.
Cumulative Impact Assessment	Chapter 8	This section assesses the cumulative impacts of the Project together with existing and planned future activities affecting the same resources and/or receptors.
Unplanned Event Impact Assessment	Chapter 9	This section assesses the impacts from unplanned / accidental events of the Project.
Environmental and Social Management Plan (ESMP)	Chapter 10	This section describes the framework to be used to ensure that mitigation measures are applied.

In addition, the Stakeholder Engagement Plan ("SEP"), Human Rights Impact Assessment ("HRIA") and Climate Change Risk Assessment ("CCRA") are prepared as standalone documents in alignment with the applicable standards.

1.5 ASSUMPTIONS AND LIMITATIONS

1.5.1 SCOPE OF ACTIVITY

This supplementary ESIA report has been informed by desktop studies, ERM's site visits in August 2026, as well as the data and information provided by the Project Company at the time of writing (August 2026). Any future changes to the project description upon which this report is based, or additional relevant information revealed as project design, equipment and service procurement proceed may affect the analysis, assessment and conclusions contained in the supplementary ESIA report.

This report is based upon the application of scientific principles and professional judgment to certain facts. Professional judgments expressed herein are based on the currently available facts within the limits of the existing data, scope of work, budget and schedule. To the extent that more definitive conclusions are desired by the Project Company than are warranted by the currently available facts, it is specifically ERM's intent that the conclusions stated herein are intended as guidance and not necessarily as a firm course of action, except where explicitly stated as such. ERM makes no warranties, expressed or implied, including, without limitation, warranties as to merchantability or fitness for a particular purpose. In addition, the information provided in this ESIA Report is not to be construed as legal advice.

1.5.2 LIMITATIONS OF USE

ERM is not engaged in environmental auditing and reporting for the purposes of advertising, sales promotion, or endorsement of any client's interests, including raising investment capital, recommending investment decisions, or other publicity purposes. The Project Company acknowledges that this report has been prepared for the exclusive use for the Project, and agrees that ERM reports, or correspondence, will not be used or reproduced, in full or in a part, for any other purpose than to demonstrate that the Project Company has conducted an environmental and social impact assessment for the Project, and may not be used or relied upon in any prospectus of offering circular. The Project Company also agrees that none of its advertising, sales promotion, or other publicity matter containing information obtained from this Report will mention or imply the name of ERM.

2. INSTITUTIONAL AND LEGAL FRAMEWORK

2.1 MOROCCO LAWS AND REGULATIONS

Morocco has established a substantial and evolving legal framework for environmental and social management, particularly in relation to the assessment and mitigation of environmental impacts. This framework encompasses preventive instruments such as Environmental and Social Impact Assessments (ESIA), incentive mechanisms including financial and tax benefits, and coercive measures targeting individuals or entities responsible for environmental degradation. The legal instruments include both general environmental laws and sector-specific regulations, as well as constitutional provisions that reinforce public participation and social equity.

2.1.1 INSTITUTIONAL FRAMEWORK

2.1.1.1 UNIFIED REGIONAL INVESTMENT COMMISSION (CRUI)

In order to ensure integrated and harmonized processing of investment projects, a decision-making and coordinating body is set up in each of the Kingdom's regions, to oversee the actions of the competent investment authorities. This body is known as the "Unified Regional Investment Commission". Under Article 29 of Law 47-18, modified and completed by Law 22-24 the Regional Commission is responsible, within its territorial jurisdiction, for:

- Carrying out a preliminary assessment of investment projects submitted to it in terms of their economic, social, environmental and town-planning potential, as well as their job creation potential, and, where applicable, ensuring their eligibility for the incentives and advantages granted by the State, as provided for by the legislation and regulations in force.
- Ruling or giving its opinion or assent, as the case may be, under the conditions and in accordance with the procedures laid down by the legislation and regulations in force, on all administrative acts required for the implementation of investment projects.
- Examining and providing opinions on investment projects submitted to it in order to benefit from the advantages granted under the incentive system in force and/or the funds set aside for this purpose, as well as on the related contracts and agreements.

For the Project, CRUI was involved in the review and coordination of the investment approval process and facilitates consultation among the relevant government authorities.

2.1.1.2 MINISTRY OF ENERGY TRANSITION AND SUSTAINABLE DEVELOPMENT: SUSTAINABLE DEVELOPMENT

The Sustainable Development Department is responsible for developing and implementing government policy on environmental management and sustainable development. It is also responsible for coordinating environmental protection actions on a national scale. It enforces environmental protection laws and chairs the National Committee for Environmental Impact Studies (CNEIE). Environmental management and protection involve other institutions and ministerial departments, notably the Water Department, the National Water and Forest Agency and the National Council for Environment.

For the Project, the Ministry, through its competent environmental authorities, oversees the environmental impact assessment process and environmental regulatory compliance.

2.1.1.3 NATIONAL COUNCIL FOR ENVIRONMENT (CNE)

The National Council for Environment is one of the most important instruments for environmental management. It is a consultative structure that plays a leading role in environmental coordination. Chaired by the government authority in charge of the environment, the CNE facilitates to a large extent the coordination and consultation of all stakeholders in the environmental field.

The main missions of the National Council for Environment are 1) to work for the protection of the environment by preserving the ecological balance of the natural environment, improving the living conditions, and 2) to integrate environmental concerns into the economic and social development process with a view to achieving the objectives of sustainable development.

In addition to the Regional Environmental Councils, the decree of 20 January 1995 calls for the creation of Councils of Wilayas and Provinces as local consultation bodies, thus giving decentralization and local action. The main task of these councils is to draw up a report on the state of the environment at regional and wilaya level and to contribute to the protection and improvement of the environment, with a view to informing the CNE on this subject and to implement its directives and recommendations.

For the Project, the Council provides a platform for environmental consultation and coordination among relevant stakeholders.

2.1.1.4 MINISTRY OF EQUIPMENT AND WATER

The Ministry of Equipment and Water is responsible for vital sectors that play an essential role in the country's economic and social development, and participates directly or indirectly in regional planning, reducing regional disparities and creating an investment-friendly environment. Its mission is to develop, implement and coordinate government policy relating to road, port, hydraulic and meteorological infrastructures. The General Directorate of Hydraulics, through the River Basin Agencies (ABHs), is the key entity responsible for monitoring water quality and quantity.

For the Project, the Ministry is potentially relevant to water resource management, drainage infrastructure, and any approvals associated with water-related infrastructure. The Project falls within the jurisdiction of the Loukkos Hydraulic Basin Agency (ABH), which manages and protects water resources and issues authorisations and concessions relating to the public hydraulic domain.

2.1.1.5 MINISTRY OF AGRICULTURE, MARITIME FISHING, RURAL DEVELOPMENT AND WATER AND FOREST

The Ministry of Agriculture and Maritime Fishing, Rural Development and Water and Forests is actively involved in the environment and water sector, mainly through its office of Department of Irrigation and Agricultural Land Management, and the Regional Agricultural Development Offices.

Through these directorates, the Ministry is responsible for promulgating the communal charter for the supply of raw and drinking water in rural areas, and continues to provide technical assistance to rural areas, maintenance of equipment, and the planning and implementation of these projects as part of hydro-agricultural and integrated agricultural and livestock development projects.

For the Project, the Ministry may be consulted with respect to agricultural land, irrigation water, and natural resource management matters where applicable.

2.1.1.6 NATIONAL WATER AND FOREST AGENCY (ANEF)

Established in 2021, the National Water and Forest Agency is responsible for:

- Ensuring the administration of property subject to the forest regime as well as policing and monitoring the application of the related legislative and regulatory texts.
- Conserving, managing, developing and promoting forest resources in land subject to the forest regime.
- Working to promote and implement forest extension and development actions on forest lands other than those in the State forest domain.
- Coordinating the development and implementation of watershed management plans and parks and nature reserves and ensuring their monitoring and evaluation in consultation with the various ministerial departments or other relevant organisations.
- Coordinate, in consultation with the various ministerial departments and organisations concerned, the implementation, at the national level, of the provisions of international conventions relating to the fight against desertification, forests, wildlife and its natural habitat, etc.

For the Project, ANEF may provide monitoring and consultation regarding biodiversity, protected areas, and forest-related matters, where relevant.

2.1.1.7 LOCAL AUTHORITIES

Under Organic Law 113-14, the commune is a local authority with legal status and financial autonomy. Communes are grouped into prefectures or provinces. The deliberative body of the commune is the communal council, whose functions include:

- Issue building permits;
- Define the commune's economic and social development plan;
- Set the conditions for conserving, exploiting and developing the forest estate, within the limits of the powers devolved by law in matters of finance, taxation and communal property;
- Ensure compliance with the options and requirements of urban development master plans, land use and development plans, and all land use planning documents;
- Play a very important role in local public services and community facilities when it decides on the creation and management of communal public services, particularly in the sectors of drinking water supply and distribution, electrical power distribution and liquid wastewater treatment.

For the Project, the local authorities are responsible for issuing relevant municipal permits and approvals, confirming compliance with applicable land use and urban planning requirements, and coordinating municipal services and local infrastructure relevant to Project development and operation, including drinking-water supply and distribution, electricity distribution, and wastewater services.

2.1.2 MOROCCO REGULATORY FRAMEWORK

The following sections present key Moroccan legislation and policies related to environmental and social management.

2.1.2.1 CONSTITUTIONAL PROVISIONS

The **2011 Moroccan Constitution** plays a pivotal role in shaping the environmental and social governance landscape. Key provisions include:

- **Article 13 and Article 139**, which emphasise public consultation and participation in program development and monitoring.
- **Article 15**, which guarantees the right to petition.
- **Article 27**, which affirms the right of citizens to access information held by public institutions.
- **Article 19**, which enshrines gender equality.
- **Article 34**, which promotes the inclusion of people with special needs.
- **Article 5**, which recognises Amazigh as an official language alongside Arabic.

2.1.2.2 SUSTAINABLE DEVELOPMENT STRATEGY

In 2017, a National Strategy for Environmental Protection and Sustainable Development was finalized, defining the guidelines and broad outlines of the national environmental policy. This strategy aims to ensure coherence between Morocco's environmental framework and its international commitments, and sets the following objectives:

- To establish a comprehensive legislative and regulatory framework for environmental protection and enhancement, balancing ecological preservation with sustainable socio-economic development. To ensure legal consistency and harmonization among existing environmental laws and sectoral regulations.
- To align national legislation with Morocco's regional and international obligations, including climate commitments.

Morocco has demonstrated strong political will in addressing climate change. Following the constitutional recognition of sustainable development in 2011, the country adopted the Framework Law No. 99-12 on the National Charter for Environment and Sustainable Development in 2014, and ratified the Paris Climate Agreement in 2015. Morocco's Nationally Determined Contribution (NDC) outlines its strategy to reduce greenhouse gas (GHG) emissions across key sectors. The government has also launched a National Plan to Combat Global Warming (PNRC) and initiated Regional Climate Plans (PCR) to localize climate action and Environmental Protection and Impact Assessment.

The cornerstone of Morocco's environmental assessment system is Law No. 12-03 of 12 May 2003, which defines the categories of projects subject to environmental impact assessment, outlines the procedural requirements for conducting assessments, and establishes the framework for public investigation and approval. The implementing decrees promulgated by Law 12-03 are as follows:

- Decree 2-04-563 of 4 November 2008 on the powers and operation of the national and regional impact assessment committees.

- Decree 2-04-564 of 4 November 2008 setting out the procedures for organising and conducting the Public Enquiry into projects subject to EIA.

This Law has been amended and supplemented by Law No. 49-17, published in Official Gazette No. 6908 of 13 August 2020, which strengthens the regulatory framework and introduces updated provisions. Implementing decrees for Law No. 49-17 are currently under development.

Complementing this is Law No. 11-03, which governs environmental protection and development, providing the overarching legal basis for environmental management in Morocco. The Framework Law No. 99-12 establishes the National Charter for Environment and Sustainable Development, setting out strategic principles for sustainability and environmental stewardship. Sectoral Legislation

Environmental management in Morocco is further supported by a range of sector-specific laws:

- **Law on classified establishments:** This law was promulgated by the Dahir of 25 August 1914 (Official Bulletin No. 97 of 7 September 1914), amended by the Vizier Decree of 13 March 1923 (Official Bulletin No. 544 of 27 March 1923); it classifies facilities as unhealthy, inconvenient or dangerous, with the aim of preventing risks to employees and people living near facilities, and conserving sites and historic monuments. High-risk operations (Class 1) require authorization from the Department of Public Works, and moderate risk operations require authorization from local authorities, while lower risk facilities only require a declaration before operation.
    - classification of these establishments into three classes, distinguished according to the operating mechanisms of each type of establishment and the nuisances they generate in terms of safety, health and public convenience. As the project encompasses an industrial unit, it is considered to be in the Class 1 Category, thus requiring an environmental impact study (EIS).
    - The project must also request authorization for the creation of facilities that present causes of danger, insalubrity or inconvenience.
- **Law No. 47-18,** as modified and completed by **Law 22-24**, was promulgated by Dahir No. 1-19-18 of 13 February 2019, reforming Regional Investment Centres and creating Unified Regional Investment Commissions (CRUI).
- **Law No. 36-15**, amending and supplementing **Law No. 10-95**, governs water resources and their sustainable use.
- **Law No. 28-00** on solid waste management and disposal, as amended by **Law No. 23-12**, provides the legal framework for waste handling and environmental hygiene.
- **Decree No. 2-07-253 of 18 July 2008**, classifies waste and establishes the list of hazardous waste.
- **Decree No. 2-14-85 of 20 January 2015**, relates to the management of hazardous waste.
- **Decree No. 2-09-85 of 6 September 2011**, relates to the collection, transportation
- and treatment of certain used oils.
- **Order No. 3184-15 of 23 September 2015**, implementing Articles 5, 6, 7, and 11 of Decree No. 2-14-85 of 20 January 2015, relates to the management of hazardous waste.

- **Law No. 13-03** addresses air pollution control and sets standards for air quality. This Law was promulgated by Decree 1-03-61 of 12 May 2003. Its aim is to prevent and reduce emissions of pollutants into the air. Industrial projects must take all reasonable measures and use the best available techniques to prevent or minimise emissions of atmospheric pollutants. Air pollutant emission thresholds and air quality standards are set out in Decrees 2-09-631 of 6 July 2010 and 2-09-286 of 8 December 2009.
- **Law No. 13-09**, promulgated on 11 February 2010, establishes a legal framework for the development and operation of renewable energy facilities by public and private entities.

2.1.2.3 LAND USE, PLANNING, AND INFRASTRUCTURE

Land acquisition and urban development are regulated by:

- **Law No. 12-90** on town planning and its implementing decree.
- **Law No. 7-81**, promulgated by Dahir No. 1-81-254 (15 June 1983), governs expropriation for public purposes and temporary occupancy, including compensation procedures for land and crop damage.
- **Dahir No. 1-60-063 of 25 June 1960**, relates to the development of rural settlements.
- **Dahir of 1 July 1914 on the Public Domain**, regulates public property.
- **Dahir No. 1-92-7 of 17 June 1992**, establishes the legal framework in Morocco for the subdivision of land, housing groups, and land fragmentation, requiring prior administrative authorization and setting conditions for urban planning, infrastructure, and developer responsibilities.
- **Decree No. 2-18-577 of 12 June 2019**, approves Morocco's General Regulations for Construction, standardising the form and conditions for issuing permits and documents required for urban planning, subdivisions, housing groups, and land fragmentation, while streamlining administrative procedures and promoting transparency and coordination among stakeholders.
- **Joint Order No. 337-20 of 21 January 2020**, specifies the required documents for authorization applications under Morocco's urban planning laws, detailing the components of application files for land subdivision, housing groups, and fragmentation projects.
- **Law No. 19-94, promulgated by Dahir No. 1-95-1**, establishes Morocco's legal framework for Export Free Zones—now known as Industrial Acceleration Zones (IAZs)—defining their creation, management, and the fiscal and customs advantages granted to export-oriented industrial and service activities within these zones, with implementing texts detailing procedures for zone designation, investor installation, and administrative oversight.

Morocco's 2011 Constitution considers urbanism, land management and the regimes of public, private and collective real property to be domains of the law, with provisions for some areas laid out in the Constitution. Article 31 states that the State and its public institutions work to achieve equal access for men and women to decent housing, among other rights. Article 35 guarantees the right to property, the freedom to enter into contracts and free competition, and

also affirms the right of the State to expropriate land for economic and social development as provided by law[1,2].

Morocco is a legally pluralistic country, with statutory and customary laws. The formal system is based on French civil law, while customary law is based on Islamic Sharia law and, for some communities, the traditional though informal Amazigh justice system[3,4].

The management of forests is governed by more than 30 laws and decrees, with the decrees of 1917 and 1976 being the primary legal instruments for forest governance. The Forest Protection and Exploitation decree of 1917 provides for State ownership of forests, allowing some user rights such as grazing for local communities. The decree of 1976 increased local government control over forestland and rights to forest products and provides for local community participation in forest management. However, customary law governs much of the country's forested lands[5].

Moroccan land tenure systems property law blends civil law principles with customary practices, creating diverse land tenure systems in Morocco. It can be summarised as following seven types of tenures[6]:

- **Collective tribal land ownership**: Individuals within the tribes have usufruct rights and the State acts as trustee to such land. Around 42 per cent of land in Morocco falls into this category. Collectively held land cannot be transferred outside of the tribe, and the vast majority of the land is individualized and heritable in accordance with customary law.
- **State's owned land**: The state owns about 30 per cent of land including three different varieties. The first type is **Public lands** including parks, rangeland, forests and other public lands. The second type is **State's private domain** comprising properties not for public use, including 400,000 hectares of agricultural land acquired through expropriation. Besides, there is type of **Guich land**, which is in the State's private domain that has been given by the monarchy to members of the military, who, as occupants, hold usage rights.
- **Privately owned/Freehold land (*Melk*)**: Approximately 28 per cent of land in Morocco is *Melk*, or privately owned, freehold land, meaning the landowner has the right to exclusive possession, use and transfer of the land. The rate is significantly higher for agricultural land, 76 per cent of which is *Melk*. *Melk* is rarely sold to third parties outside the family, and the market for agricultural land is very limited.
    - Land Reform Programme: The Government of Morocco has allocated a limited amount of state land – around 320,000 ha – to roughly 22,000 landless and smallholder farmers through its land reform programme since 1969. These farmers

received government-subsidized loans to purchase the land, though they did not receive freehold title and cannot transfer or lease the land to third parties.

[1] United Nations Human Settlements Programme (UN-Habitat). (July 2024). Morocco land sector: A snapshot [PDF file]. Global Land Tool Network (GLTN). https://arablandinitiative.gltn.net/sites/default/files/2024-07/docs/morocco-land-sector-snapshot.pdf
[2] Kingdom of Morocco. (2011). Morocco 2011 [Constitution] (J. J. Ruchti, Trans.). Constitute Project. https://www.constituteproject.org/constitution/Morocco_2011
[3] USAID. (2011). Property rights and resource governance: Morocco [Report]. USAID.
[4] Baker McKenzie. (n.d.). Morocco: Planning and environmental issues. Global Corporate Real Estate Guide.
[5] Ibid.
[6] United Nations Human Settlements Programme (UN-Habitat). (July 2024). Morocco land sector: A snapshot [PDF file]. Global Land Tool Network (GLTN).

2.1.2.4 BIODIVERSITY AND NATURAL RESOURCE PROTECTION

Morocco's biodiversity protection framework includes:

- **Dahir No.1-69-170 (25 July 1969) on soil protection and restoration** contains provisions on the various measures to be taken to protect and restore soil. It initiates the creation of zones known as "perimeters for the defence and restoration of soils of national interest", within which the State can impose measures and works necessary to reduce erosion.
- **Law No. 22-07** on protected areas and the classification of protected area categories.
- **Law 29-05** on the protection of species of wild flora and fauna and control of their trade.
- **Dahir No. 1-58-382** of 17 April 1959 amending the Dahir of 10 October 1917 on forest conservation and exploitation.
- **Decree 2-11-01** of 20 May 2011 was adopted in application of the Hunting Police Act of 21 July 1923. This defines the conditions under which hunting is authorized on Moroccan territory, as well as the related obligations and prohibitions
- Annual orders from the Ministry of Water Resources and Forestry that protect various bird species, including all diurnal and nocturnal birds of prey, bustards, shelducks, pratincoles, grebes, curlews, cormorants, red-nosed and white-eyed pochards, and wading birds such as egrets, avocets, storks, herons, flamingoes, cranes, ibis, and spoonbills. These species are permanently protected under **Order No. 582-62 of 3 November 1962.**

2.1.2.5 GOVERNANCE AND ENFORCEMENT MECHANISMS

Environmental governance is reinforced through:

- **Decree No. 2-04-564 of 4 November 2008**, which defines the conditions for organising and conducting public surveys for projects subject to environmental impact assessments. However, due to the absence of a decree specifying the cost of public surveys, these are not yet systematically conducted.
- **Decree No. 2-14-782 of 19 May 2015**, which establishes the organisation and functioning of the environmental police, enhancing enforcement capacity.

2.1.2.6 SOCIAL, SAFETY AND LABOUR LEGISLATION

Social management is governed by:

- **Law No. 65-99**, promulgated by Dahir No. 1-03-194, which establishes the Labour Code and regulates employment standards.
- **Organic Law No. 113-14**, which governs municipalities and local governance structures relevant to project implementation.
- **Law No.18-12** on industrial accident compensation, promulgated by Dahir No.1-14-190 of 24 December 2014 and published in the Official Gazette *(Bulletin Officiel)* No.6328 of 22 January 2015. This law introduced the mandatory conciliation procedure between the insurance company and the victim, the revision of certain compensation payments and the adaptation of civil procedure. It also defines the declaration procedure, rights and obligations of the parties involved.
- **Order of 2 April 1952** determining the specific protection and health measures applicable on construction and public works sites

- **Dahir of 12 January 1955**, regulating gas pressure equipment, as amended by Dahir No. 1-62-302 of 18 January 1963.
- **Law No. 19-05**, amending **Law No. 22-80** on the conservation of inscriptions, works of art and antiquities, monuments and historic sites, which protects Morocco's archaeological heritage.

2.2 INTERNATIONAL STANDARDS

2.2.1 AIIB ENVIRONMENTAL AND SOCIAL FRAMEWORK("ESF")

In June 2024, the Asian Infrastructure Investment Bank (AIIB) approved its Environmental and Social Framework (ESF) as the latest amendment, which establishes the environmental and social requirements applicable to AIIB-financed projects. The ESF provides a principles-based framework for identifying, assessing, and managing environmental and social risks and impacts, with the aim of supporting environmentally and socially sustainable development outcomes. The ESF is implemented through three Environmental and Social Standards (ESSs) covering Environmental and Social Assessment and Management (ESS1), Involuntary Resettlement (ESS2), and Indigenous Peoples (ESS3). The ESF went into effect on 26 June 2024 and includes:

TABLE 2-1 SUMMARY OF AIIB ESF REQUIREMENTS

ESF Requirements	Project Applicability
Screening and Categorisation Screening and categorisation of the project should be conducted to determine the nature and level of the required E&S assessment, type of information disclosure and stakeholder engagement for any project/subproject financed. The Bank determines the Project's category on the basis of the Project's component presenting the highest environmental or social risk and potential impacts (including direct, indirect, cumulative and induced impacts, as relevant, in the Project area). The Bank assigns each proposed Project to one of the four categories (i.e., Category A, B, C, FI) and determines the type of assessment and instrument required. **ESS1 - E&S Assessment** Conduct an E&S assessment to identify direct, indirect, cumulative and induced Project-related risks to and impacts on physical, biological, socioeconomic and cultural resources in the Project's area of influence. **ESS1 - ESMP/ESMPF** Once the Project's risks and impacts are identified and the mitigation hierarchy has been applied, establish the measures to mitigate, monitor and manage the impacts and reflect them in an ESMP.	• Identify and evaluate environmental and social risks and impacts of the Project. • Adopt a mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimise, and, where residual impacts remain, compensate/offset for risks and impacts to workers, Affected Communities, and the environment. • Promote improved environmental and social performance of clients through the effective use of management systems.

ESS1 - Stakeholder Engagement, including Grievance Redress Mechanism Engage with Project-affected people and other relevant stakeholders, through: (i) timely disclosure of the Project's E&S information; (ii) meaningful consultation; and (iii) Project-level Grievance Redress Mechanism (GRM), which can be readily accessed by Project-affected people.	• Ensure that grievances from Affected Communities and external communications from other stakeholders are responded to and managed appropriately. • Promote and provide means for adequate engagement with Affected Communities throughout the project cycle on issues that could potentially affect them and to ensure that relevant environmental and social information is disclosed and disseminated.
ESS1 - Contractor Management Include the relevant E&S requirements in the tendering documents and contracts for goods and services required for the Project. Require contractors to implement the agreed measures appropriately and monitor the E&S performance of contractors and the Project against the agreed measures.	• Protect workers, including vulnerable categories of workers such as children, migrant workers, workers engaged by third parties, and workers in the client's supply chain.
ESS1 - Biodiversity The conserving biodiversity is the basis of sustainable development, including protecting and conserving biodiversity, sustainably managing terrestrial and aquatic natural resources and maintaining core ecological functions and services. AIIB stresses the objective of biodiversity conservation should be balanced with a commitment to sustainable use of the multiple economic, social and cultural values of biodiversity and natural resources in an optimised manner.	• Protect and conserve biodiversity. • Maintain the benefits from ecosystem services. • Promote the sustainable management of living natural resources through the adoption of practices that integrate conservation needs and development priorities.
ESS1 - Pollution Prevention and Resource Efficiency Implement pollution prevention and control measures in the Project that align with international best practices, including the WBG EHS Guidelines. Minimise and manage waste through reduction, recycling, and safe handling of hazardous materials, while avoiding banned substances.	• Avoid or minimise adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities. • Promote more sustainable use of resources, including energy and water.
ESS1 - Climate Change For climate change risks management, the project should assess the climate change risks, and take mitigation measures accordingly to improve its climate resilience.	• Conduct climate change risk assessment to identify the physical risks associated with the Project site and propose mitigation measures accordingly.
ESS1 - Vulnerable Groups and Discrimination, Gender and Gender-based Violence	• Promote the fair treatment, non-discrimination, and equal opportunity of workers.

Identify, assess, and mitigate social and gender-specific risks impacting vulnerable groups, ensuring their equitable access to development resources and project benefits, while managing risks of Sexual Exploitation and Abuse (SEA), Sexual Harassment (SH), and gender-based violence (GBV) for Project-affected persons and workers.	• Establish, maintain, and improve the worker-management relationship. • Consider vulnerable groups within affected communities during stakeholder engagement and impact assessment activities and promote equitable access to project information and grievance mechanisms.
ESS1 - Cultural Resources When avoidance of impacts on cultural resources is not feasible, prepare a cultural resources management plan to mitigate and monitor these impacts. Provide for the use of "chance find" procedures, which include a pre-approved management and conservation approach for cultural resources that may be discovered during site preparation or implementation of the Projects.	• Protect cultural heritage from the adverse impacts of project activities and support its preservation. • Promote the equitable sharing of benefits from the use of cultural heritage.
ESS1 - Health and Safety of Workers and Communities Assess health and safety risks to Project workers[7] and Project-affected communities. Put in place measures to prevent accidents, injuries and disease associated with the Project. Apply the relevant health and safety provisions of internationally recognised standards, such as the World Bank Group EHSGs and, as appropriate, industry specific EHSGs, to the Project. Document and report on accidents, diseases and incidents. Put in place and provide relevant information and training to Project workers and affected communities on, preventive and emergency preparedness and response measures to avoid, or where avoidance is not feasible, to minimise adverse risks and impacts of the Project on their health and safety.	• Anticipate and avoid adverse impacts on the health and safety of the Affected Community during the project life from both routine and non-routine circumstances. • Ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimises risks to the Affected Communities.
ESS1 - Occupational Health and Safety Implement measures to ensure safe and healthy working conditions for Project workers, including free personal protective equipment, adequate accommodation facilities with gender considerations, processes for reporting unsafe conditions and self-removal from dangerous situations, and a system for regular occupational health and safety performance reviews.	• Promote safe and healthy working conditions, and the health of workers.

[7] According to AIIB ESF, Projects workers refers to (a) persons engaged directly by the Client (whether fulltime, part-time, temporary, seasonal or migrant), to work specifically on the Project; and (b) personnel of contractors engaged by the Client to work on the Project and of subcontractors hired by these contractors to work on the Project.

ESS1 - Traffic and Road Safety Identify, assess, and monitor traffic and road safety risks for workers and communities throughout the project lifecycle, integrating feasible road safety measures into the Project design and providing training on driver and vehicle safety, with regular vehicle maintenance for all project vehicles.	• Prepare a Traffic Management Plan that adequately addresses the Project's traffic-related risks and impacts. • Provide training to drivers in line with international good practices.
ESS1 - Security Personnel When Project workers are assigned to provide security to safeguard the Client's personnel and property (Project security workers), comply with applicable laws relating to hiring, rules of conduct, use of force, training, equipping, and monitoring of Project security workers.	• Prepare Code of Conduct for Security Personnel. • Conduct training to security personnel in line with international good practices.
ESS1 - Labor and Working Conditions Provide a sound labour management relations system for Project workers consistent with relevant national laws, and include terms of employment, timely payment, adequate period of rest, written notice of termination, equal opportunity and non-discrimination, worker's organisation and collective bargaining, and GRM. Prohibit child labour and forced labour for work under the Project.	• Promote compliance with national employment and labour laws. • Explicitly prohibit the use of forced labour and child labour.
ESS2 - Land Acquisition and Involuntary Resettlement Detailed requirements listed in AIIB ESS2, which include but not limited to minimise involuntary resettlement by exploring Project alternatives, where avoidance of Involuntary Resettlement is not feasible, restore, the livelihoods of all displaced persons in real terms relative to pre-Project levels and to provide resettlement assistance, to address gender-related risks and impacts, to improve the socioeconomic status of vulnerable groups, and to implement sustainable development programs and to share Project benefits with the displaced People.	• Avoid, and when avoidance is not possible, minimise displacement by exploring alternative project designs. • Avoid forced eviction. • Anticipate and avoid, or where avoidance is not possible, minimise adverse social and economic impacts from land acquisition or restrictions on land use by (i) providing compensation for loss of assets at replacement cost; and (ii) ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected. • Improve, or restore, the livelihoods and standards of living of displaced persons.
ESS3 - Indigenous Peoples Detailed requirements listed in AIIB ESS3, which include but not limited to assess the Project-induced impacts on indigenous peoples, minimise and mitigate adverse impact, share culturally appropriate social and economic benefits, and	• No Indigenous Peoples meeting the AIIB ESS3 definition have been identified within the Project area of influence based on desktop review and stakeholder engagement undertaken during the ESIA process.

foster active participation of the indigenous peoples in the projects.	

2.2.2 IFC PERFORMANCE STANDARDS

The IFC is a member institution of the World Bank Group, which promotes development directed at the private sector with a greater focus on developing countries, with a focus on combating inequality between countries and extreme poverty. The IFC defines eight Performance Standards that establish standards to be met during the period of an investment granted by IFC. The Performance Standards defined by the IFC are in accordance with the Operational Policies for Environmental and Social Safeguards defined by the World Bank (described above).

The Performance Standards defined by the IFC are:

- Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts
- Performance Standard 2: Labour and Working Conditions
- Performance Standard 3: Resource Efficiency and Pollution Prevention
- Performance Standard 4: Community Health, Safety, and Security
- Performance Standard 5: Land Acquisition and Involuntary Resettlement
- Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- Performance Standard 7: Indigenous Peoples
- Performance Standard 8: Cultural Heritage

Together, these eight Performance Standards establish standards that are expected to be met throughout the life of an investment by IFC. The Performance Standards are directed towards providing guidance on how to identify risks and impacts, and are designed to help avoid, mitigate and manage risks and impacts as a way of doing business in a sustainable way, including stakeholder engagement and disclosure obligations of the client in relation to project-level activities. In the case of direct investments for the IFC (including project and corporate finance provided through financial intermediaries), IFC requires that its clients apply the Performance Standards to manage environmental and social risks and impacts so that development opportunities are enhanced (IFC, 2012). The IFC Performance Standards, and each of their requirements to the proposed Project and this scoping report, are outlined in ***Table*** 2-2 below.

TABLE 2-2 SUMMARY OF IFC PERFORMANCE STANDARDS REQUIREMENTS

Performance Standard	Project Requirements
Assessment and Management of Environmental and Social Risks and Impacts **Performance Standard 1** underscores the importance of managing environmental and social performance throughout the life of a	• Identify and evaluate environmental and social risks and impacts of the Project. • Adopt a mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimise, and, where residual impacts remain, compensate/offset for risks and impacts to workers, Affected Communities, and the environment.

project (any business activity that is subject to assessment and management).	• Promote improved environmental and social performance of clients through the effective use of management systems. • Ensure that grievances from Affected Communities and external communications from other stakeholders are responded to and managed appropriately. • Promote and provide means for adequate engagement with Affected Communities throughout the project cycle on issues that could potentially affect them and to ensure that relevant environmental and social information is disclosed and disseminated.
Labour and Working Conditions **Performance Standard 2** recognises that the pursuit of economic growth through employment creation and income generation should be accompanied by the protection of the fundamental rights of workers. For any business, the workforce is a valuable asset, and a sound worker-management relationship is a key ingredient in the sustainability of a company. The requirements set out in this Performance Standard have been in part guided by a number of international conventions and instruments, including those of the International Labour Organisation (ILO) and the United Nations (UN).	• Promote the fair treatment, non-discrimination, and equal opportunity of workers. • Establish, maintain, and improve the worker-management relationship. • Promote compliance with national employment and labour laws. • Protect workers, including vulnerable categories of workers such as children, migrant workers, workers engaged by third parties, and workers in the client's supply chain. • Promote safe and healthy working conditions, and the health of workers. • Avoid the use of forced labour.
Resource Efficiency and Pollution Prevention **Performance Standard 3** recognises that increased economic activity and urbanization often generate increased levels of pollution to air, water, and land and consume finite resources in a manner that may threaten people and the environment at the local, regional, and global levels. This Performance Standard outlines a project-level approach to resource efficiency and pollution prevention and control in line with internationally disseminated technologies and practices.	• Avoid or minimise adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities. • Promote more sustainable use of resources, including energy and water. • Promote the reduction of project related Green House Gases ("GHGs") emissions.
Community Health, Safety and Security **Performance Standard 4** recognises that project activities, equipment, and infrastructure can increase community exposure to risks and impacts. In addition, communities that are already subjected to impacts from climate change may also experience an acceleration and/or intensification of impacts due to project activities. While acknowledging the public authorities' role in promoting the health, safety, and security of the public, this Performance Standard addresses the client's responsibility to avoid or minimise the risks and impacts to community health, safety, and security that may arise from	• Anticipate and avoid adverse impacts on the health and safety of the Affected Community during the project life from both routine and non-routine circumstances. • Ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimises risks to the Affected Communities. • Note: This Performance Standard addresses potential risks and impacts to the Affected Communities from project activities. Occupational health and safety requirements for workers are included in Performance Standard 2. Environmental standards to avoid or minimise impacts on human health and the environment due to pollution are included in Performance Standard 3.

project related activities, with particular attention to vulnerable groups.	
Land Acquisition and Involuntary Resettlement **Performance Standard 5** recognises that project-related land acquisition and restrictions on land use can have adverse impacts on communities and persons that use this land. This Performance Standard applies to physical and/or economic displacement resulting from land-related transactions. It does not apply to resettlement resulting from voluntary land transactions (i.e., market transactions in which the seller is not obliged to sell, and the buyer cannot resort to expropriation or other compulsory procedures sanctioned by the legal system of the host country if negotiations fail). It also does not apply to impacts on livelihoods where the project is not changing the land use of the affected groups or communities.	• Avoid, and when avoidance is not possible, minimise displacement by exploring alternative project designs. • Avoid forced eviction. • Anticipate and avoid, or where avoidance is not possible, minimise adverse social and economic impacts from land acquisition or restrictions on land use by (i) providing compensation for loss of assets at replacement cost; and (ii) ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected. • Improve, or restore, the livelihoods and standards of living of displaced persons. • Improve living conditions among physically displaced persons through the provision of adequate housing with security of tenure at resettlement sites.
Biodiversity Conservation and Sustainable Management of Living Natural Resources **Performance Standard 6** recognises that protecting and conserving biodiversity, maintaining ecosystems services, and sustainably managing living and natural resources are fundamental to sustainable development. The requirements set out in this Performance Standard have been guided by the Convention on Biological Diversity.	• Protect and conserve biodiversity. • Maintain the benefits from ecosystem services. • Promote the sustainable management of living natural resources through the adoption of practices that integrate conservation needs and development priorities.
Indigenous Peoples **Performance Standard 7** recognises that Indigenous Peoples, as social groups with identities that are distinct from mainstream groups in national societies, are often among the most marginalized and vulnerable segments of the population. In many cases, their economic, social, and legal status limits their capacity to defend their rights to, and interests in, lands and natural and cultural resources, and may restrict their ability to participate in and benefit from development.	• Ensure that the development process fosters full respect for the human rights, dignity, aspirations, culture, and natural resource-based livelihoods of Indigenous Peoples. • Anticipate and avoid adverse impacts of projects on communities of Indigenous Peoples, or when avoidance is not possible, to minimise and/or compensate for such impacts. • Promote sustainable development benefits and opportunities for Indigenous Peoples in a culturally appropriate manner. • Establish and maintain an ongoing relationship based on Informed Consultation and Participation (ICP) with the Indigenous Peoples affected by a project throughout the project's life cycle. • Ensure the Free, Prior, and Informed Consent (FPIC) of the Affected Communities of Indigenous Peoples when the circumstances described in this Performance Standard are present. • Respect and preserve the culture, knowledge, and practices of Indigenous Peoples.
Cultural Heritage **Performance Standard 8** recognises the importance of cultural heritage for current and future generations. Consistent with the	• Protect cultural heritage from the adverse impacts of project activities and support its preservation. • Promote the equitable sharing of benefits from the use of cultural heritage.

Convention Concerning the Protection of the World Cultural and Natural Heritage, this Performance Standard aims to ensure that clients protect cultural heritage in the course of their project activities. The requirements of this Performance Standard apply to cultural heritage regardless of whether or not it has been legally protected or previously disturbed	

2.2.3 EQUATOR PRINCIPLES (2020)

The Equator Principles is a risk management framework adopted by financial institutions to assess and manage environmental and social risks in projects, primarily for large-scale infrastructure and industrial developments. Updated in July 2020, the Equator Principles ("EP4") aim to ensure that projects are developed in a socially responsible and environmentally sustainable manner. The EP4 is aligned with international standards such as the IFC PS and the United Nations Guiding Principles on Business and Human Rights ("UNGPs").

The 2020 update of the Equator Principles places a stronger emphasis on human rights, in alignment with the UNGPs. Projects with significant risks to human rights are now required to conduct Human Rights Impact Assessments ("HRIA"). This includes identifying and addressing potential adverse impacts on vulnerable groups, such as local communities and workers. The HRIA process involves:

- Identifying Risks: Assessing project activities that may infringe on human rights, such as forced displacement, labour violations, or harm to cultural heritage.
- Stakeholder Engagement: Actively consulting affected communities and stakeholders to understand their concerns and ensure their participation in decision-making.
- Mitigation Measures: Developing strategies to avoid, minimise, or compensate for adverse human rights impacts.
- Grievance Mechanisms: Establishing accessible and transparent mechanisms to address human rights complaints from affected parties.

The Project will adhere to the steps outlined above to ensure that human rights associated with the project development are well protected.

2.2.4 WORLD BANK EHS GUIDELINES

The WB Environmental Health and Safety ("EHS") Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice ("GIIP") and are referred to in the World Bank's Environmental and Social Framework and in the IFC's Performance Standards. The EHS Guidelines contain the performance levels and measures that are normally acceptable to the World Bank Group and that are generally considered to be achievable in new facilities at reasonable costs using existing technology.

The World Bank Group requires borrowers and clients to apply the relevant levels or measures of the EHS Guidelines. When host country regulations differ from the levels and measures presented in the EHS Guidelines, projects will be required to achieve whichever is more stringent.

The General EHS Guidelines contain information on cross-cutting environmental, health, and safety issues potentially applicable to all industry sectors. They should be used together with the relevant Industry Sector Guideline(s). The General EHS Guidelines contain the following information: environmental, occupational health and safety, community health and safety, construction, and decommissioning.

The WBG has also developed industry specific EHS Guidelines. Guidelines that are relevant for the Project are presented in the following sub-sections.

2.2.4.1 EHS GUIDELINES FOR GENERAL MANUFACTURING

The **EHS Guidelines for General Manufacturing** provide a framework of good international industry practices (GIIP) for managing environmental, health, and safety risks in manufacturing operations. These guidelines are intended to be used alongside industry-specific EHS guidelines and cover a wide range of topics including air emissions, energy and water use, waste management, noise, and occupational health and safety. The guidelines are adaptable to site-specific conditions and require projects to meet the more stringent of either host country regulations or the EHS standards.

Key requirements relevant for the Project include:

- Hazardous materials handling.
- Noise and vibration.
- Process safety.
- Wastewater and solid waste management.

3. PROJECT DESCRIPTION

3.1 PROJECT OVERVIEW AND LOCATION

The project is located within Phase I of the Industrial Acceleration Zone (Zone d'Accélération Industrielle, IAZ) of the Cité Mohammed VI Tangier Tech, in Tangier-Assilah Prefecture, Tangier-Tétouan-Al Hoceïma Region, Morocco. The Project Site corresponds to Plot No. 59, a serviced vacant land parcel owned by Société d'Aménagement Tangier Tech (SATT). The Project is situated approximately 20 km southeast of Tangier city. The Project location is shown in ***Figure*** 3-1, and the production capacity is summarised in ***Table 3-1.***

The Project Site can be accessed from Tangier via Provincial Road P4608. The proposed Project is being developed on a 29.9-hectare plot, which forms part of the total land that the Project Company purchased for this Project for the current development as well as future expansion phases. The Project will have a total building area of approximately 153,852 m².

According to Google Earth Pro imagery and ERM's site visit in August 2026, surroundings of the Project are summarised as below and in ***Figure 3-2***:

- *North*: Immediately bounded by an access road. Further north is a drainage channel associated with the Industrial Acceleration Zone;
- *South*: Immediately bounded by an access road. Further south, is undeveloped vacant land beyond the Industrial Acceleration Zone boundary;
- *West*: Immediately bounded by an access road and the Hailiang Morocco site (a copper processing and new energy materials manufacturing facility). The surrounding area is characterised by ongoing industrial development within the Industrial Acceleration Zone;
- *East*: Immediately bounded by a hillside area and a substation. Further east is undeveloped bare land beyond the Industrial Acceleration Zone boundary.

The nearest settlements are Gouaret Mechahla, located approximately 1.01 km northwest of the Project Site, Slaouiyine, located approximately 0.97 km north of the Project, Chaouia, located approximately 1.77 km northeast of the Project Site, and Gouaret Meharza, located approximately 2.43 km northwest of the Project Site. Although the Project is located in Sebt Azzinate Commune, all of the above four settlements are located in Laaouama Commune.

TABLE 3-1 PROJECT PRODUCTION CAPACITY

Product	Capacity	Destination
Artificial Graphite Anode Materials	60,000 t/a	For sale

FIGURE 3-1 PROJECT LOCATION

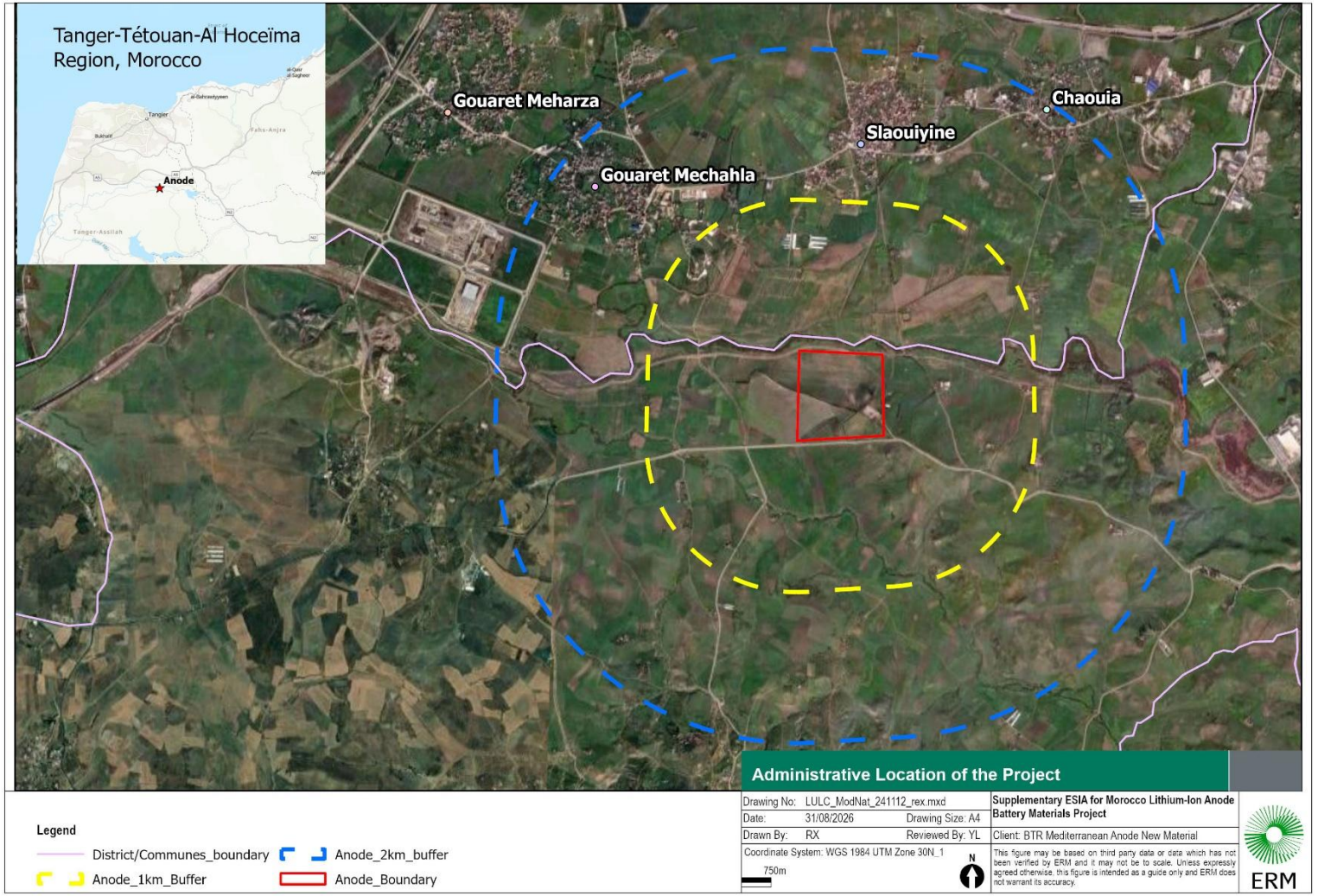
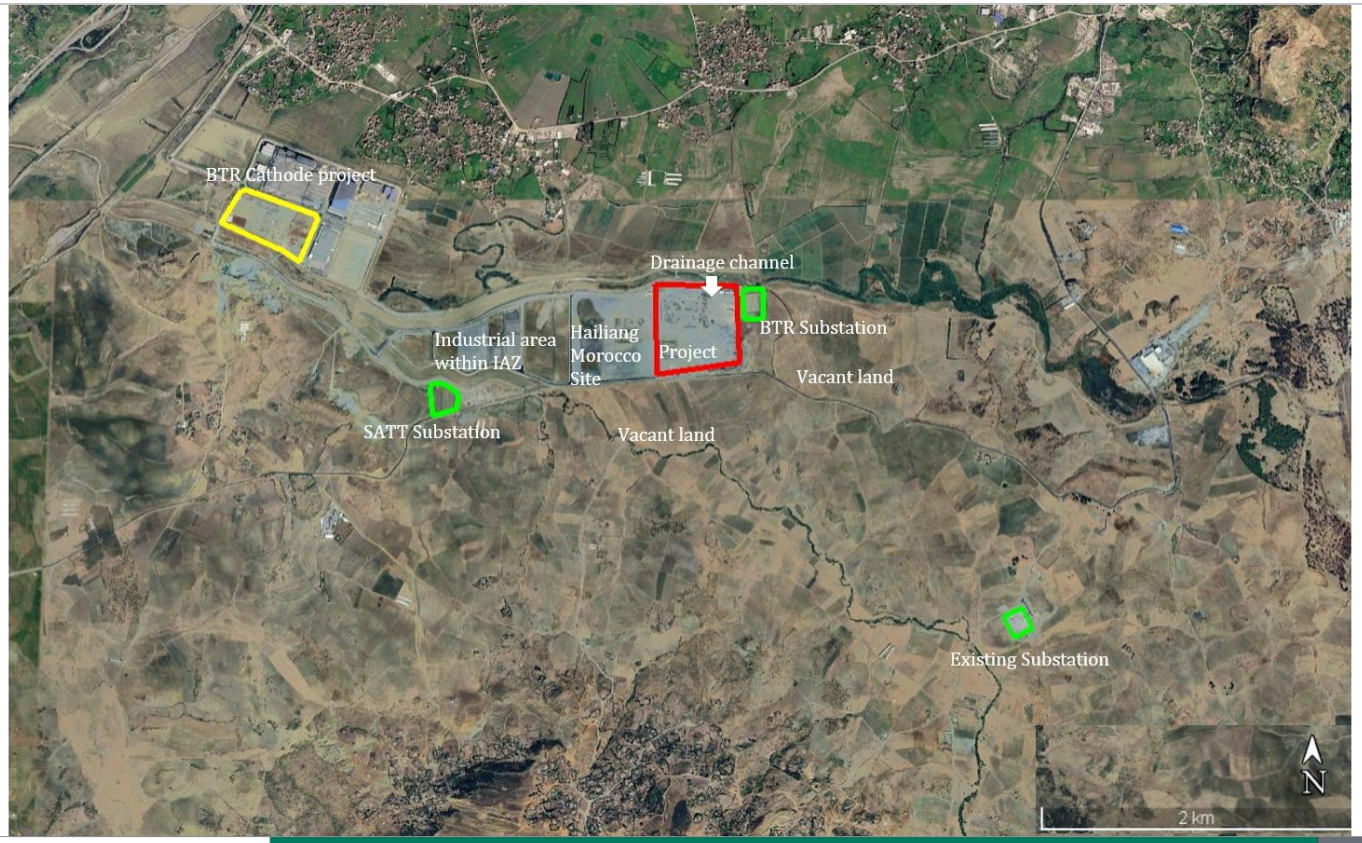


FIGURE 3-2 PROJECT SURROUNDINGS



Legend	Surroundings of the Project			
Substation	Date: 24 August 2026	Drawn Size: 16x11 cm	**Supplementary Environmental and Social Impact Assessment**	ERM
	Drawn by: SR	Reviewed by: MX		
	Coordinate System/Source: WGS 1984		BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY	
	This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.			

Note: The permanent transmission line connecting SATT Substation and BTR Substation has been identified as a potential Associated Facility. However, as the final TL alignment has not yet been confirmed, the route has not been shown in this figure.

3.2 PROJECT COMPONENTS

The project components are shown in ***Table*** 3-2.

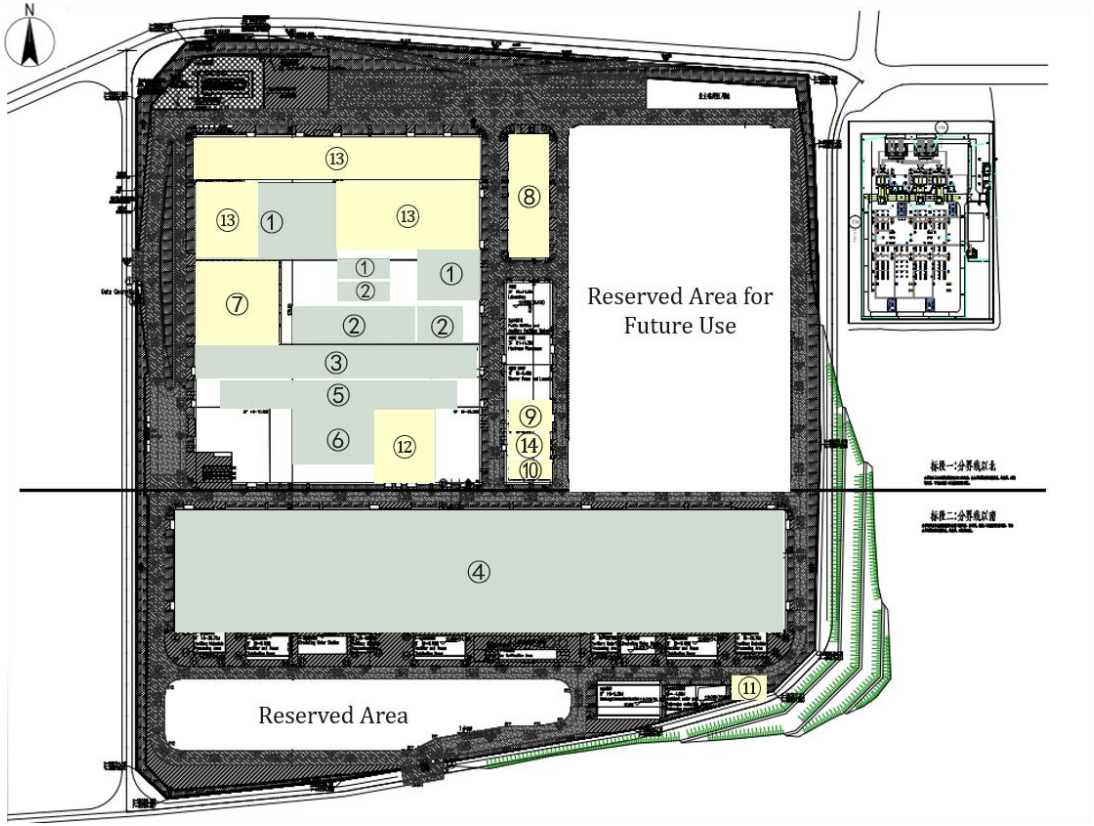
TABLE 3-2 PROJECT COMPONENTS

Facility Type	Key Components	Building Area(m²)
Production Facilities	Raw Material Workshop	4,000
	Coating Workshop	6,175
	Granulation Workshop	6,175
	Pre-carbonisation Workshop	12,900
	Graphitisation Workshop	64,376
	Carbonisation Workshop	10,661
	Finished Product Workshop	14,145
Storage Facilities	Graphite Warehouse	19,000
	Packaging Material Warehouse	2,550
	Hazardous Waste Storage Area	1,600
	LPG Storage Tank	~3,000
Utilities and Auxiliary Facilities	Substation	1,800
	Air Compressor Station	1,000
	Circulating Water Station	120
	Fire Water Tank and Pump Station	300
	Wastewater Treatment Station	600
	Accident Water Pond	300
	Rainwater Pond	300
	Administrative Building	7,850
	Nitrogen supply pipeline	/

Total Building Area	**153,852**

In addition to the facilities listed above, a nitrogen supply pipeline will be constructed to transport nitrogen from the air separation unit (ASU) located within the adjacent industrial facility to the Project Site. Construction of the pipeline is expected to commence in September 2026 and is anticipated to be completed by the end of October 2026. **The nitrogen supply pipeline forms part of the Project scope and has therefore been assessed as a Project Component rather than an Associated Facility.** The project layout is shown in ***Figure*** 3-3.

FIGURE 3-3 PROJECT LAYOUT



Legend	Project Layout			
Main Production Area Utilities and Auxiliary Area	Date: 24 August 2026	Drawn Size: 16x11 cm	**Supplementary Environmental and Social Impact Assessment**	ERM
	Drawn by: SR	Reviewed by: MX		
	Coordinate System/Source: WGS 1984		BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY	
	This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.			

3.3 ASSOCIATED FACILITIES

Associated facilities are activities that are not included in the description of the Project set out in the Legal Agreements governing the Project, but which, following consultation with the Client, AIIB determines are:

- Directly and materially related to the Project;
- Carried out, or planned to be carried out, contemporaneously with the Project; and
- Necessary for the Project to be viable and would not be carried out if the Project did not exist.

Potential Associated Facilities identified for the Project were screened against the above criteria and are summarized in ***Table*** 3-3***.***

In addition, as the nitrogen supply will be financed, constructed, owned and operated by the Project Company and forms part of the Project design, it has been assessed as a Project Component in ***Section 3.2*** and is therefore not further considered in the Associated Facility screening below.

TABLE 3-3 SCREENING OF POTENTIAL ASSOCIATED FACILITIES

Facility	Status	Directly and materially related to the Project	Planned contemporaneously with the Project	Necessary for Project viability	Conclusion
SATT Substation and Permanent transmission line	Potential Associated Facility	Yes. The facility is intended to provide permanent power supply to the Project.	Yes. The facility is planned to support Project operation.	Yes. The Project requires a long-term power supply arrangement for operation.	Identified as a potential Associated Facility while the final alignment and design have not yet been confirmed.
Temporary underground cable	Associated Facility	Yes. The facility is intended to provide power during the initial stage of Project operation.	Yes. The facility is being developed in line with the Project schedule.	Yes. The facility is required to supply power prior to completion of the permanent power infrastructure.	Identified as an Associated Facility.

Based on the above screening, the associated facilities considered for this project are:

- **A permanent overhead transmission line** will connect the planned **SATT substation** within the Industrial Acceleration Zone and the dedicated BTR substation located adjacent to the Project Site. At the time of preparation of this ESIA, the SATT substation had not yet been constructed, and the final transmission line route and construction schedule had not been confirmed. As the permanent transmission line will be located within the IAZ, the biodiversity and social conditions identified for the main Project Site are considered generally applicable. Potential biodiversity and land-use impacts are expected to be limited and have therefore been scoped out on the same basis as those for the main Project Site. Once the final alignment becomes available, BTR will screen the facility through its Environmental and Social Management System (ESMS) and determine whether additional management measures are required.
- Pending completion of the permanent power supply infrastructure, **a temporary underground cable** will be established (See ***Figure*** 3-2), connecting to a substation located southeast of the Industrial Acceleration Zone to supply power at the initial stage prior to completion of the permanent power infrastructure. A temporary transformer will also be installed at the substation. The temporary facilities are expected to be completed by October 2026.

3.4 PROJECT PROCESS

The Project will produce artificial graphite anode materials for lithium-ion batteries using petroleum coke, pitch and auxiliary materials as the principal raw materials. Material transfer between major process units will primarily be carried out through enclosed pneumatic conveying systems to minimise material loss and dust emissions. The manufacturing process comprises six main stages, as summarised below.

FIGURE 3-4 PROCESS FLOWCHART



TABLE 3-4 RAW MATERIAL CONSUMPTION

Raw material	Consumption (t/a)
Pitch	5,676
Calcined Petroleum Coke (CPC)	42,100
Green Petroleum Coke (GPC)	35,000

Step 1: Raw Material Pre-treatment

Petroleum coke is subjected to crushing and grinding to achieve the required particle size distribution, while pitch is separately crushed and prepared for subsequent processing. Following pre-treatment, the materials are transferred via enclosed pneumatic conveying systems to the granulation and coating process.

Step 2: Coating and Granulation

The processed petroleum coke and pitch are mixed and granulated to form coated precursor particles. After granulation, the material is crushed and classified to achieve the required particle size and morphology before being pneumatically conveyed to the pre-carbonisation stage.

Step 3: Pre-carbonisation

The granulated material is thermally treated in pre-carbonisation furnaces at high temperature using an external fuel source. This process removes volatile components and improves the structural stability of the carbon material prior to graphitisation.

Step 4: Graphitisation

The pre-carbonized material is transferred to graphitisation furnaces through enclosed handling systems and subjected to high-temperature treatment using electrically heated graphitisation furnaces. During this stage, the carbon structure is transformed into artificial graphite with enhanced crystallinity, electrical conductivity and electrochemical performance.

Step 5: Secondary Carbonisation

Following graphitisation, the material undergoes a secondary carbonisation process at high temperature to further improve product performance. LPG is used as the primary fuel source. Process off-gases generated during this stage are collected and treated through the air emission control system, including Regenerative Thermal Oxidiser (RTO), prior to discharge.

Step 6: Finished Product Processing

The carbonized material is blended, screened, demagnetized and packaged to produce the final artificial graphite anode material for lithium-ion battery applications. Finished products are then transferred to the finished product warehouse for storage and distribution.

3.5 PROJECT SCHEDULE

The Project construction milestones are listed below:

- Piling and construction: started in May 2025 and scheduled to be completed in October 2026.
- Equipment Installation and Commissioning: started in January 2026 and expected to be completed by December 2026.
- Operations: scheduled to commence in January 2027.

During ERM's site visit in August 2026, the overall construction progress is estimated at 80%.

3.6 PROJECT ACTIVITY

3.6.1 CONSTRUCTION PHASE

- **Site preparation and earthworks**: Land clearance, site levelling, excavation, backfilling and ground preparation works for the Project facilities. These were completed in April 2025.
- **Civil and structural works**: Construction of production workshops, warehouses, utility buildings, environmental protection facilities, substations, administrative buildings and other supporting facilities. Works include foundations, concrete works, steel structure erection, roofing, cladding and building finishing. Civil works have been completed, and only limited structural works remain ongoing.
- **Equipment installation and commissioning:** Installation and testing of production equipment, environmental protection systems, together with associated control, monitoring and auxiliary systems. Equipment installation is currently ongoing.

The Project's construction activities are divided between two EPC contractors.

3.6.2 OPERATION PHASE

For the purpose of smooth operation, the following events will be planned (as planned events). Besides, countermeasures will be developed for the following contingency scenarios (as unexpected contingency).

Planned Activities:

- Production of artificial graphite anode materials.

- Raw material transport, transfer, handling and storage, exhaust and wastewater treatment, and waste management.
- Routine monitoring and operations, including operation of process control systems, environmental monitoring systems, inspection activities and performance monitoring.
- Preventive maintenance, including routine inspection, maintenance and servicing of production equipment, utilities, environmental protection facilities and safety systems.
- Corrective maintenance, including repairing and replacement of equipment, components and utility systems as required to maintain safe and continuous operation.

Unexpected contingency:

- Fire and explosion.
- Spills and leaks.

3.7 RESOURCE REQUIREMENT

3.7.1 LAND

The Project occupies Lot No. 59 within the Industrial Acceleration Zone (IAZ), part of the Mohammed VI Tangier Tech City, in Sebt Azzinate Commune, Tangier-Assilah Prefecture. The plot corresponds to Land Title No. 109056/61 and has a registered area of 299,437 m², or approximately 29.9 ha. The IAZ in which the Project is located, is managed by the *Société d'Aménagement Tangier Tech* (SATT) and accessible from the RP4607 road.

Before the development of the Industrial Acceleration Zone, the Project land and its surrounding area, including the locations of transmission line routes (associated facilities) were predominantly rural and agro-pastoral in character. The Project land, as part of a broader rural landscape, comprised of cultivated fields, open herbaceous land, informal rural tracks, drainage features and scattered rural structures. No industrial development is visible within the Project land at that time. Satellite imagery indicates that one structure of unknown purpose and ownership had existed on the southeastern corner of the Project land, though it was demolished prior to the Project's acquisition of Project land. The surrounding area also appears to have been composed of a mosaic of agricultural and open land parcels, with low-density rural development rather than urban or industrial land use. Communities engaged during baseline surveys also reported that a road previously crossed the Industrial Acceleration Zone from north to south and connected villages in Sebt Azzinate Commune, such as Bibane, to Gouaret Mechahla village, where the main weekly market (Souk) and high school of the area are located.

According to SATT, the land occupied by the Project was first expropriated by the state for strategic purposes starting in 2015, i.e. approximately 9 years before BTR official establishment in the IAZ. The process was undertaken by the regional office of the government entity *Direction des Domaines Privés de l'État* (Direction of the State Private Domains). The land was permanently acquired at compensation rates determined by the State in accordance with the applicable expropriation process. Where any land uses or activities remained before transfer to SATT, these were the responsibility of the State to address. The ownership and uses of land and any structures located within the Project footprint prior to the State-led expropriation process could not be confirmed, as SATT and BTR Anode were not involved at that stage. Out of the total 947 ha planned area of the IAZ, the Phase 1 area of 467 ha has been formally acquired, while land acquisition for Phase 2 developments is

reportedly ongoing. Although no authoritative data has indicated a date by which the State finished the land acquisition process, it was reported that the process had finished prior to the formal establishment of the IAZ in 2019.

The Industrial Acceleration Zone was formally established under Decree No. 2-19-345, issued on May 24th, 2019. SATT reported that it began acquiring land within the Zone from the Moroccan State in 2020, with its initial acquisition covering approximately 86 ha (part of IAZ Phase 1 development). Decree No. 2-22-399 of 2 June 2022 subsequently approved the concession for the development and management of the Zone to SATT. The Zone entered official commercialisation in 2023, and construction of the first part of Phase 1 commenced in 2024.

BTR Anode was authorized by the Regional Unified Investment Commission on 22 April 2024 to establish the Project within the Zone and subsequently purchased Lot No. 59 from SATT. This indicates that BTR Anode became involved in the Project nine years after the State-led acquisition process was initiated and four years after the land transfer from the State to SATT started. In the same year (2024), BTR Anode signed a Memorandum of Understanding regarding the Project, which already included provisions for the land transfer from SATT to BTR Anode. At that time, according to information provided by BTR Anode, 20% of the land purchase payment was paid to SATT. Hereafter, the notarized sale agreement was signed on 26 December 2025 and registered on 30 December 2025. Under the sale agreement, the plot was reportedly free from registered rights, occupation, encumbrances and conservatory or enforcement measures. The property certificate issued on 6 January 2026 confirms BTR Anode as the registered owner, subject to restrictions on transfer, lease and subdivision and the requirement to obtain development clearance from the competent entity. BTR Anode therefore acquired an industrial plot that had already been acquired and regularized as part of the government-led development of the Tangier Tech Industrial Acceleration Zone and did not participate directly in the original expropriation or compensation process.

According to Project management, BTR Anode received the land without any standing structures or economic activities on the land and conducted land clearance by itself. Similarly, the permanent associated facilities such as the permanent transmission lines are all located within the IAZ, in land that was previously expropriated by the Moroccan State and purchased by SATT over four years ago. However, a temporary underground transmission line connecting the Project to the existing substation to the southeast of the Project Site falls mostly outside of the IAZ's boundaries.

Separately, based on the interview conducted with SATT, it is understood that the overall Mohammed VI Tanger Tech development is planned to cover a total area of 2,200 ha, including approximately 900 ha for the IAZ. Land acquisition for the IAZ was reported to be ongoing, with the Project being part of Phase 1, for which land acquisition initiated between 2015 and 2020, while Phase 2 lang acquisition is not completed yet. As no Project facilities are located within Phase 2 of the IAZ, the land acquisition process for this area is not considered to be relevant for the Project.

3.7.2 WATER SUPPLY AND DISCHARGE

3.7.2.1 WATER SUPPLY

During the construction phase, water will be supplied through the existing water supply pipelines within the Industrial Acceleration Zone. Construction water demand, including water for dust suppression, equipment cleaning, and sanitary facilities. Drinking water for construction workers will be provided through purchased bottled water.

During the operational phase, tap water will be supplied via the existing Industrial Acceleration Zone water pipeline for both industrial and domestic use.

3.7.2.2 WASTEWATER DISCHARGE

Wastewater generated from construction activities will be discharged to the IAZ drainage network, while sanitary wastewater collected from temporary septic tanks will be periodically removed by vacuum trucks for off-site disposal.

In operation phase, the project adopts a zero-discharge of industrial wastewater plan. The Project will generate both domestic and industrial wastewater during operation. Domestic wastewater from sanitary facilities and canteen activities, together with industrial wastewater from laboratory operations and floor cleaning, will be treated in on-site wastewater treatment station. Domestic wastewater will be treated using an improved A^2O-MBR (Anaerobic-Anoxic-Oxic and Membrane Bioreactor) process, while industrial wastewater will be treated through pH adjustment, coagulation-sedimentation, biological treatment, sedimentation and UV disinfection.

3.7.3 POWER SUPPLY

The Project will require electricity, LPG and diesel fuel during construction and operation. Both LPG and diesel fuel will be sourced from local suppliers and delivered to the Project Site by road tankers. Electricity will be supplied through a combination of temporary and permanent power supply infrastructure. The estimated power consumption of the Project is summarised in ***Table 3-4***.

- Construction power supply: Temporary power will be supplied from the substation southeast of the Project site, within the Industrial Acceleration Zone, and connected to a temporary box transformer at the Project Site.
- Initial operational power supply: During the initial operational stage, power will continue to be supplied from the substation via a temporary underground cable connected to the dedicated TMU substation. The temporary facilities are expected to be completed by October 2026.
- Permanent power supply: The Project will ultimately be supplied from the planned SATT substation via a permanent overhead transmission line connected to the dedicated TMU substation. The SATT substation and final transmission line route have not yet been confirmed.

TABLE 3-5 POWER CONSUMPTION AND SOURCES

	Source	Note

LPG	Purchase	For heating purpose in production process and RTO system of anode material production
Electricity	Grid electricity	/
Diesel	Purchase	For construction machinery and equipment and generator. A standby diesel generator will be installed as emergency backup power sources during operation.

3.7.4 WORKFORCE AND SECURITY PERSONNEL

Direct Workers

Construction Phase:

During the construction phase, the number of workers employed directly by BTR generally increased from the start of the construction period up to the time of ERM's site visit, when the Project employed approximately 90-100 direct workers, which included administrative employees, engineers and technical staff, and support staff. Moroccan nationals accounted for approximately 15-20% of the direct workforce. Approximately three quarters of the direct workers were men and one quarter were women. Some of Chinese workers are contracted to the BTR parent company and were on assignment at the Project.

Directly employed employees from China generally live in apartments in Tangier city, with each apartment generally having 2-3 bedrooms and each employee having their own private bedroom. These apartments are reportedly in good condition, and all Chinese employees commute using company-provided shuttle buses. Directly employed Moroccan employees generally live at home or in rented apartments in Tangier, with no housing provided by the Project company, though they also use company buses for commuting. No directly employed employees are reported to live in the AoI communities.

Operation Phase:

By 2027, after the start of the operation phase, the Project will employ approximately 1,000-1,100 direct workers, with Moroccan nationals accounting for approximately three quarters of the direct workforce. Direct workers will account for the vast majority of the Project workforce during the operation phase, in contrast to the construction phase. The planned direct workforce makeup will be compliant with the stipulations outlined in the Project's investment agreement, which requires the Project to create 500 local stable employment opportunities by 2027 and 650 by 2030. The Project plans to gradually increase the share of Moroccan workers among the operation phase from 77% to 90%, though there is not yet a clear timeline for when this will be achieved. It is unclear what will be the gender makeup of the workforce during this phase. According to Project plans, all Chinese employees will be accommodated in dormitories provided by the Project, which will provide meals and commuting transportation for the workers, though specific locations for accommodation sites have not been provided.

Contracted Workers

Construction Phase:

The Project's EPC workforce is split two EPC contractors registered in Morocco.

One EPC contractor has been present in the Project's construction since September 2025, and is projected to finish its construction activities by late September 2026. According to its management, at the time of the baseline site visit, the contractor employed approximately 300 workers, with Moroccan nationals accounting for approximately 10-15% of its workforce. Only a small number of its workers were women. Aside from management staff employed directly by the EPC, all of the EPC workers are employed through labour subcontractor companies. This EPC's workforce number varied at different points in the Project cycle, reaching a peak of approximately 300-350 workers in April 2026, and is expected to maintain its current manpower level until the end of the construction activities. Currently, all Chinese EPC workers reside in a purpose-built containerised accommodation camp. A minority of Moroccan workers live in rented accommodation in nearby settlements, while a majority of Moroccan workers are from the local settlements and live at home. All workers who live in these two villages have access to a shuttle service rented by the EPC for their daily commute, which is provided for free to the workers.

The second EPC company has also been engaged in Project construction since September 2025, and projects that the main construction activities for its scope will finish by around early November 2026, though it will continue to be engaged in post-completion maintenance and testing activities for up to late 2027. This EPC company also employs all non-management workers through labour subcontractors, and had approximately 450-500 workers at the time of the baseline site visit. Moroccan nationals accounted for approximately 15-20% of its workforce. A small number of workers are women, while additional women are employed as management or support personnel. This workforce number is estimated to be the peak number that the construction period will reach, and will reportedly be maintained until October, when the number of workers present will start to decrease. After the completion of construction activities, around 50-100 EPC workers will remain on site until the end of construction inspection and acceptance, after which fewer than 20 workers are expected to remain on site until the end of the EPC's remaining maintenance duties.

All Chinese workers of this EPC are housed in a purpose-built containerised accommodation camp to the northwest of the industrial park, while a minority of Moroccan workers are housed in rented accommodation in nearby settlements. Workers from both EPC companies reported acceptable living conditions during their interviews. Workers from the second EPC company additionally noted that their dormitories consisted of air-conditioned four-person rooms, with one toilet and shower shared by five to six rooms, and that separate female rooms were available to female employees. Both EPC accommodation camps feature kitchens providing meals free of additional charges. Most of the Moroccan workers are from the local area and live at home. A free shuttle service is provided for workers that live in the accommodation camp and in rented accommodation, while those who commute by themselves reportedly receive a transportation stipend.

Additionally, the Project features a small number of cleaning, kitchen, and other support staff, as well as security personnel. All of the contracted support staff are Moroccan women and reside in their own local domiciles. All of the contracted security staff are Moroccan men and also live in their own home in nearby settlements.

Operation Phase:

During this phase, approximately 60-70 contracted workers will be on site, with Moroccan nationals expected to account for approximately two thirds of the contracted workforce. The exact roles and gender makeup of the contractor workforce has not been provided to ERM.

Security Personnel

By August 2026, at the time of the ERM baseline site visit, the Project employed fewer than five contracted security personnel, which may increase during the remainder of the **construction period**.

During the **operation phase**, the Project expects to employ approximately 5-10 contracted security personnel to provide 24-hour security coverage.

TABLE 3-6 MANPOWER PLAN FOR CONSTRUCTION AND OPERATION PHASES

Employer	Peak number of employees	Other information
Construction Phase		
BTR Anode Direct	Approximately 90-100	approximately 15-20% Moroccan 77% male, 23% female
EPC (combined)	Approximately 750-800	approximately 15-20% Moroccan 97% male, 3% female (estimated)[8]
Security	Fewer than 5	All Moroccan
Total	Approximately 845-900	approximately 15-20% Moroccan
Operation Phase		
BTR Anode Direct	Approximately 1,000-1,100	approximately 75-80% Moroccan
Contracted	Approximately 60-70	approximately 65-70% Moroccan
Security	Approximately 5-10	All Moroccan
Total	Approximately 1,100-1,200	approximately 75-80% Moroccan

8 The number of total female workers of the two EPC contractors take into account both on-site and management personnel, and is based on peak-workforce figures provided by the Project

Source: Construction phase: interviews with Project Company and EPC management in August 2026, as well as information provided by BTR Management; Operation phase: BTR Management.

3.7.5 EQUIPMENT AND SUPPLIES

TABLE 3-7 EQUIPMENT FOR ANODE MATERIAL PRODUCTION

Process	Main Equipment Categories
Raw Material Pre-treatment	Raw material crushing, grinding, milling, shaping and mixing equipment
Coating and Granulation	Mixing, coating, granulation, crushing and classification equipment, together with associated wastewater and off-gas treatment systems
Pre-carbonisation	Pre-carbonisation furnaces and associated crushing and material-handling equipment
Graphitisation	Graphitisation furnace systems and associated auxiliary equipment
Secondary Carbonisation	Milling, mixing, screening, carbonisation and associated crushing equipment
Finished Product Processing	Blending, crushing, classification, screening, magnetic separation, packaging and automated warehousing equipment

3.8 CONSIDERATION OF ALTERNATIVE

3.8.1 CONSIDERATION OF PROJECT LOCATION AND LAYOUT

BTR has evaluated a number of potential locations across including France and Hungary, and multiple industrial development areas in Morocco, including Tangier, Safi, Nador and Agadir. Site selection considered factors such as government support, power supply, labour availability, industrial infrastructure, logistics, and access to target markets.

Following a detailed comparative assessment, the Mohammed VI Tangier Tech Industrial Acceleration Zone in Tangier was selected as the preferred location for the Project. The selected site benefits from developed industrial infrastructure, good transportation connectivity, utility availability, and proximity to European markets. In addition, the industrial park developer has committed to providing dedicated power infrastructure to support the Project's electricity demand.

For facility design, steel-structure buildings were selected in preference to reinforced concrete structures due to their shorter construction period, lower foundation requirements, greater flexibility for process layout, and suitability for future expansion.

The selected site lies within a planned industry area with limited ecological value. No protected areas, Critical Habitats, or known cultural heritage resources have been identified in the immediate vicinity of the Project. The nearest residential area is located approximately 0.97 km from the Project, reducing the potential social impacts. Consequently, the selected location minimises potential environmental and social constraints while being situated within a designated industrial development zone intended for manufacturing and industrial activities.

Based on BTR's operational experience, the Project adopts a mature and widely applied production route for artificial graphite anode material manufacturing. The selected process is extensively used within the battery industry and provides proven technical reliability, stable product quality, demonstrated scalability, and well-established environmental, health and safety controls.

3.8.2 "NO PROJECT" SCENARIO

Under the no-project scenario, the Project Site would remain undeveloped industrial land within the Industrial Acceleration Zone. While this option would avoid environmental and social impacts associated with Project development, it would also forgo potential economic and social benefits. The Project is expected to contribute to the development of Morocco's battery materials industry, create employment opportunities during both construction and operation, and support associated economic activities within the Industrial Acceleration Zone. In addition, the Project would strengthen regional supply chains serving European markets.

In summary, while the no-project scenario would avoid Project-related impacts, it would also result in missed opportunities for industrial development, employment generation and economic growth. Considering the strategic benefits of the Project and its location within an existing planned industrial area, and the implementation of environmental and social management measures, development of the Project is considered preferable to the no-project alternative.

3.9 AREA OF INFLUENCE

The Project's Area of Influence ("AoI") is defined as the area where the planned Project activities will take place (project site and immediate surroundings) and a wider area likely to be vulnerable to direct and indirect impacts on the natural and human environment. The AoI varies according to Project activities and environmental and social subjects. ***Table*** 3-8 describes the Project's AoI.

TABLE 3-8 PROJECT AREA OF INFLUENCE

Topic	Area of Influence
Ambient Air Environment	Based on guidance from the Institute of Air Quality Management (IAQM, 2024), the AoI for construction phase is: For human receptors: • 350 m from the boundary of the site; and/or

	• 50 m from the route(s) used by construction vehicles on the public highway, up to 350 m from the site entrance(s). For ecological receptors: • 50 m from the boundary of the site; and/or • 50 m from the route(s) used by construction vehicles on the public highway, up to 350 m from the site entrance(s). For the operation phase, the AoI for the purpose of the supplementary ESIA report, has been taken as 10 km from the boundary of the site considering the potential air emission from the Project.
Noise Environment	Noise Impact Assessment for both construction and operation phase will be conducted at the closest representative Noise Sensitive Receptors ("NSRs") identified that may be potentially affected by the Project.
Socio-economic Aspects	The Social AoI is characterised as the area potentially affected by the Project through direct, indirect and induced impacts across the construction and operation phases. The delineation of the Social considers spatial proximity and potential interactions with the Project activities. • Direct AoI: Villages/Douars of Gouaret Mcharza, Gouaret Mechahla, Slaouiyine and Chaouia; Communes of Laaouama and Sebt Azzinate • Indirect AoI: Wider Caidat and Prefecture area

4. GAP IDENTIFICATION AND SCREENING

Table 4-1 summarizes the contents of the Project regulatory EIA and identifies the gaps between national and international standards. Actions to close gaps are also proposed to be covered in this supplementary ESIA to provide further impact assessment and mitigation where necessary.

TABLE 4-1 GAP ANALYSIS AND SCREENING

Topic	Assessed in the Regulatory EIA	Identified Gaps against applicable standards	Actions to Close Gaps
Environmental Baseline			
Area of Influence (AoI)	AoI of air and noise impact assessment was defined as 500m along project boundary. AoI of noise impact assessment was defined within the Cité Mohammed VI Tangier Tech.	The AoI defined in the regulatory EIA didn't cover any air or noise sensitive receptors around the Project, which might result in the omission of the assessments of air and noise impacts of the Project on the air and noise sensitive receptors.	The AoI of air and noise will be defined in this ESIA, taking into consideration the sensitive receptors around the Project.
Physical Environment	-	The regulatory EIA did not collect any baseline data of ambient air and noise quality.	Air and noise baseline will be conducted, and results will be analysed in this supplementary ESIA.
Biological Environment	-	The regulatory EIA did not collect any baseline data of local habitat and biodiversity.	Following the desktop review, the required biodiversity baseline will be conducted, and results will be analysed in this supplementary ESIA.
Social Baseline			

Area of Influence (AoI)	The immediate, broader and wider study areas were defined as the Project site and access, Tangier-Assilah Prefecture and the Tangier-Tétouan-Al Hoceima Region, respectively.	Definition of the social AoI is not sufficiently linked to the potential social impacts from the Project.	Social AoI is expected to be updated based on stakeholder engagement results and understandings of potential social impacts.
Land Use	The Project land status and surrounding land uses were presented.	Current studies are limited in outlining historical land use, previous land users and land-based livelihoods within the AoI.	Additional baseline analysis is expected to be conducted using the latest data in this supplementary ESIA.
Demographics and vulnerability	Demographic and vulnerability profiles were presented for Sebt Azzinate Commune.	National, regional and prefectural-level comparative data are missing, and the baseline does not adequately characterise potentially affected settlements or define and identify vulnerable groups in the AoI.	Additional baseline analysis is expected to be conducted using the latest data in this supplementary ESIA.
Health	-	No baseline information on health conditions, healthcare facilities or access to health services have been covered under the EIA.	Additional baseline analysis is expected to be conducted using the latest data in this supplementary ESIA.
Education	The school-enrolment rate for children aged 6 to 11 was presented for Sebt Azzinate Commune for 2023–2024, disaggregated by sex and rural residence.	EIA is limited in describing educational attainment, literacy, educational facilities and vocational skills.	Additional baseline analysis is expected to be conducted using the latest data in this supplementary ESIA.

Livelihood and Local Economy	Agriculture and livestock were presented using selected local data. Industry was presented at the Tangier-Tétouan-Al Hoceima regional level.	EIA is limited in characterising economic activities and livelihood patterns within potentially affected settlements.	Additional baseline analysis is expected to be conducted using the latest data in this supplementary ESIA.
Infrastructure	Water supply, electricity, sanitation, roads and rail infrastructure were presented for Sebt Azzinate Commune.	EIA is limited information is provided on access to and capacity of infrastructure and services within potentially affected settlements.	Additional baseline analysis is expected to be conducted using the latest data in this supplementary ESIA.
Labour and Working Conditions	Project-level employment and occupational health and safety were presented for the construction and operation phases.	Limited information is provided on broader labour and working conditions for direct and contracted workers.	Additional baseline analysis is expected to be conducted using the latest data in this supplementary ESIA, particularly in the Human Rights Impact Assessment (HRIA).
Cultural Heritage	-	No baseline information on cultural heritage or structures / practices of cultural importance has been covered under the EIA.	Additional baseline analysis is expected to be conducted using the latest data in this supplementary ESIA.
Indigenous Peoples (IP)	-	No information on ethnic groups in the project has been provided under the SIA. No vulnerability or IP analysis undertaken.	Additional baseline analysis is expected to be conducted using the latest data in this supplementary ESIA.
Environmental Impact Assessment			
Ambient air	During construction stage, dust and gaseous pollutants of NO_x, SO_2, etc.,	For operation stage, the Project comprises of 38 stacks to emit air	Quantitative AQIA using AERMOD model for operation phase will be

	could be generated from the construction activities and construction equipment and diesel generators, etc. During operation stage, various pollutants will be generated, including particulate matter (PM) from material handling, loading, unloading, crushing, granulation and graphitisation processes; VOCs from granulation process; benzo[a]pyrene (BaP) from granulation, pre-carbonisation and carbonisation process; Hydrogen Chloride (HCl) and nitric acid mist from laboratory testing activities; NOx and SO_2 from the combustion of liquefied petroleum gas (LPG); Ammonia (NH_3) and hydrogen sulfide (H_2S) are generated from the operation of water treatment facilities. Per regulatory EIA, all above exhausts will be treated by dust removal, wet scrubbers, activated carbon adsorption and regenerative thermal oxidiser (RTO), etc., respectively, depending on the nature of pollutants. After treatment, the emission will comply with the applicable national emission standards. Qualitative air quality impact assessments ("AQIA") were conducted for	pollutants of PMs, HCl, NH_3, H_2S, NOx, VOCs, SO_2, and benzo[a]pyrene (BaP), etc., which may have negative impacts on regional air quality and surrounding sensitive receptors. Therefore, qualitative AQIA is considered insufficient to support the impact assessments.	supplemented in this supplementary ESIA.

	construction and operation stage of the Project in the Regulatory EIA, respectively.		
Surface water	During construction stage, there are limited risks of water quality deterioration and water resource depletion associated with construction activities. During operation stage, potential impacts on water resources may arise from leaks of hydrocarbons and oils from operational machinery and equipment, leachate from solid wastes, domestic wastes and wastewater, and wastewater leaks resulting from failures, ageing or malfunction of treatment facilities. Qualitative surface water impact assessments were conducted for the construction and operation stages of the Project, respectively.	-	Given the Project will adopt zero-discharge of industrial wastewater, with all industrial wastewater fully recycled, the impact on surface water quality is considered to be limited. Therefore, no additional assessment will be taken in this supplementary ESIA.
Ambient noise	The Project could increase ambient noise associated with onsite construction (from the use of construction equipment, material loading and unloading, and transportation, etc.) and operational activities (from the equipment of cooling towers, air compressor, packing machine,	No quantitative assessments were conducted for the surrounding noise sensitive receptors of Slaouiyine and Gouaret Mechahla.	Quantitative noise modelling for construction and operation phase will be supplemented in this supplementary ESIA.

	magnetic separator, desulphurisation system and RTO etc.). The noise impacts during construction and operation phase were analysed qualitatively.		
Soil and groundwater	During construction stage, there are risks of soil erosion, soil compaction, and accidental contamination from fuels, oils and hazardous materials that could potentially affect soil and groundwater quality. During operation stage, there are risks of soil and groundwater contamination from accidental spills and leaks of chemicals, oils, wastewater and wastes. Qualitative soil and groundwater impact assessments were conducted for the construction and operation stages of the Project, respectively.	-	As the chemicals and hazardous wastes will be stored in each designated area with seepage proof measures, the impacts of the Project on soil/groundwater quality are considered to be limited. Therefore, no additional assessment will be taken in this supplementary ESIA.
Waste	During construction phase, the Project generates construction waste, scrap metal, scrap wood and domestic waste from construction workers. The waste generated during the construction phase are regulated by construction contractors.	The Regulatory EIA fails to draw a clear distinction between non-hazardous and hazardous waste. While waste-related impacts have been assessed in the Regulatory EIA, the assessment is relatively high-level. The proposed mitigation measures are insufficient	The Supplementary ESIA will carry out a detailed assessment of waste-related impacts and proposed mitigation measures consistent with applicable international standards.

	During the operation phase, the Project generates waste streams including gypsum, residual tar, sludge, spent carbon, etc. A dedicated waste storage facility will be constructed for waste storage. This facility will be partitioned into separate zones for domestic waste, non-hazardous waste and hazardous waste. The waste will then be collected and treated by certified companies according to their nature.	when benchmarked against international good-practice standards.	
Greenhouse Gas (GHG) emission	The Regulatory EIA identifies the Project's consumption of purchased electricity and LPG during operation, together with fuel and electricity use by construction machinery, vehicles and temporary facilities, which will contribute to the GHG emissions. No scope 1 and scope 2 GHG emission accounting and assessment of climate change impacts and effects have been conducted in the regulatory EIA.	In accordance with the AIIB Environmental and Social Framework, the Project should assess climate-related risks and GHG emissions and integrate feasible mitigation and adaptation measures into its design and implementation, taking into account the goals of the Paris Agreement and Morocco's national climate commitments. "	Greenhouse Gas impact assessment on scope 1 and 2 emission will be conducted in this supplementary ESIA
Biodiversity	The Regulatory EIA provides a general description of regional biodiversity, as well as the location and ecological	The Regulatory EIA does not provide a Project-specific biodiversity baseline, including systematic habitat mapping,	ERM team and local experts conducted a two-day biodiversity baseline survey in August 2026, supported by a literature

	importance of the nearby Tahaddart Estuary SIBE and Lower Tahaddart Saltwater Wetland.	field survey methods and results, confirmed species records, conservation status screening, or an assessment of ecological connectivity and potential Project impacts on nearby biodiversity-sensitive areas.	review, habitat mapping and Critical Habitat Screening, to characterise the existing biodiversity conditions and ecological sensitivity of the Project site and its vicinity. The literature review and field survey findings indicate that the Project site and its immediate surroundings have generally low biodiversity sensitivity and support predominantly common and disturbance-tolerant species. Potential habitat loss and disturbance impacts are expected to be limited. Therefore, a standalone biodiversity impact assessment is scoped out. Potential cumulative impacts from the drainage channel and downstream receptors will be addressed through the cumulative impact assessment and relevant water-management measures.
Climate Change	Climate change risk assessment was missing in the regulatory EIA	In accordance with the AIIB Environmental and Social Framework, the Project should assess climate-related risks and impacts and incorporate appropriate mitigation, adaptation and resilience measures into Project design and environmental and social management.	Additional climate change risk assessment (“CCRA”) will be conducted, as an appendix of this ESIA

Social Impact Assessment

Community cohesion and social structure	-	The regulatory EIA does not provide an impact assessment.	Scoped in for further assessment in this ESIA - Impacts from labour influx during construction and operation
Community Health and Safety	During the construction phase, the Project site may pose risks to local communities in the forms of dust particles, noise, and odours from improperly processed wastewater.	The regulatory EIA does not assess community health and safety risks associated with the Project.	Scoped in for further assessment in this ESIA - Health impacts from environmental emissions during construction and operation - Security personnel during construction and operation (HRIA) - Communicable diseases and sexually transmitted diseases (STDs) during construction and operation - Gender-based violence during construction and operation (HRIA) - Road safety and road accidents (under unplanned events)
Labour and Working Conditions	During the construction phase, the Project site may pose risks to the Project labour force in the forms of dust particles, noise, and foul smell from improperly processed wastewater.	The regulatory EIA does not cover the potential impacts on own and third-party labour, as well as labour on the supply chain. It does not cover OHS impacts for associated facilities.	Scoped in for further assessment in this ESIA (HRIA) - Labour conditions and welfare during construction and operation

	During the operation phase, the Project labour force may expose workers to risks including equipment accidents, contact with hazardous chemicals, heat hazards, waste management, and gas emissions. Project labour may come into contact with fine particles and other pollutants, which may pose risks to health risks, including irritation of the eyes and the respiratory system. More serious health damages may occur in the event of lack of ventilation or lack of OHS protective equipment.		- Supply chain labour impacts during operation - Occupational health and safety, including for associated facilities
Public Infrastructure and Services	The EIA assessed increased road traffic on the provincial roads serving the site during construction, operation and dismantling.	Aside from road traffic, the regulatory EIA does not assess pressure on local utilities, resources and healthcare facilities.	Scoped in for further assessment in this ESIA - Pressure on roads during construction and operation - Pressure on utilities and local resources (water and electricity) during construction and operation - Pressure on healthcare facilities during construction and operation
Gender and Vulnerable Groups	-	The regulatory EIA does not provide an impact assessment for these topics.	ESIA will assess impacts particularly for vulnerable groups and women under relevant topics.

Employment and Local Economy	Positive impacts of job creation (200 temporary construction jobs and 996 direct operation jobs), business opportunities for local enterprises, technology transfer and tax revenues were briefly assessed in the EIA.	Potential negative socio-economic impacts were not assessed in the regulatory EIA.	Scoped in for further assessment in this ESIA - Negative economic impacts on local communities during construction and operation, such as price hikes
Land Use and Livelihood	-	The regulatory EIA does not assess the Project land use impacts on livelihoods.	The land on which the Project is located was acquired by the Moroccan State from 2015 onwards as part of the broader IAZ development, after which it was sold to the SATT from 2020 onwards. The main land acquisition process therefore took place four to nine years before BTR Anode involvement and the land acquisition was not specifically conducted for the Project. Rather, the expropriation process was done for the broader IAZ development, before specific companies had been identified to develop their operations there. During social baseline surveys and stakeholder engagement, communities in the AoI raised concerns about the expropriation process carried out for the IAZ, including complaints about significant impacts on livelihoods due to the historical dependency on land for

			agriculture in the AoI. No physical displacement was reported to have occurred. As the expropriation was carried out for the whole IAZ, communities did not associate livelihood impacts directly with the Project. It is noted that the Project site only represents 3.2% of the overall IAZ development[9] and therefore did not significantly contribute to the broader impact reported by communities. Considering the expropriation process was conducted four to nine years ago by the Moroccan state, a detailed assessment of land acquisition and displacement impacts is scoped out at this stage. It is recommended that the Project focus on addressing legacy livelihood impacts through targeted training and employment of local communities, as detailed in ***Section 7.3.1***. Separately, the temporary underground transmission line for the Project is located partly outside the IAZ and

9 The Project Site covers 29.9 ha of land out of the total 947 ha of land covered by Phase 1 and 2 of the IAZ.

			therefore would have required a separate land acquisition process specifically for BTR Anode Project. The land use and livelihood impacts of this component are scoped in for further assessment. Other associated facilities identified in ***Section 3.3*** are located within land already acquired as part of the IAZ Phase 1 development and the same considerations detailed above for the main Project site apply.
Indigenous Peoples	-	The regulatory EIA does not provide an impact assessment for this topic.	Screening for impacts on indigenous peoples was undertaken during the baseline site visit as well as desktop review, and no relevant impacts are expected. Scoped out.
Cultural Heritage	-	The regulatory EIA does not provide an impact assessment for this topic.	Screening for impacts on cultural heritage was undertaken during the baseline site visit as well as desktop review, and no relevant impacts are expected. Scoped out.
Cumulative Impact Assessment			
Cumulative Impact Assessment	-	The regulatory EIA does not present a cumulative impact assessment, although	Cumulative impact assessment is supplemented in this ESIA.

		several other operational, ongoing or planned infrastructure developments have been identified in the area, which is located in close proximity to the site. Neither does the regulatory EIA consider the cumulative impact of the project on the regional water resource availability.	
Unplanned Event Impact Assessment			
Unplanned Event Impact Assessment	-	The regulatory EIA does not provide an impact assessment.	Unplanned event impact assessment is supplemented in this ESIA.
Disclosure and Engagement			
Information Disclosure and Stakeholder Engagement	-	The regulatory EIA does not provide information disclosure, stakeholder engagement plan or a grievance mechanism.	ESIA will supplement a Stakeholder Engagement Plan including a grievance mechanism. BTR Anode to implement the SEP and to disclose project information, impacts and mitigations described in this supplementary ESIA.

5. ENVIRONMENTAL AND SOCIAL BASELINE

5.1 ENVIRONMENTAL BASELINE

5.1.1 AMBIENT NOISE BASLINE

5.1.1.1 MEASUREMENT METHODOLOGY

Baseline ambient noise measurements were conducted to understand the prevailing noise baseline at the residential areas surrounding the Project Site. Continuous measurements were carried out over a nominally 48-hour period from 19 to 21 October 2025 at two monitoring points (BNQ-1 and BNQ-2) located in the nearest residential areas.

The measurements were carried out using the AWA5688A noise meter. The measurement kit is a Class 2 sound level meter in accordance with the requirements of IEC 61672-1:2013. Device calibration was performed before each measurement, and the calibration values were within the acceptable range.

The measuring microphone, fitted with a fixed windshield, was placed at a height of 1.5 m above ground level on a dedicated tripod. No acoustic interference requiring the interruption of a measurement or the rejection of part of a measurement period was noted during any of the measurements performed.

L_{Aeq}, L_{90}, L_{Amin} and L_{Amax} were recorded for reference; descriptions of these noise descriptors are provided in ***Table*** 5-1. The monitoring procedures, data analysis and interpretation were carried out in accordance with the WBG EHS General Guidelines: Environmental Noise Management.

TABLE 5-1 NOISE DESCRIPTORS

Noise Descriptor	Description
LA_{eq}	The A-weighted, equivalent continuous sound level, in decibels having the same total sound energy as the fluctuating level measured.
L_{90}	Noise level exceeded 90 percent of the time and represents the background levels.
L_{max}	Highest recorded sound level.
L_{min}	Lowest recorded sound level.

5.1.1.2 SAMPLING AND NOISE SENSITIVE RECEIVERS' LOCATION

The representative Noise Sensitive Receivers (NSRs) for this Project are selected at the nearest residential areas, which are the Slaouiyine (NSR-1) and Gouaret Mechahla (NSR-2). Baseline ambient noise measurements were conducted at the villages to understand the prevailing noise baseline. ***Table*** 5-2 and ***Figure*** 5-1 show the coordinates and locations of the sampling points.

TABLE 5-2 NOISE MEASUREMENT AND NOISE SENSITIVE RECEIVERS' LOCATIONS

No.	Noise Monitoring Points (NSR)	Coordinates	Nearest Distance to Project Boundary (km)
1	NSR-1 (Slaouiyine)	35°39'27.93"N, 5°46'48.81"W	0.97
2	NSR-2 (Gouaret Mechahla)	35°39'10.14"N, 5°48'4.22"W	1.01

FIGURE 5-1 NOISE SAMPLING LOCATIONS AND NOISE SENSITIVE RECEIVERS



FIGURE 5-2 NOISE MEASUREMENT



BNQ-1 (Slaouiyine)



BNQ-2 (Gouaret Mechahla)

5.1.1.3 IMPACT ASSESSMENT CRITERIA

Morocco Law 11-03 on the Protection and Enhancement of the Environment (Art. 47) stipulates that noise likely to cause a nuisance to neighbours or to harm the environment must be avoided. It does not, however, lay down any specific noise levels to be respected. Similarly, Morocco *Law 99-12*, establishing the framework, confirms the need to establish and improve regulations on noise emissions; however, no specific noise level is stipulated in either local decree.

In the absence of regulatory values in Morocco, the thresholds published in the WBG EHS General Guidelines are used as a reference, as shown in ***Table*** 5-3.

TABLE 5-3 NOISE LEVEL STANDARDS FROM IFC GUIDELINES

Receptor	**One-hour LAeq (dB(A))**	
	Daytime (07:00–22:00)	Nighttime (22:00–07:00)
Residential; institutional; educational	55	45
Industrial; commercial	70	70

5.1.1.4 MONITORING RESULTS

The results of the noise level measurements at monitoring points BNQ-1 and BNQ-2 are shown in ***Table*** 5-4. Weather conditions during the monitoring period were fine, with temperatures

between 25 and 27 °C, a relative humidity of approximately 80% and wind speeds of 1.0 to 3.3 m/s.

One-hour L_{Aeq} levels were generally below the applicable WBG EHS residential noise criteria. At BNQ-1, a daytime exceedance was recorded at 14:00 on 21 October 2025, when the one-hour L_{Aeq} reached 55.8 dB(A), exceeding the daytime criterion by 0.8 dB(A). At BNQ-2, daytime exceedances were recorded at 12:00 on 19 October and at 09:00 and 10:00 on 21 October, with one-hour L_{Aeq} levels of 58.5, 58.0 and 55.2 dB(A), respectively, representing exceedances of 3.5, 3.0 and 0.2 dB(A). A nighttime exceedance was also recorded at BNQ-2 at 00:00 on 21 October, when the one-hour L_{Aeq} reached 47.2 dB(A), exceeding the nighttime criterion by 2.2 dB(A). The hourly variation in measured noise levels is presented in ***Figure*** 5-3.

FIGURE 5-3 HOURLY AMBIENT NOISE LEVELS AT BASELINE MONITORING LOCATIONS

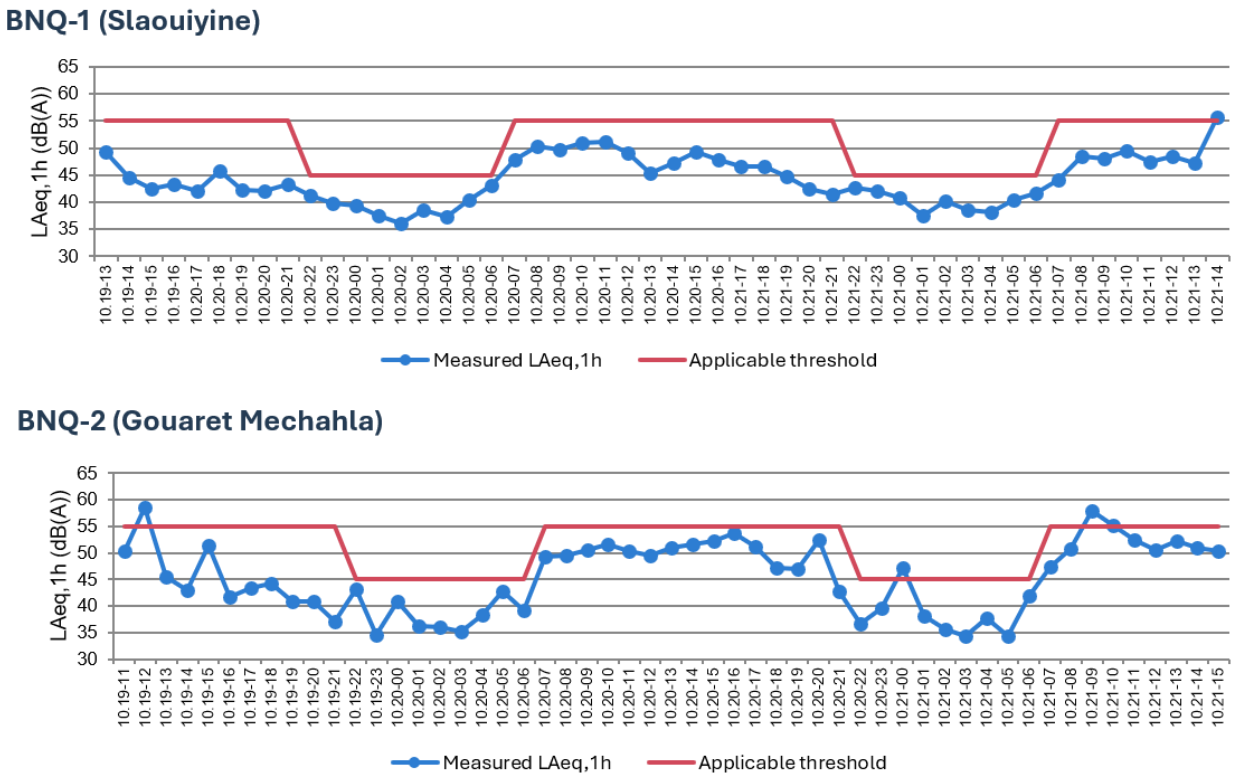


TABLE 5-4 RESULTS OF NOISE MEASUREMENT

Point	**Weather Parameters**			**Measured Noise Level, dB(A)**				
	Temp. (°C)	Humidity (%)	Wind speed (m/s)	L_{Min}	L_{Max}	Leq, 1 h, daytime (1)	Leq, 1 h, nighttime (1)	L_{90}
BNQ-1 (Slaouiyine)	27	80	1.0–3.3	22.6	98.2	41.5–55.8	36.0–43.1	33.4
BNQ-2 (Gouaret Mechahla)	25	80	3	24.1	93.9	37.0–58.5	34.3–47.2	31.9
WBG General EHS Guidelines (Residential) (2)				/	/	55	45	/

Note:

(1) WBG Environmental Health and Safety (EHS) General Guidelines define daytime as 07:00-22:00 and nighttime as 22:00-07:00.

(2) In the absence of regulatory noise limit in Morocco, the thresholds published in WBG Environmental Health and Safety (EHS) General Guidelines are used as a reference.

TABLE 5-5 ASSESSMENT OF EXCEEDING HOUR DATA

Monitoring location	**BNQ-1**		**BNQ-2**				
Monitoring duration	14:00 to 15:00 on October 21	Other daytime of BNQ-1	12:00 to 13:00 on October 19	9:00 to 10:00 on October 21	Other day time of BNQ-2	0:00 to 1:00 on October 21	Other nighttime of BNQ-2

L_{Max}	**98.2**	60.3~77.1	**92.9**	77.5	56.7~93.9	**81.5**	57.6~75.5
L_{10}	52.4	43~54	53.7	60.5	37.5~57.0	39.8	34.3~45.5
L_{Aeq}	55.8	41.5~51.2	58.5	58.0	27.0~55.2	47.2	34.3~43.1
L_{50}	45.7	37.2~49.0	43.7	56.5	31.7~53.3	36.2	30.4~38.7
L_{90}	42.3	34.1~46.1	36.6	52.8	28.7~50.5	34.2	28.2~34.9
L_{Min}	37.5	29.0~41.4	29.5	46.3	24.9~44.5	46.3	24.1~32.2
percentage of monitoring data that exceeds the standard	5.4%	2.0%	7.5%	67.0%	4.2%	4.1%	1.9%

With reference to the approach adopted in BS 4142, $L_{A90,T}$ may be used as a statistical indicator of the underlying background sound environment, provided that the measurement period is representative of the conditions under assessment.

For monitoring data at BNQ-1 during 14:00-15:00 on 21 October, and at BNQ-2 during 12:00-13:00 on 19 October and during 0:00-1:00 on 21 October, the recorded L_{Max} values were markedly higher than those observed during other monitoring periods, while the corresponding L_{50} and L_{90} values remained within the typical range recorded throughout the survey. During these three hourly monitoring periods, approximately 4.1% to 7.5% of the measured samples exceeded the applicable noise criteria (1.9%~4.2%). This statistical pattern suggests that the hourly L_{Aeq} exceedances were most likely influenced by intermittent, short-duration high-noise events (such as traffic movements or other transient noise sources), rather than by a persistently elevated background noise environment.

In contrast, for the monitoring data at BNQ-2 during 09:00-10:00 on 21 October, the recorded L_{Max} remained within the range observed during the other monitoring periods, whereas both L_{50} and L_{90} were noticeably elevated. Approximately 67.0% of the measurement samples recorded during this hour exceeded the applicable daytime noise criterion, compared with only 4.2% during the other monitoring periods. This pattern indicates that noise levels remained elevated for a substantial proportion of the monitoring hour, rather than being dominated by a small

number of isolated high-noise events. The L_{Aeq} exceedance is therefore more consistent with the presence of a sustained or semi-continuous noise source than with transient noise events.

Based on the available site information, the elevated noise levels during this period may have been associated with activities at the nearby Chinese farm, including cooking operations, vehicle movements, and loading and unloading activities.

5.1.2 AMBIENT AIR BASELINE

5.1.2.1 MEASUREMENT METHODOLOGY

Levels of PMs (PM_{10}, $PM_{2.5}$), NO_2, SO_2, and total volatile organic compounds (TVOCs) were monitored to understand the baseline status of the regional ambient air.

SGS S.A. was commissioned to conduct ambient air quality survey to establish baseline air quality conditions for the Project.

TVOC samples were undertaken using Tenax type diffusion tubes in October 2025. Tenax is a porous polymer adsorbent commonly used for the collection and pre-concentration of volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) in air samples. Preparation and analysis of the diffusion tubes was undertaken in accordance with BS EN 13528. There is best practice guidance, adopted by this assessment, available from the US EPA and from the UK Department for the Environment, Food and Rural Affairs (DEFRA) on the siting and deployment of tubes. Analysis has been carried out in accordance with in-house method GLM 13.

NO_2 and SO_2 samples were undertaken using Palmes type diffusion tubes in August 2026. Diffusion tubes are passive samplers that consist of small plastic/brass tubes which contain a chemical reagent to absorb the pollutant to be measured directly from the air. Preparation and analysis of the diffusion tubes was undertaken in accordance with BS EN 13528. There is best practice guidance, adopted by this assessment, available from the US EPA and from the UK Department for the Environment, Food and Rural Affairs (DEFRA) on the siting and deployment of tubes. The analysis of the exposed tubes was undertaken using Ion Chromatography (United Kingdom Accreditation Service (UKAS) Accredited Method ISO/IEC 17025:2005).

PM samplings were undertaken using MiniVol low-volume air samplers(“MinVol”) in August 2026. A MinVol works by drawing a certain volume of air through a pre-weighed filter using a powerful blower or pump. Particulate matter in the air is trapped on the filter, and after a set sampling period (often 24 hours), the filter is re-weighed. The difference between the initial and final weights, divided by the total volume of air sampled, gives the concentration of particulate matter, which can be further analysed for specific pollutants.

5.1.2.2 SAMPLING LOCATION

Five sampling locations are set at the vicinity of the project footprint, where the Project has the most material impacts to ambient air quality throughout the Project cycle. Locations of the five sampling locations are illustrated in ***Table*** 5-6 and ***Figure*** 5-4.

TABLE 5-6 LOCATIONS OF AMBIENT AIR MONITORING POINTS

No.	Sampling Location	Coordinates	Nearest Distance to Project Boundary (km)	Parameters[(a)(b)]
AQ1-1	Chaouia	35°39'37.81"N 5°45'54.46"W	1.77	TVOC
AQ2-1	Chaouia	35°39'38.52"N 5°45'56.16"W	1.77	PM_{10}, $PM_{2.5}$, NO_2, SO_2

AQ1-2	Gouaret Mechahla	35°39'10.14"N 5°48'4.22"W	1.01	TVOC
AQ2-2	Gouaret Mechahla	35°39'29.82"N 5°48'16.18"W	2.14	PM_{10}, $PM_{2.5,}$ NO_2, SO_2
AQ2-3	Bibane	35°38'29.85"N, 5°48'54.18"W	2.69	TVOC, PM_{10}, $PM_{2.5,}$ NO_2, SO_2

Note:

(a) Benzo[a]pyrene (BaP) was excluded from the monitoring program due to the lack of analytical capability at local accredited laboratories.

(b) At the time of the baseline monitoring survey, the wastewater treatment facilities and associated emission stacks had not been identified. Accordingly, H_2S and NH_3 were not included as baseline monitoring parameters. Following confirmation of the wastewater treatment facilities, these substances were recognized as potential odour-related emissions associated with wastewater treatment processes rather than core manufacturing activities. To address this data gap, periodic monitoring of H_2S and NH_3 during the operational phase has been included in the ESMP.

FIGURE 5-4 AIR QUALITY SAMPLING



Sampler of PM



Sampler of SO_2 and NOx



Sampler of TVOC

FIGURE 5-5 AMBIENT AIR BASELINE MONITORING LOCATIONS



Legend	Ambient Air Baseline Monitoring Points		
Monitoring Point Project Boundary	Date: 24 August 2026	Drawn Size: 16x11 cm	Supplementary Environmental and Social Impact Assessment
	Drawn by: SX	Reviewed by: JC	
	Coordinate System/Source: WGS 1984		BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY
	This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.		

5.1.2.3 MONITORING RESULTS

The ambient air quality monitoring results are presented in ***Table*** 5-7, ***Table*** 5-8 **and** ***Table*** 5-9**.**

TABLE 5-7 MONITORING RESULTS OF AMBIENT AIR QUALITY – GASEOUS POLLUTANTS

Monitoring Results (μg/m³)		**AQ1-1**	**AQ1-2**
Date		2025/10/19	2025/10/19
TVOC(μg/m³)	Hourly Average	50	50

TABLE 5-8 MONITORING RESULTS OF AMBIENT AIR QUALITY-PM

Monitoring Results	**PM_{10}(μg/m³) 24-hour Average**	**$PM_{2.5}$(μg/m³) 24-hour Average**	**Date**
AQ2-1	<55.55	<55.55	2026.8.11~2026.8.12
	<55.55	<55.55	2026.8.12~2026.8.13

	<55.55	<55.55	2026.8.13~2026.8.14
	<55.55	<55.55	2026.8.14~2026.8.15
	<55.55	<55.55	2026.8.15~2026.8.16
	<55.55	<55.55	2026.8.16~2026.8.17
AQ2-2	<55.55	<55.55	2026.8.18~2026.8.19
	<55.55	<55.55	2026.8.19~2026.8.20
	<55.55	<55.55	2026.8.20~2026.8.21
	<55.55	<55.55	2026.8.21~2026.8.22
	<55.55	<55.55	2026.8.22~2026.8.23
	<55.55	<55.55	2026.8.23~2026.8.24
AQ2-3	<55.55	<55.55	2026.8.25~2026.8.26
	<55.55	<55.55	2026.8.26~2026.8.27
	<55.55	<55.55	2026.8.27~2026.8.28
	<55.55	<55.55	2026.8.28~2026.8.29
	<55.55	<55.55	2026.8.29~2026.8.30
	<55.55	<55.55	2026.8.30~2026.8.31

TABLE 5-9 MONITORING RESULTS OF AMBIENT AIR QUALITY-SO_2 AND NO_2

Monitoring Results		**AQ2-1**	**AQ2-2**	**AQ2-3**
Date		2026.8.11~2026.8.25	2026.8.11~2026.8.25	2026.8.11~2026.8.25
SO_2 ($\mu g/m^3$)	14-day Average	1.86	<1.39	<1.39
NO_2 ($\mu g/m^3$)	14-day Average	15.3	17.93	12.31

5.1.2.4 IMPACT ASSESSMENT CRITERIA

Morocco has established national legislated standards of ambient air quality. The ambient air quality standards (AAQS) of project related pollutants SO_2, NO_2, and PM (PM_{10} and $PM_{2.5}$) are listed in Decree No. 2-09-286 of 20 hija 1430 (8 December 2009) (refer to ***Table*** 5-10).

TABLE 5-10 AMBIENT AIR QUALITY STANDARD (NATIONAL)

Pollutant	Averaging Period	AAQS (1)
PM_{10}	24-hour	50 μg/m^3
	Annual	40 μg/m^3
$PM_{2.5}$	24-hour	45 μg/m^3
NO_2	24-hour	200 μg/m^3
	Annual	50 μg/m^3
SO_2	24-hour	125 μg/m^3

Note: (1) Decree No. 2-09-286 of 20 hija 1430 (8 December 2009).

For NO_2, the WHO 1-hour guideline value is adopted to assess short-term impacts, as no corresponding hourly standard is available under Moroccan legislation.

There is no applicable ambient air quality standard (AAQS) for VOCs, BaP, H_2S and NH_3 in national legislation of Morocco as well as World Organisation (WHO) Air Quality Guidelines. In this case, the following standards are referenced to, i.e. Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air[10], Chinese Technical guidelines for environmental impact assessment – Atmospheric environment[11] and Effects Screening Levels ("ESLs") from Texas Commission on Environmental Quality ("TCEQ")[12].

TABLE 5-11 REFERENCE STANDARDS FOR OTHER POLLUTANTS

Pollutant	Guideline Value	Duration	Remark
NO_2	200 μg/m^3	1-hour	WHO air quality guideline
BaP	0.001 μg/m^3	Annual	Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air

[10] https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32004L0107
[11] https://www.mee.gov.cn/ywgz/fgbz/bz/bzwb/other/pjjsdz/201808/W020180814672740551977.pdf
[12] Effects Screening Levels (ESLs) from Texas Commission on Environmental Quality: https://www.tceq.texas.gov/toxicology/esl.

TVOC	600 μg/m^3	8-hour	China Technical guidelines for environmental impact assessment – Atmospheric environment, Table D.1
H_2S	42	1-hour	Short-term ESLs
	0.8	Annual	Long-term ESLs
NH_3	1400	1-hour	Short-term ESLs
	100	Annual	Long-term ESLs

5.1.2.5 EXISTING AIRSHED CLASSIFICATION

The existing airshed classifications in terms of NO_2, SO_2, TVOC and PM (PM_{10} and $PM_{2.5}$) are established based on the maximum of the baseline ambient air quality monitoring results. Due to the absence of monitoring results for BaP, H_2S and NH_3, the existing airshed conservatively is assumed to be classified as degraded with respect to these pollutants.

The existing airshed classifications for the pollutants of interest are summarised in ***Table*** 5-12.

TABLE 5-12 SUMMARY OF EXISTING AIRSHED CLASSIFICATION

Pollutant	**Averaging Period**	**Baseline Concentration (μg/m^3)**	**AAQS (μg/m^3)**	**Existing Airshed Classification**
PM_{10}	24-hour	< 55.55	50	**Degraded**
$PM_{2.5}$	24-hour	< 55.55	45	**Degraded**
NO_2	Annual (1)	15.3	50 (human health)	Undegraded
SO_2	24-hour(2)	3.72	125	Undegraded
TVOC	8-hour (3)	50	600	Undegraded
BaP	Annual	Absence	0.001	**Degraded**
H_2S	1-hour	Absence	42	**Degraded**
	Annual	Absence	0.8	**Degraded**
NH_3	1-hour	Absence	1400	**Degraded**
	Annual	Absence	100	**Degraded**

Note:

(1)

(1) Conservatively use 14-day average monitoring results as annual average baseline.

(2) For sulphur dioxide, the 'short term' periods are 15 minutes, 1 hour and 24 hours. The period of 14 days is considered as a long-term averaging period. The maximum 14-day average SO_2 concentration was 1.86 µg/m³. Applying the conservative assumption that the short-term background concentration is twice the long-term concentration[13], the estimated short-term SO_2 concentration is 3.72 µg/m³.

(3) Conservatively use 1-hour average monitoring results as 8-hour average baseline.

[13] https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit

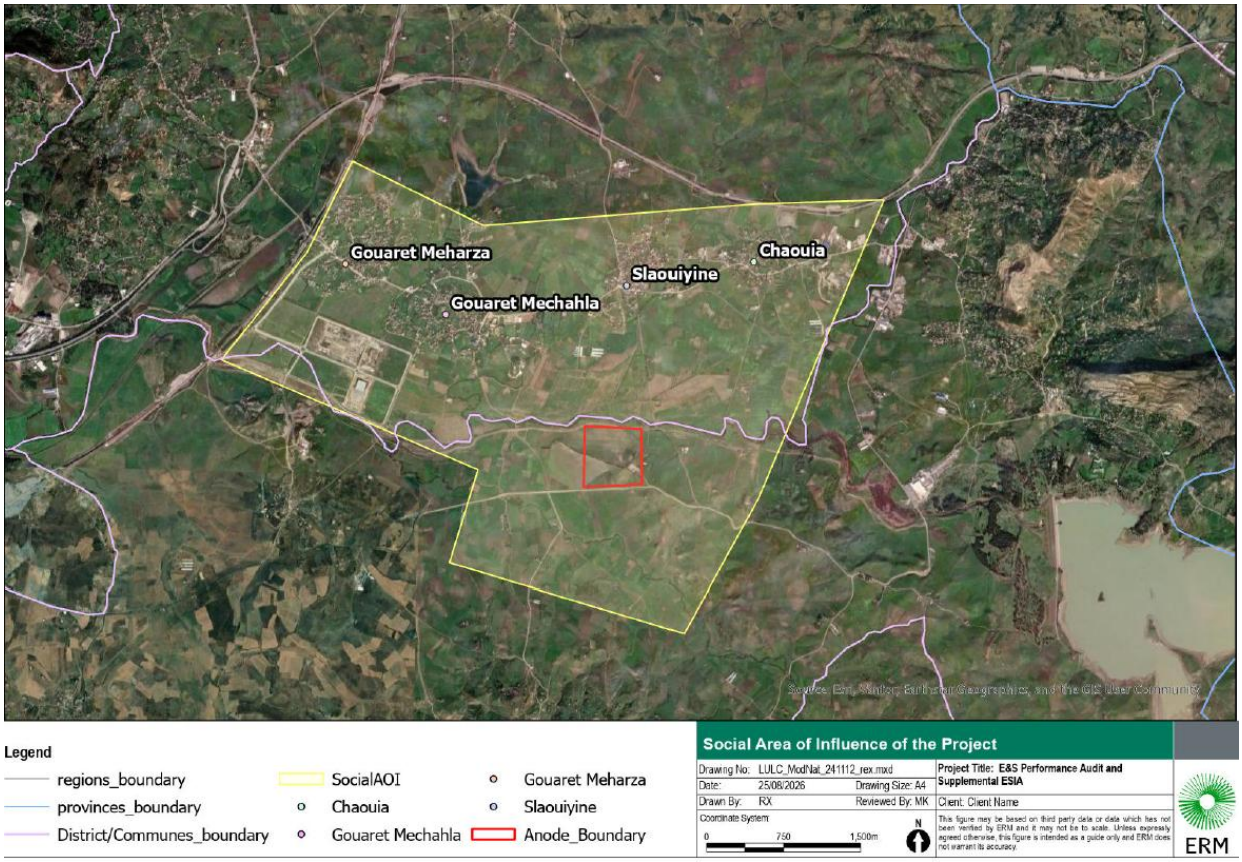
5.2 SOCIAL BASELINE

5.2.1 OVERVIEW OF SOCIAL AREA OF INFLUENCE

For the Project, a social AoI has been identified based on two factors: first, the proximity to the Project, and second, the interaction between communities and the Project activities during the construction and operation phases.

- An Area of Influence the Project site is defined based on the locations of the nearby communities (shown in ***Figure*** 5-6). A list of communities that fall within this area is presented in ***Table*** 5-13.
- Considering the impacts from Project activities and interactions with the Project, communities could receive.
- Direct impacts – interactions with the Project as a result of proximity to the footprint, e.g., impacts on social dynamics, livelihoods, community health, safety and security, public infrastructure, services and utilities.
- Indirect impacts – impacts from Project-related activities such as employment and procurement, but where the impacts are felt more indirectly.

FIGURE 5-6 PROJECT LOCATION AND SOCIAL AOI



Morocco's administrative structure is organised into several hierarchical levels. At the top are **Regions**, which serve as the largest territorial units and play a key role in regional governance and development planning. Each region is subdivided into **Provinces** (or Prefectures in urban areas), which handle local administration and coordination within their boundaries. Provinces are further divided into **Communes**, which can be either urban or rural; these are the primary units of local government responsible for delivering public services and managing community affairs. In rural areas, the local administrative structure also includes Caïdats, which are

headed by caids appointed under the Ministry of Interior and may cover one or more rural communes. Within rural communes, there are smaller settlements known as **Villages or Areas**, which represent the most localized level of administration, often focused on community-based issues and traditional governance structures.

TABLE 5-13 PROJECT SOCIAL AOI

Region	Prefecture	Commune	Village/Area	Expected Project impacts	
				Direct Impacts	Indirect Impacts
Tangier-Tétouan-Al Hoceïma (TTAH)	Tangier-Assilah	Laaouama Commune	Slaouiyine	✓	✓
			Chaouia	✓	✓
			Gouaret Meharza*	✓	✓
			Gouaret Mechahla	✓	✓
		Sebt Azzinate Commune	*Industrial Zone and immediate surroundings only**	✓	✓

* Gouaret Meharza and Gouaret Mechahla are closely interconnected and are generally identified by residents as the wider "Gouaret" community. Accordingly, information provided for Gouaret as a whole and not attributable to either village is presented as relating to the "Gouaret area".
* The Project site is located in Sebt Azzinate Commune, along the communal boundary with Laaouama Commune. All nearby communities are located to the north, in Laaouama Commune. There are no villages in the immediate vicinity of the Project within Sebt Azzinate Commune. However, as the Project site itself is within Sebt Azzinate boundaries, socio-economic baseline information about this Commune has been included in this report.

5.2.2 DATA COLLECTION METHODOLOGY

The scope and content of the social baseline have been tailored to the Project context, within the boundaries of the Social AoI outlined above. The baseline draws on a review of available desktop data from a range of secondary sources and primary data gathered through stakeholder engagement activities with Tangier-Assilah Prefecture, Laaouama Caidat, Sebt Azzinate and Laaouama Communes, Cité Mohammed VI Tangier Tech Industrial Acceleration Zone, and AoI villagers during a site visit between 10 August and 14 August. Methods for collecting baseline data in the Social AoI include the following:

- **Desktop Research**

ERM referred to public sources, academic research, local laws and regulations, including statistics provided by Moroccan national agencies such as the High Commission for Planning (HCP) and the Ministry of Health and Social Protection, reports by international organisations such as the International Labour Organisation (ILO), publicly available data or studies published by NGOs or other institutions, and satellite imagery of the Social AoI.

- **Key Informant Interviews (KIIs) with government officials to collect qualitative and quantitative data**

Online KIIs were conducted with representatives from the Regional Investment Centre (CRI) of TTAH Region, the Loukkos River Basin Agency (ABHL), the Ministry of Equipment and Water, the Regional Office of the National Agency for Water and Forests (ANEF), and the Regional Environmental Department. Information about topics including previous land use, Project concerns and priorities, impacts, and use of natural resources were discussed during the KIIs.

- **Key Informant Interviews (KIIs) with SATT to collect qualitative and quantitative data**

A KII with the representatives from the SATT was conducted during the site visit. SATT, or *Société d'Aménagement Tangier Tech*, is the Tangier Tech Development Company responsible for the development and management of the Cité Mohammed VI Tangier Tech, a major smart city and industrial zone in Tangier-Assilah Prefecture, Morocco. This meeting provided an opportunity to understand the wider industrial-zone development context, management interfaces, infrastructure and access issues, and potential interactions between the Project, other industrial-zone activities and surrounding communities. Besides, information about the potential positive impact that the Project might bring to the local employment and local services were discussed.

- **Key Informant Interviews (KIIs) with Commune Level officials to collect qualitative and quantitative data**

KIIs with the Presidents and directors of Laaouama Commune and Sebt Azzinate Commune were conducted during the site visit to collect baseline information on the communes. The data collected included quantitative statistics on demographics, household profiles, and livelihoods. Qualitative information on community trends, security concerns, attitudes towards the Project, and perceived Project impacts were also collected.

- **Focus Group Discussion (FGD) with villagers from AoI areas to collect qualitative and quantitative data**

FGDs with men and women from the AoI villages were conducted separately during the site visit. Four FGDs were conducted, including two with men and two with women, involving participants from the same nearby villages, namely Gouaret Meharza, Gouaret Mechahla, Slaouiyine and Chaouia. During the FGDs, information about basic profile of the community, project concerns, thoughts and impressions towards the project were collected. Specifically, additional data regarding gender equity in terms of livelihood and employment, education, and public participation were collected in the women's FGD.

A household-level socio-economic survey was not undertaken because the ESIA was designed to be proportionate to the Project's anticipated risks and impacts at the current stage of development. Considering the nearest residential areas are at least 800 m away from the Project site and the Project has already started construction (current situation therefore not reflecting original baseline conditions), the data collection approach focused on using secondary data, stakeholder consultations, key informant interviews, focus group discussions and field observations to develop the socio-economic baseline. Key informant interviews with commune presidents and village representatives (Moqadems) included community profiling questions, so secondary data could be supplemented with localized insights and village specific information where possible.

The absence of a household survey limits the availability of quantitative household-level data and reduces the ability to statistically assess socio-economic conditions across the Project

area. Consequently, the baseline relies more heavily on qualitative information and publicly available statistics. Nevertheless, the combination of multiple data sources provides a comprehensive understanding of local socio-economic conditions, livelihoods, community characteristics, and vulnerable groups to support the assessment of likely Project impacts.

5.2.3 DEMOGRAPHICS AND VULNERABILITY

5.2.3.1 DEMOGRAPHICS

National Level

Based on the latest official data from the Moroccan High Planning Commission, the legal population of Morocco[14] stood at 36,828,330 people as of 1 September 2024[15]. This represents an annual growth rate of 0.85% compared to the last national census in 2014. Based on the 2024 municipal population of 36,490,591, 50.2% (18,295,103) was female and 49.8% (18,195,488) was male. Around 62.8% of the population is classified to be residing in urban areas (23,110,108 inhabitants), while 37.2% lived in rural zones (13,718,222 inhabitants). ***Table*** 5-14 shows the population of Morocco in 2014 and 2024. On the national level, the population shows a strong urbanizing trend, as the total average annual growth rate (AAGR) between 2014-2024 was 0.85%, but the growth rate in urban areas (1.24%) significantly outpaced that of rural areas (0.22%).

TABLE 5-14 POPULATION OF MOROCCO IN 2014 AND 2024

Unit	**Population**					
	2014			2024		
	Urban	Rural	**Total**	Urban	Rural	**Total**
National	20,432,439	13,415,803	**33,848,242**	23,110,108	13,718,222	**36,828,330**

Source : National Population Census Accounts 2024

The age structure of the population indicates that 59.7% are aged 15 to 59 years, with a higher proportion in urban areas (61.2%) than in rural areas (57.1%). Children under 15 years of age constitute 26.5% of the population, with a higher share in rural areas (29.5%) compared to urban areas (24.8%), reflecting elevated fertility rates in rural zones. The proportion of the population aged 60 years and over is 13.8% nationally, with little variation between urban and rural areas. The national average household size is 3.9 persons per household, though it is lower in urban areas (3.7 persons) and higher in rural areas (4.4 persons). On average, 58.3% of the population aged 15 and over are married (57.9% for men and 58.7% for women), while the average age of marriage was 28.5 years (32.4 for men and 24.6 for women). The marriage rate is higher in rural areas than urban areas, and the average

[14] Unless otherwise stated, population totals, distributions and growth rates in this report refer to the legal population. Demographic and socioeconomic characteristics are based on the municipal population where this is the statistical basis used by HCP. The legal population comprises the municipal population and the population counted separately.
[15] High Commission for Planning (HCP). General Population and Housing Census 2024 (RGPH 2024) database.

marriage age is lower in rural areas than urban areas. The total fertility rate nationally is 1.97, though higher in rural areas than in urban areas.

Regional and Prefectural Level

The TTAH Region saw its population increase from 3,556,729 inhabitants in 2014 to 4,030,222 in 2024, representing an average annual growth rate (AAGR) of 1.26%, above the national rate of 0.85%. The region remained the fifth most populous region in Morocco. Its urban population increased from 2,131,725 to 2,638,815, with an AAGR of 2.16%, while its rural population declined from 1,425,004 to 1,391,407, with an AAGR of -0.24%. Accordingly, the urbanisation rate increased from 59.9% to 65.5%, indicating a stronger urbanisation trend than at the national level.

Tangier-Assilah Prefecture experienced substantially faster growth, with its population increasing from 1,065,601 inhabitants in 2014 to 1,494,413 in 2024, representing an AAGR of 3.44%, the highest among the provinces and prefectures of the region. In 2024, the prefecture accounted for approximately 37.1% of the regional population. Its urban population increased from 1,005,041 to 1,402,668, with an AAGR of 3.39%, while its rural population increased from 60,560 to 91,745, with an AAGR of 4.24%. Despite growth in both areas, Tangier-Assilah remained predominantly urban, with an urbanisation rate of approximately 93.9% in 2024.

Overall, the population structure of the TTAH Region and Tangier-Assilah Prefecture is presented in ***Table*** 5-15.

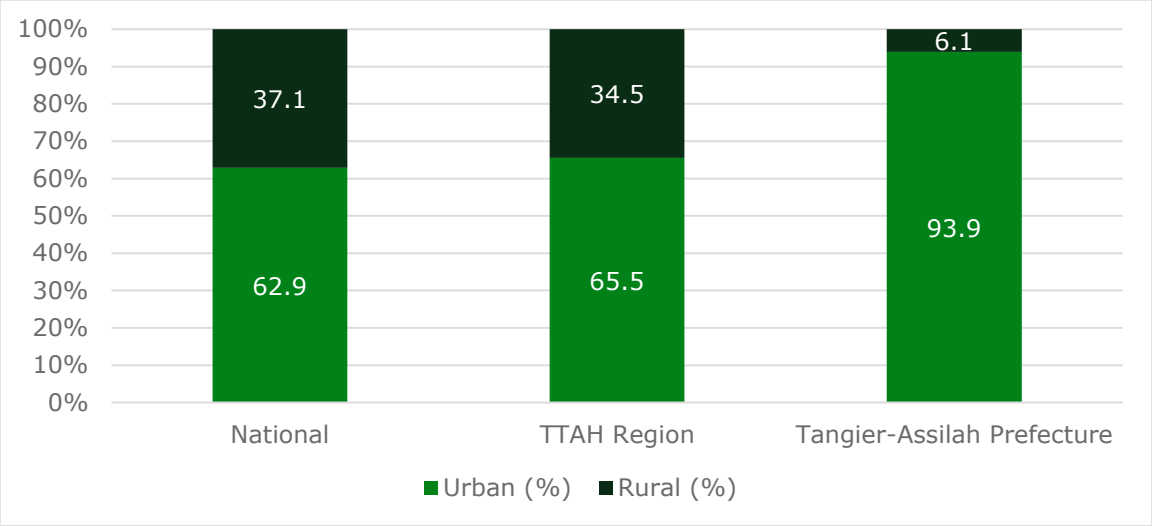
TABLE 5-15 POPULATION OF TTAH REGION AND TANGIER-ASSILAH PREFECTURE IN 2014 AND 2024

Region / Prefecture	**Population**					
	2014			2024		
	Urban	Rural	**Total**	Urban	Rural	**Total**
TTAH Region	2,131,725	1,425,004	**3,556,729**	2,638,815	1,391,407	**4,030,222**
Tangier-Assilah Prefecture	1,005,041	60,560	**1,065,601**	1,402,668	91,745	**1,494,413**

Source : National Population Census Accounts 2024

In terms of the urban-rural divide, 65.5% of the population of the TTAH Region live in urban areas in 2024, compared with 93.9% in the Prefecture of Tangier-Assilah. ***Figure*** 5-7 compares the urban-rural distribution at the national, regional and prefectural levels, showing that Tangier-Assilah is substantially more urbanized than both the national average and the region as a whole.

FIGURE 5-7 URBAN-RURAL POPULATION DISTRIBUTION ON NATIONAL, REGIONAL, AND PROVINCIAL LEVELS



Based on the municipal population, the gender distribution in the TTAH Region is broadly balanced, with males accounting for 50.8% (2,035,494) and females for 49.2% (1,973,161) of the population. The distribution is the same in the Prefecture of Tangier-Assilah, where males account for 50.8% (755,166) and females for 49.2% (732,070). The gender difference is more pronounced in rural areas: males account for 51.9% of the regional rural population and 52.5% of the prefecture's rural population, compared with 50.2% and 50.7%, respectively, in urban areas.

In terms of age structure, 27.2% of the municipal population of the TTAH Region is under 15 years of age, 61.1% is aged 15 to 59 and 11.8% is aged 60 and over. The Prefecture of Tangier-Assilah has a slightly larger working-age population, with 26.7% under 15, 63.3% aged 15 to 59 and 10.0% aged 60 and over. At both levels, rural areas have higher proportions of children and lower proportions of working-age residents than urban areas, while urban-rural differences in the proportion aged 60 and over are relatively limited.

The average household size is below the national average of 3.9 persons in both the TTAH (3.8) and the Prefecture of Tangier-Assilah (3.6). Rural households remain larger than urban households, averaging 4.3 and 3.6 persons, respectively, in the Region and 4.2 and 3.5 persons in the Prefecture.

The proportion of married individuals is broadly similar in the TTAH Region (57.1%) and the Prefecture of Tangier-Assilah (56.8%). Women have a slightly higher proportion married than men at both levels. Marriage is more prevalent in rural areas, particularly in the Prefecture, where 61.7% of the population aged 15 and over is married, compared with 56.5% in urban areas. The corresponding proportions in the Region are 58.8% and 56.3%. The average age at first marriage is 29.0 years in the Region and slightly lower, at 28.8 years, in the Prefecture, with women marrying earlier than men.

The total fertility rate is 2.01 children per woman in the Region and 1.94 in the Prefecture. Consistent with the national pattern, fertility is higher in rural than urban areas, at 2.41 and 1.84, respectively, in the Region and 2.49 and 1.91 in the Prefecture.

Communal Level

The legal population of Laaouama increased from 8,013 in 2014 to 19,187 in 2024, representing an overall increase of approximately 139.4% over the ten-year period and an AAGR of approximately 9.12%,[16] making it one of the fastest-growing communes in the Prefecture. As Laaouama is classified as a rural commune, its population is counted as rural by HCP. Based on the municipal population, Laaouama has 19,052 residents, of whom 52.3% are male and 47.7% are female, indicating a slightly male-skewed gender distribution. Laaouama also has a young age structure, with 33.5% of the population under 15 years of age, 59.2% aged 15 to 59 and 7.3% aged 60 and over. Compared with the national, regional and prefectural averages, Laaouama has a higher share of children and a lower share of elderly residents. Marriage is also more common than at the national, regional and prefectural levels, with 66.7% of the municipal population aged 15 and over being married. Women have a higher married proportion than men, and the average age at first marriage is 26.0 years, with women marrying earlier than men. Fertility is higher than the prefectural and regional averages, with a total fertility rate of 2.38 children per woman.[17]

Sebt Azzinate recorded notable growth, with its legal population increasing from 5,153 in 2014 to 7,265 in 2024, representing an overall increase of approximately 41.0% over the ten-year period and an AAGR of approximately 3.49%.[18] As Sebt Azzinate is classified as a rural commune, its population is counted as rural by HCP. Based on the municipal population, Sebt Azzinate has 7,263 residents, of whom 53.4% are male and 46.6% are female, indicating a slightly male-skewed gender distribution. Sebt Azzinate also has a young age structure, with 32.0% of the population under 15 years of age, 58.4% aged 15 to 59 and 9.6% aged 60 and over. Compared with the national, regional and prefectural averages, Sebt Azzinate has a higher share of children and a lower share of elderly residents. Marriage is also more common than at the national, regional and prefectural levels, with 61.6% of the municipal population aged 15 and over being married. Women have a higher married proportion than men, and the average age at first marriage is 28.4 years, with women marrying earlier than men. Fertility is also higher than the prefectural and regional averages, with a total fertility rate of 3.22 children per woman.[19]

TABLE 5-16 POPULATION OF LAAOUAMA COMMUNE AND SEBT AZZINATE COMMUNE IN 2014 AND 2024

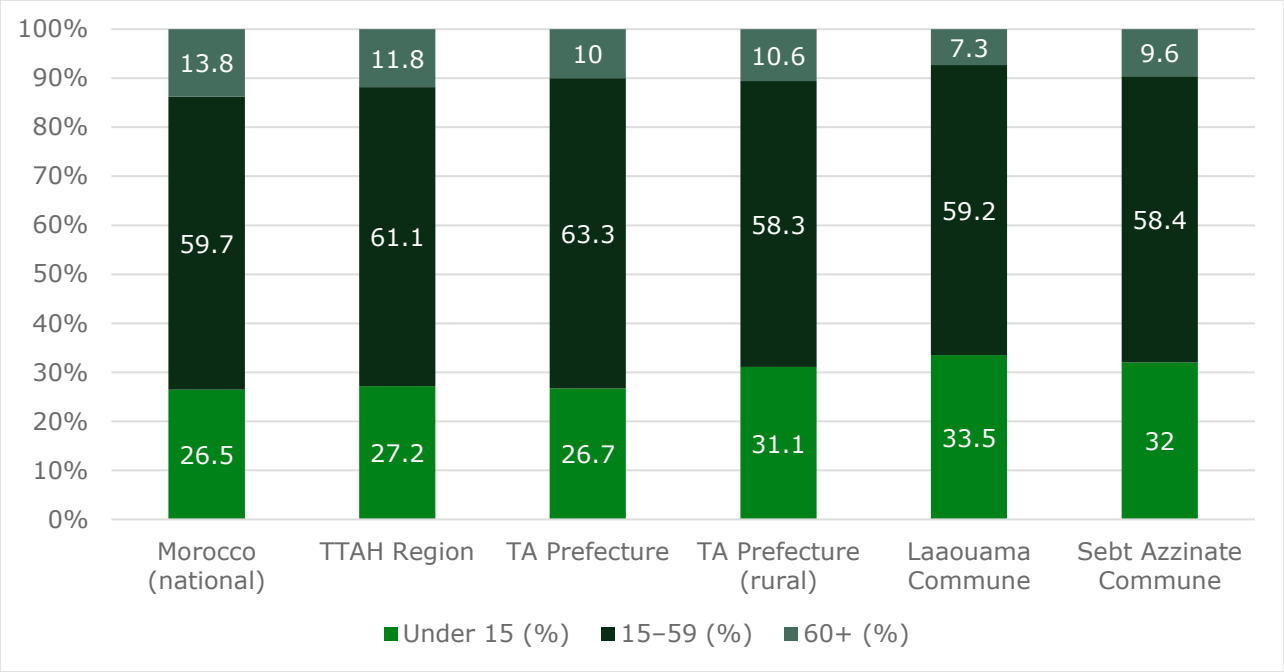
Commune / Municipality	Population	
	2014	2024
	Total	Total
Laaouama Commune	8,013	19,187
Sebt Azzinate Commune	5,153	7,265

Source : National Population Census Accounts 2024

Figure 5-8 shows the age distribution across different administrative units.

[16] High Commission for Planning (HCP). Legal population of the Kingdom of Morocco according to the 2024 General Population and Housing Census.
[17] HCP, RGPH 2024 Database.
[18] HCP, RGPH 2024 legal population tables.
[19] HCP, RGPH 2024 Database.

FIGURE 5-8 AGE DISTRIBUTION ON NATIONAL, REGIONAL, PROVINCIAL, AND COMMUNE LEVELS



Source : National Population Census Accounts 2024

AoI Villages

Official data of village level demographics are not available. Based on site visit data collection, the AoI villages are generally long-settled rural communities with close household and kinship ties.

FIGURE 5-9 HOUSES IN GOUARET MEHARZA



The AoI villages, particularly Gouaret Meharza and Gouaret Mechahla, have also experienced visible in-migration associated with the development of the Industrial Acceleration Zone. During the site visit, ERM observed residential buildings rented to incoming workers, including both Chinese and Moroccan workers, as well as Chinese restaurants, shops and advertising

along the main road. Community participants similarly reported increased population density and the presence of a substantial Chinese workforce in the area.

FIGURE 5-10 CHINESE RESTAURANTS IN GOUARET AREA



5.2.3.2 VULNERABLITY

In accordance with IFC Performance Standard 1 and AIIB Environmental and Social Standard 1, disadvantaged or vulnerable individuals and groups are those who may be disproportionately affected by Project impacts, have limited ability to benefit from Project opportunities, or face barriers to stakeholder engagement and grievance mechanisms due to factors such as age, gender, disability, health status or socioeconomic circumstances. These factors may overlap and compound vulnerability.

While the Moroccan state does not provide an exact definition of vulnerable groups, certain measures can be used to assess the vulnerability of people groups. The HCP's definition of multidimensional poverty takes into account several aspects of deprivation, including infant mortality, disability, school enrolment for children, number of years attending school, access to electricity, clean water, sanitation, housing, cooking method, and means of communication. A household is classified as multidimensionally poor where its weighted deprivation score is at least 33%, while a household is considered vulnerable to multidimensional poverty where its score is between 20% and less than 33%.[20] Id. [21] In 2024, 6.8% of Morocco's population was classified as multidimensionally poor and a further 8.1% was considered vulnerable to multidimensional poverty. Separately, the HCP defines monetary vulnerability as the condition of individuals whose average annual per capita expenditure falls between the relative poverty

[20] High Commission for Planning. (2025). The database of the Multidimensional Poverty Mapping, Territorial Landscape and Dynamics, May 2025 (*La base de données de la Cartographie de la pauvreté multidimensionnelle, Paysage territorial et Dynamique, Mai 2025).*

line and 1.5 times this threshold.[22] Based on this monetary measure, the national vulnerability rate for Morocco stood at 12.9% in 2022.

The TTAH Region recorded rates of 7.1% for multidimensional poverty and 8.8% for vulnerability. Tangier-Assilah Prefecture registered a multidimensional poverty rate of 3.1% and a vulnerability rate of 2.2%. At communal level, 9% of Sebt Azzinate Commune's population lived in multidimensional poverty in 2024, with 14.9% vulnerable to multidimensional poverty. This marks a notable drop from 2014, when 27.6% faced multidimensional poverty and 30.6% were classified as vulnerable. Laaouama Commune exhibits a similar downward trend, with its 2024 multidimensional poverty rate at 4.8% and vulnerability rate at 2.8%, versus 14.5% and 22% in 2014. [23]

Aside from the definition of vulnerability based on multidimensional poverty, a Direct Social Benefit programme was launched in 2023 to disburse financial aid for households classified in Morocco's Unified Social Registry as social categories in need, as well as school-age children, children with disabilities, newborns, and families in precarious situations without school-aged children, especially those with elderly dependents.[24] National-level data indicate that the programme had reached approximately 3.9 million families by the end of 2025; however, commune-level beneficiary data for the Project AoI was not available.[25]

The vulnerable groups in this Project are defined as follows:

- People who face poverty or economic vulnerability (whose average annual expenditure is between relative poverty line and 1.5 times that line);
- People who receive benefit from the official Social Benefit Program;
- Female-headed Household;
- Elderly (Pensioners); and
- Disabled People.

Based on the 2024 census data, the number of vulnerable groups in the Project AoI are estimated to be as follows:

TABLE 5-17 ESTIMATED NUMBER OF VULNERABLE INDIVIDUALS IN LAAOUAMA COMMUNE AND SEBT AZZINATE COMMUNE

Vulnerability	Laaouama	Sebt Azzinate
People who face economic poverty or vulnerability[26]	1,447	1,736
People receiving social benefit	*Not available*	*Not available*
Female-headed Household	*Not available*	*Not available*

[22] https://www.hcp.ma/methodologie-pauvrete-vulnerabilite_r497.html
[23] High Commission for Planning (HCP). (2025). The Database of the Multidimensional Poverty Mapping, Territorial Landscape and Dynamics, May 2025 (*La base de données de la Cartographie de la pauvreté multidimensionnelle, Paysage territorial et Dynamique, Mai 2025*).
[24] The government is launching the registration process to benefit from the Royal Direct Social Assistance Program through the electronic portal www.asd.ma | Head of Government - Kingdom of Morocco
[25] Morocco World News. Morocco Direct Social Aid Program Reaches 3.9 Million Households in First Full Year, 9 June 2026.
[26] An estimate calculated according to the following formula: (Percentage of people in a state of multidimensional poverty + Percentage of people vulnerable to poverty) * Total population

Elderly (Pensioners)	*Not available*	*Not available*
Disabled People	514	261

5.2.4 ETHNICITY, RELIGION AND LANGUAGE

5.2.4.1 LANGUAGE

Although Arabic is widely used across the country, Morocco is characterised by considerable linguistic diversity. According to the 2011 Constitution, Arabic and Amazigh are the official languages. Classical Arabic holds particular religious significance as the language of the Quran; however, it is not widely spoken in daily life, with most Arabic-speaking Moroccans using local varieties (often collectively referred to as Darija). The principal Amazigh varieties spoken in Morocco include Tamazight, Tachelhit and Tarifit, or Rifain.

For many years, Morocco's Amazigh population sought greater recognition from the state. This led to the constitutional recognition of Amazigh as an official language in 2011. In 2023, the government launched further measures to strengthen its integration into public administration, alongside its broader use in education and other areas of public life. French remains widely used in administration but is not an official language.

According to the 2024 Census, 18.9% of Morocco's population reports an Amazigh language as their mother tongue, rising to 29.5% in rural areas. At the regional and prefectural levels, Darija is the predominant local language. It is used by 96.4% of the population in the TTAH Region and 98.5% in the Prefecture of Tangier-Assilah. Amazigh varieties are reported by much smaller shares, with Tarifit being the most common, at 7.8% in the Region and 4.4% in the Prefecture.[27] In rural areas, Darija remains highly prevalent, particularly in the Prefecture, where it is used by 99.0% of the population.[28]

Laaouama Commune and Sebt Azzinate Commune are predominantly Arabic-speaking. 94.3% of Laaouama's population reports Arabic as their mother tongue, while 5.7% reports Amazigh. In Sebt Azzinate, Arabic is even more dominant, reported by 98.9% of the population, while 1.0% reports Amazigh as their mother tongue.[29] Although it is noted that the 2024 Census has seen criticism of certain activist groups in terms of its methodology and underrepresentation of the Amazigh population, it is considered unlikely there would be a significant Amazigh community near the Project area.[30] In particular, ERM's Focus Group Discussions and other site visit activities observed no Amazigh-speaking participants and Commune representative confirmed that the Commune populations are culturally homogeneous.

5.2.4.2 ETHNICITY

The two (2) main ethnic groups in Morocco are Arabs and Amazigh. The Moroccan census does not collect data on ethnicity or religious affiliation on national or local levels. The Constitution recognises Islam as the religion of the state. Morocco's population is broadly described as predominantly Arab-Amazigh[31]. Morocco is also home to other various ethnic groups, including

[27] These indicators are non-exclusive and should not be summed.
[28] HCP, RGPH 2024 Database.
[29] HCP, RGPH 2024 Database.
[30] International Work Group for Indigenous Affairs. (2025). The Indigenous World 2025: Morocco. https://iwgia.org/en/morocco/5632-iw-2025-morocco.html
[31] This figure is difficult to confirm, especially if Amazigh-speaking populations and Arabized-Amazigh are considered different ethnically.

an estimated 3.7 million Black Moroccans, who make up about 10% of the population. Among them are the Gnawa people, a community with historical roots in sub-Saharan Africa. The Sahrawis, primarily from the Western Sahara region, number approximately 90,000, while the Jewish community, although much smaller today, consists of around 2,000 people, representing less than 0.01% of the population. The communal action plans associate both communes with a shared Jbala cultural identity, while also recording diverse historical origins,[32] particularly in Sebt Azzinate.[33] Community members from the Project AoI settlements who participated in the FGDs reported no knowledge of minority ethnic groups in their communities. The Presidents of both communes similarly described the local population as culturally homogeneous and predominantly comprising long-established families that have lived in the area for several decades. Religion

Islam is recognised as the official state religion, and the King holds the title of "Commander of the Faithful" (*Amir al-Mu'minin*), charged with ensuring that Islam is observed throughout the country. Non-Muslim foreign communities are allowed to worship openly. Morocco's census does not collect data on religious affiliation. External estimates commonly suggest that more than 99% of the population identifies as Sunni Muslim. Some recent surveys indicate that a significant share of respondents describe themselves as non-religious, particularly among younger generations, despite continuing to identify as Muslim.[34] At the Project AoI level, community profiling undertaken during ERM's fieldwork indicates that Islam is the predominant religion.

FIGURE 5-11 MOSQUE IN GOUARET MECHAHLA



[32] Commune of Laaouama, Communal Action Plan 2017–2022 (*Plan d'action de la Commune de Laaouama 2017–2022*), 2019.

[33] Commune of Sebt Azzinate, Communal Action Plan 2022–2027 (*برنامج عمل جماعة سبت الزينات 2022–2027*), 2024.

[34] https://www.state.gov/reports/2022-report-on-international-religious-freedom/morocco

5.2.5 INDIGENOUS PEOPLE

There is no universally accepted definition of "Indigenous Peoples", and their identification is generally assessed based on a combination of factors, including self-identification, distinct cultural identity, collective attachment to customary lands or natural resources, and distinct social, cultural or linguistic institutions.[35]

In Morocco, the application of the Indigenous Peoples framework to the Amazigh population is context-specific. International organisations and Amazigh associations often refer to the Amazigh as Indigenous Peoples of North Africa; however, Morocco has not ratified the ILO Indigenous and Tribal Peoples Convention, 1989 (No. 169), and Moroccan law does not appear to establish a separate Indigenous Peoples category comparable to that used under IFC Performance Standard 7 and AIIB ESS3. The 2011 Constitution recognises Amazigh as an official language of the State, alongside Arabic, and describes it as a common heritage of all Moroccans. [36]

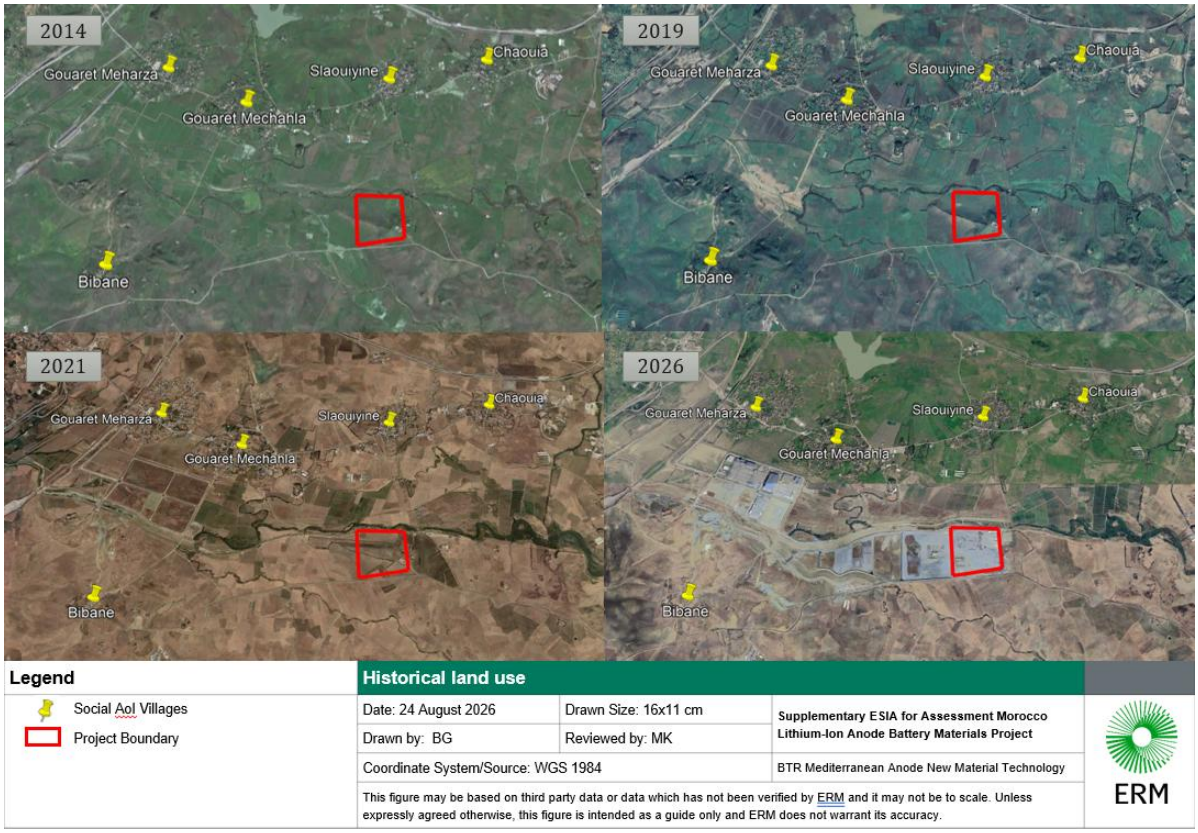
Based on the site observation and baseline surveys, no participants were observed to speak Amazigh or reported the presence of any minority ethnic groups. Thus, within the social AoI area, no indigenous people are defined or detected.

5.2.6 LAND USE

According to the SATT, the wider industrial-zone area was acquired through a government-led expropriation process that commenced in 2015. This is consistent with information provided by the Laaouama Commune President, who indicated that land in the Tangier Tech area had historically been used for agricultural purposes, particularly crop cultivation and livestock raising, before being allocated to industrial and investment projects. The Sebt Azzinate Commune President similarly described the relevant land as historically agricultural land used for cereal farming and cattle, sheep and goat raising on privately owned land. Satellite data confirms that a structure of unknown purpose and ownership had existed on the southeastern corner Project land prior to the Project's land acquisition. No stakeholders engaged by ERM were able to provide any information on the ownership and precise uses of this structure, and it was in a demolished state by the time the Project acquired the land. Additional details on the land acquisition process can be found in Project Description ***Section 3.7.1***.

[35] IFC, Performance Standard 7: Indigenous Peoples, 2012.
[36] International Labour Organisation. Ratifications of C169 - Indigenous and Tribal Peoples Convention, 1989 (No. 169)
Government of the Kingdom of Morocco. (2016). Translated by William S. Hein & Co., Inc. (2012). https://www.constituteproject.org/constitution/Morocco_2011

FIGURE 5-12 HISTORIAL LAND USE



It is noted that most external stakeholders did not have Project specific insights regarding past land use and rather provided general information about the overall Tangier Tech industrial zone. Nonetheless, a review of satellite imagery as of 2014 is consistent with accounts received from different stakeholders, and shows the Project land as part of a broader rural landscape comprising cultivated fields, open herbaceous land, informal rural tracks, drainage features and scattered rural structures. The surrounding area also appears to have been composed of a mosaic of agricultural and open land parcels, with low-density rural development rather than urban or industrial land use. On this basis, the pre-development land characteristics can be described as predominantly agricultural and rural, with some areas of open vegetation and drainage features.

The land ownership in the Project AoI is described as predominantly private, with very little state/public land ownership. Most agricultural activities reportedly took place on privately owned land, and most people engage in agricultural activities on land that they own. At the same time, based on information provided by the President of Sebt Azzinate Commune, some landowners also rent out land to other land users for agricultural activities. According to him, in case of compensation for acquiring land rented out by its owner for agricultural use, the compensation would be granted to the owner, who is responsible for reaching an agreement with the tenant.

5.2.7 EDUCATION

The education system in Morocco comprises pre-school, primary, lower secondary, upper secondary and tertiary levels. School education is supervised by the Ministry of National Education, Preschool and Sports, with significant implementation responsibilities devolved to regional education academies and provincial education directorates. Higher education falls

under the Ministry of Higher Education Scientific Research and Innovation. Students complete nine years of basic education, followed by three years of upper secondary education.[37] The academic calendar runs from September through June.[38] In Morocco, mandatory education applies to children aged 6 to 15. This covers primary and lower secondary school, which are defined as "basic education" and compulsory.[39]

National

On the national level, school enrolment for children aged 6 to 11 is at 95.8% in 2024, with slight variation across genders and the urban/rural divide. The national illiteracy rate among the population aged 10 years and over remains at 24.8%, with a significant gender gap: 32.4% among women compared with 17.2% among men. Among literate individuals aged 10 and over, 40.5% could read and write Arabic only, 35.5% Arabic and French only, and 19.7% Arabic, French and English. Arabic-only literacy is more common in rural areas (56.3%) than in urban areas (33.8%), while trilingual literacy is largely urban (24.2% in urban areas compared with 9.3% in rural areas). Gender differences are limited, although women show a slightly higher share of trilingual literacy than men (21.3% compared with 18.4%).[40]

In terms of highest level of educational attainment, 31.8% of the population has no formal education, while 26.8% have completed primary education. Lower and upper secondary education levels are attained by 17.1% and 12.3% of the population, respectively. Only 10.2% have completed tertiary education, and preschool education remains minimal at 1.7%. The data show clear gender and urban-rural disparities. Women are more likely than men to have no formal education (37.5% compared with 26.0%), while men have higher shares at basic education and upper secondary levels. Urban-rural differences are more pronounced: 43.3% of the rural population has no formal education, compared with 24.9% in urban areas. Upper secondary and higher education are much more common in urban areas, at 16.0% and 14.0%, respectively, compared with 6.1% and 3.9% in rural areas.[41]

5.2.7.1 REGIONAL AND PREFECTURAL

Tangier-Tétouan-Al Hoceïma Region

The TTAH Region has a high enrolment rate for children aged 6 to 11, at 95.9% in 2024, with limited variation between rural areas (95.6%) and urban areas (96.2%) and near parity between girls (96.1%) and boys (95.8%). The illiteracy rate among the population aged 10 years and over stands at 22.8%, slightly below the national average, although gender and urban-rural disparities remain significant. Illiteracy is higher among women (30.6%) than men (15.2%), and higher in rural areas (35.1%) than urban areas (16.5%). Among literate individuals, 49.5% can read and write Arabic only, 29.0% can read and write Arabic and French, and 15.4% can read and write Arabic, French and English. Arabic-only literacy is more common in rural areas, while trilingual literacy is more concentrated in urban areas. In terms of highest level of educational attainment, 33.8% of the regional population has no formal

[37] Wikipedia contributors. (n.d.). Education in Morocco. Wikipedia. https://en.wikipedia.org/wiki/Education_in_Morocco
[38] U.S. Department of Commerce, International Trade Administration. (23 March 2023). Morocco education and training services industry snapshot [Web page]. Trade.gov. https://www.trade.gov/country-commercial-guides/morocco-education-and-training-services-industry-snapshot
[39] Draft law No. 59-21 has only been adopted by the Council of Government and is under parliamentary discussion to impose compulsory schooling for children aged 4 to 16.
[40] HCP, RGPH 2024 Database.
[41] HCP, RGPH 2024 Database.

education, representing a proportion higher than the national average. Primary education accounts for 27.3%, lower secondary for 17.5%, upper secondary for 10.6%, and higher education for 9.4% of the population, while preschool education remains limited at 1.4%. Educational disparities are pronounced: the share of people with no formal education is 46.4% in rural areas compared with 27.2% in urban areas, and 37.7% among women compared with 30.0% among men. Higher education is also much more common in urban areas (12.5%) than in rural areas (3.7%).[42]

Tangier-Assilah Prefecture

Tangier-Assilah Prefecture has a high enrolment rate for children aged 6 to 11, at 96.1%, slightly above both national and regional average. Gender differences are minimal, with enrolment at 96.4% for girls and 95.8% for boys. Unlike the national and regional patterns, rural enrolment in the Prefecture (97.2%) is slightly higher than urban enrolment (96.0%).

Literacy outcomes in the Prefecture are stronger than at the national and regional levels, with an illiteracy rate of 15.2%. However, gender and urban-rural disparities remain: illiteracy is higher among women (21.0%) than men (9.6%), and higher in rural areas (28.3%) than urban areas (14.4%). Among literate individuals aged 10 and over, 43.4% can read and write Arabic only, 30.3% can read and write Arabic and French only, and 19.2% can read and write Arabic, French and English. Arabic-only literacy is more common in rural areas, while trilingual literacy is mainly concentrated in urban areas. Based on the municipal population, 27.1% of the Prefecture's population has no formal education, which is lower than both the national and regional averages. Primary education is the highest level of instruction for 26.2% of the population, followed by lower secondary (19.5%), upper secondary (13.8%) and higher education (11.9%). Preschool education remains limited at 1.5%. Educational attainment is markedly higher in urban areas, where the share of people with no formal education is lower (26.3%, compared with 38.4% in rural areas) and higher education is more common (12.4%, compared with 3.7% in rural areas).[43]

5.2.7.2 COMMUNAL LEVEL

Laaouama Commune

Official data from 2023 indicates that Laaouama Commune has two public primary schools, one public lower secondary school and two private educational institutions, but no public upper secondary school or public university/higher education institution.[44]

The school enrolment rate for children aged 6 to 11 in Laaouama Commune is high, at 96.8%, above the national, regional and prefectural averages. Gender differences are limited, although enrolment is higher among girls (98.2%) than boys (95.5%). The illiteracy rate among the population aged 10 years and over stands at 22.4%, slightly below the national and regional averages but higher than the prefectural average. A gender gap remains, with illiteracy at 27.9% among women and 17.5% among men. Among literate individuals, 65.8% can read and write Arabic only, 27.1% can read and write Arabic and French only, and 5.3% can read and write Arabic, French and English. This indicates a much higher reliance on Arabic-only literacy than at the national, regional and prefectural levels. Educational attainment in Laaouama is

[42] HCP, RGPH 2024 Database.
[43] HCP, RGPH 2024 Database.
[44] Ministry of National Education, Preschool and Sports (MENPS). (2023). Lists of educational establishments, including public primary schools, public lower secondary schools, public upper secondary schools and private establishments, as of June 2023. Morocco Open Data Portal.

generally lower than the national, regional and prefectural averages. 37.5% of residents have no formal education, with a slightly higher share among women (39.1%) than men (36.1%). Primary education is the highest level of instruction for 31.9% of residents, while lower secondary and upper secondary education account for 17.5% and 7.1%, respectively. Higher education remains limited at 3.7%, and preschool education accounts for 2.3%. Gender differences are most visible in the share with no formal education and at the lower secondary level, where men have a higher attainment rate than women (19.8% compared with 14.9%).[45]

Sebt Azzinate Commune

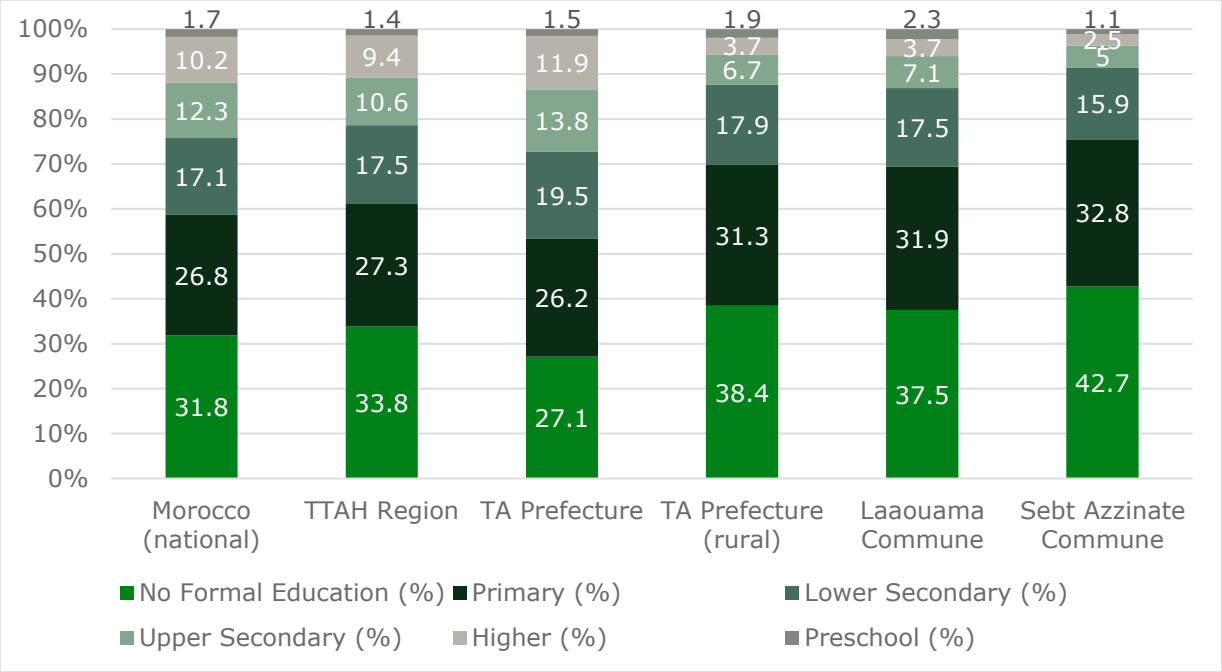
Official data from 2023 indicate that Sebt Azzinate Commune has two public primary schools and one public lower secondary school, but no public upper secondary school, private educational institution or public university/higher education institution.[46]

The school enrolment rate for children aged 6 to 11 in Sebt Azzinate Commune is high, at 98.1%, above the national, regional, prefectural and Laaouama Commune levels. Gender differences are limited, with enrolment at 98.4% for girls and 97.9% for boys. However, literacy remains a challenge. The illiteracy rate among the population aged 10 years and over stands at 31.7%, higher than the national, regional and prefectural averages, and also higher than in Laaouama. A clear gender gap is present, with illiteracy at 39.4% among women compared with 25.0% among men. Among literate individuals aged 10 and over, 58.5% can read and write Arabic only, 35.2% can read and write Arabic and French only, and 5.3% can read and write Arabic, French and English. Educational attainment in Sebt Azzinate is generally lower than the national, regional and prefectural averages, and also slightly lower than in Laaouama. 42.7% of the population has no formal education, with the share higher among women (45.5%) than men (40.2%). Primary education is the highest level of instruction for 32.8% of residents, while lower secondary and upper secondary education account for 15.9% and 5.0%, respectively. Higher education remains very limited at 2.5%, and preschool education accounts for 1.1%. Gender differences are most visible in the share with no formal education and at the lower secondary level, where men have a higher attainment rate than women (18.0% compared with 13.5%).[47]

A comparison between the education attainment rates on the national, regional, provincial, and communal levels is shown in ***Figure*** 5-13.

[45] HCP, RGPH 2024 Database.
[46] MENPS, 2023 educational establishments datasets.
[47] HCP, RGPH 2024 Database.

FIGURE 5-13 HIGHEST LEVELS OF EDUCATION ATTAINMENT ON NATIONAL, REGIONAL, PROVINCIAL, AND COMMUNE LEVELS



5.2.7.3 AOI VILLAGES

According to the FGDs and site observations, access to educational facilities varies across the Project AoI villages. Educational facilities were observed in Gouaret Mechahla and Slaouiyine, comprising Gouaret School (*École Gouaret*) and Slaouiyine School (*École Slaouiyine*). Participants from Chaouia also reported a primary school in their village, although it was described as insufficiently equipped, and students reportedly travel to Gouaret Centre (approx. 3 km) for lower and upper secondary education. The closest university is in Tangier City.

FGD participants reported that educational progression has improved for some young people, including girls continuing to upper secondary school and university. However, distance and the lack of dedicated school transport appear to be the most immediate barriers to educational access, particularly beyond primary level, while poverty and household financial hardship were identified as the leading causes of school dropouts. Transport costs, family expectations and early marriage or engagement also contribute to school dropouts among girls, while some boys leave education to work and support their households.

FIGURE 5-14 INTEGRATED PRIMARY AND HIGH SCHOOL IN GOUARET MECHAHLA AND SCHOOL BUS IN LAAOUAMA COMMUNE



5.2.8 COMMUNITY HEALTH, SAFETY AND SECURITY

5.2.8.1 HEALTH INFRASTRUCTURE AND ACCESS

In Morocco, access to healthcare, especially in rural areas, generally remains a significant issue, with a shortage of healthcare professionals being a notable challenge.[48] In Tangier-Assilah Prefecture, the most recent health statistics from 2023 indicate that there were 37 primary healthcare facilities (ESSP), including 28 urban and nine rural facilities, as well as three hospital support structures. The private sector included 29 clinics with a total capacity of 1,237 beds.[49] HCP data indicate that, in 2024, Tangier-Assilah Prefecture had 1,947 physicians, comprising 979 public-sector physicians and 968 private-sector physicians.[50]

There is one communal health centre in Laaouama Commune, located in Gouaret Mechahla. Based on the FGDs with residents from nearby villages in August 2026, the centre provides routine consultations and basic care for common and chronic conditions, including diabetes, but does not provide emergency or specialist services. Participants also reported medicine shortages and reduced service availability during summer when medical personnel take leave without replacement. Residents requiring specialist treatment, emergency care or hospitalisation reportedly travel to hospitals in Tangier.

These reported capacity constraints are consistent with the latest available official village-level health-service statistics from 2017. The centre was recorded as having one doctor and two nurses, with no midwife, ambulance or specialist equipment. It was connected to electricity but not to the potable-water or sanitation networks, while mobile medical units were occasionally deployed to serve more remote settlements.[51][52] At the time of the August 2026 site visit, one

[48] Ministry of Health and Social Protection. (2018). "Health 2025" Plan (*Plan « Santé 2025 »)* https://medias24.com/2025/07/01/medecins-et-infirmiers-le-maroc-redresse-ses-effectifs-mais-reste-sous-les-normes-oms/
[49] Ministry of Health and Social Protection. (2023). Health in Numbers 2023 (*Santé en chiffres 2023*).
[50] Haut-Commissariat au Plan (HCP). Le Maroc en chiffres 2025. "*Effectif des médecins par secteur et province (ou préfecture), Année 2024*".
[51] Laaouama Commune, Commune Action Plan 2017–2022.

ambulance was seen in the IAZ, though the general healthcare facilities of the AoI settlements remained poor.

In the Project AoI, healthcare accessibility remained a key challenge, particularly for residents outside Gouaret Mechahla. Participants from Chaouia reported travelling to Gouaret Centre for essential services and noted that buses were available only from designated pick-up points, which could be some distance from their homes.

FIGURE 5-15 HEALTHCARE CENTRE LOCATED IN GOUARET CENTRE



5.2.8.2 COMMUNITY HEALTH CONCERNS

In Morocco, according to the Ministry of Health and Social Protection, some communicable diseases are considered "mandatory reporting diseases" (acute rheumatic fever, human anthrax, viral hepatitis, brucellosis, leptospirosis, leishmaniasis, acute gastroenteritis, and all forms of conjunctivitis), while certain others are considered "diseases under epidemiological surveillance" (measles, pertussis, tetanus, typhoid, trachoma, diphtheria, schistosomiasis, tuberculosis, leprosy, urethritis, syphilis, rabies, foodborne outbreaks (TIAC), and imported malaria). Aside from COVID 19, the most recent notable disease outbreak in the country is a measles outbreak that has been ongoing since late 2023 and has been active across all regions in the country, though the epidemic has subdued since its peak in early 2025.[53] In Tangier-Assilah Prefecture in 2023, tuberculosis was the most notable communicable disease reported in the official health statistics, with 437 cases, followed by meningitis with 173 cases and COVID-19 with 32 cases. Other monitored communicable diseases were reported at much lower levels or not recorded. In the same year, the Prefecture recorded 1,657 (2.19 cases per 1,000) reported cases of STI symptoms among men and 7,159 (9.78 per 1,000) among women, compared with national totals of 57,636 (3.17 per 1,000) among men and 247,544 (13.53 per 1,000) among women.[54]

[53] World Health Organisation. (13 October 2025). Disease Outbreak News, Measles – Morocco.
[54] Ministry of Health and Social Protection. Health in Numbers 2023 (*Santé en chiffres 2023*). (2025) Tables 57, 80 and 81.

Based on the FGDs, diabetes was the most consistently reported health condition across the Project AoI villages. Participants in Gouaret also identified eczema and other chronic illnesses, while residents of Chaouia highlighted the need for routine consultations and continuing care for diabetes.

According to the 2024 Census, the disability prevalence rate is 2.7% in Laaouama Commune and 3.6% in Sebt Azzinate Commune. Both rates are below the national average of 4.8% and the corresponding rural rates at the national (5.6%), regional (6.4%) and prefectural (5.1%) levels.[55]

Resources for Gender Based Violence (GBV)

No dedicated GBV support facility or functioning women's association was identified within the Project AoI during ERM's site visit. Participants from Gouaret reported that domestic violence occurs relatively frequently, while participants from Chaouia indicated that affected women may report cases to the Royal Gendarmerie. Women may also raise concerns through the caïdat or local mokadems. However, awareness of formal grievance and support mechanisms is limited.

However, specialised support resources are available at the national and prefectural levels. The nearest dedicated support facility to the Project AoI is a Multifunctional Space for Women located in Tangier City, which provides support to women in difficult situations, including women affected by violence.[56] At the national level, the *KolonaMaak* ("Always with You") platform provides guidance and support to women affected by violence through the telephone number 8350 and a mobile application.[57] The national Amane-Laki digital platform also enables women affected by violence or facing difficult circumstances to request support, contact listening centres and identify the nearest Multifunctional Space for Women.[58]

Awareness of these support mechanisms among communities in the Project AoI appears limited, as none of the mechanisms was mentioned during the field consultations. Physical access may also be constrained by the distance to the nearest dedicated facility in Tangier City.

5.2.8.3 SAFETY AND SECURITY

Based on the FGDs conducted during ERM's site visit, the Project AoI villages are generally perceived as safe, although conditions vary between settlements. Participants from Chaouia reported few concerns regarding theft or other petty crime, but identified harassment as a concern particularly affecting women. Participants from the Gouaret communities reported petty crime and theft, particularly at weekends, and noted that the lack of public street lighting increases safety concerns for women at night.

The industrial-zone fencing and associated changes to local access have also affected community perceptions of safety and security. This is particularly relevant in Sebt Azzinate, where the former road connecting the villages with Gouaret and Tangier has been blocked, requiring some residents to use a longer detour along a tertiary road shared with heavy vehicles and reported to have several accident blackspots. Interactions between local residents and Chinese workers, including but not limited to workers associated with the Project, were

[55] HCP, RGPH 2024 Database.
[56] As no EMF is listed directly in Sebt Azzinate or Laaouama Communes, the closest confirmed EMF-type facilities identified in the official database are located in Tangier, within Tangier-Assilah Prefecture.
[57] Ministry of Solidarity, Social Integration and Family, information on the KolonaMaak platform, 2023.
[58] Ministry of Solidarity, Social Integration and Family, Amane-Laki digital platform.

described in mixed but generally non-violent terms. Moroccan workers interviewed during ERM's site visit generally reported positive working relationships with Chinese colleagues despite language barriers. However, community participants raised concerns regarding differences in cultural and social practices, including noise, alcohol consumption and inappropriate waste disposal, which have contributed to misunderstandings and tensions. This impact is assessed in ***Section 7.3.1***.

5.2.9 LIVELIHOOD AND LOCAL ECONOMY

5.2.9.1 COMMUNAL LEVEL

Within the Project AoI, livelihoods have historically been based primarily on agriculture and livestock production, supplemented by small-scale trade, self-employment, construction and service activities. Although the development of the Industrial Acceleration Zone is contributing to a gradual shift towards industrial and service-sector employment, agriculture and livestock remain important sources of household income, while alternative employment opportunities remain limited.

This economic transition is primarily driven by the development of the Cité Mohammed VI Tangier Tech across Laaouama and Sebt Azzinate communes. Managed by the Société d'Aménagement Tangier Tech (SATT), the development covers approximately 2,167 ha, comprising a 947 ha Industrial Acceleration Zone and a 1,220 ha smart city which is planned to include residential and tourism areas. Of the Industrial Acceleration Zone, 467 ha have been formally designated under Law No. 19-94. Development was relaunched under a framework agreement signed in 2022, and SATT reports that nearly half of the IAZ has since been developed and occupied. The zone has attracted international investment, particularly in the automotive and battery supply chains. Announced projects include Hailiang and Shinzoom, involving combined investment of approximately USD 910 million and an anticipated 3,800 jobs.

In Laaouama Commune, the labour force participation rate among persons aged 15 and over is 44.9%, above the national rate (41.6%) but below the regional (46.2%) and prefectural rural (48.3%) rates. A substantial gender gap remains, with participation at 73.7% among men and 12.9% among women. The unemployment rate stands at 13.0%, lower than the national (21.3%), regional (19.6%) and prefectural rural (15.7%) rates. Among employed persons, 72.4% are salaried employees, 23.4% are self-employed and 0.8% are employers.[59]

In Sebt Azzinate Commune, the labour force participation rate is 43.7%, also above the national rate but below the regional and prefectural rural rates. The gender gap is wider than in Laaouama, with participation at 74.2% among men and only 8.9% among women. Unemployment is comparatively high at 24.6%, exceeding the national, regional and prefectural rural rates, with limited variation between women (26.3%) and men (24.4%). Among employed persons, 70.4% are salaried employees, 24.7% are self-employed and 0.3% are employers. While its employment structure is similar to Laaouama, Sebt Azzinate faces substantially greater unemployment and more limited female participation.[60] This may in part be due to the fact that, based on site visit observations, Laaouama Commune appears to have benefited from the Industrial Acceleration Zone development more than Sebt Azzinate, with

[59] HCP, RGPH 2024 Database.
[60] HCP, RGPH 2024 Database.

workers' camps and associated economic activities being visible in villages close to the Zone's entrance, particularly in Gouaret.

FIGURE 5-16 LOCAL SHOPS AND SOUK




5.2.9.2 SOCIAL AOI VILLAGES

According to the President of Laaouama Commune and community FGD participants, local livelihoods have historically been based primarily on agriculture and livestock production. The wider area supported cereal cultivation, irrigated horticulture, olives, fruit and vegetable production, together with sheep, goat and cattle raising on predominantly privately owned land. Small-scale trade, construction, self-employment and service activities provide additional sources of household income across the AoI.

Community participants across the AoI described a substantial decline in agro-pastoral livelihoods. Participants associated this decline partly with the acquisition and reduced availability of agricultural land resulting from the wider Tangier Tech development. They also identified recurrent drought and increasing agricultural input costs as separate contributing factors. In Gouaret, participants reported that livestock raising was limited to a small number of households. Participants from Slaouiyine and Chaouia similarly reported reductions in agricultural and livestock activities.

FIGURE 5-17 LIVESTOCK REARING IN THE PROJECT AOI




FIGURE 5-18 SMALL-SCALE CULTIVATED PLOT IN THE PROJECT AOI



Alternative employment opportunities reportedly remain limited. FGD participants estimated that approximately 10% to 20% of the working-age population was employed outside the communes, mainly in construction. Employment associated with the IAZ is widely regarded as the principal potential benefit of industrial development, but participants identified limited vocational skills, lack of training opportunities, inadequate transport and road access, and a shortage of stable local employment opportunities as barriers to accessing such work.

Women's livelihood activities were reported to include sewing, handicrafts, small-scale trade and informal services. Some women have also provided food and catering services to workers associated with the IAZ, although participants reported that these activities were not always profitable. Women's access to employment is reportedly constrained by limited capital, informal recruitment practices, family expectations, transport and safety concerns, harassment and reputational pressure associated with employment outside traditional roles.

Employment expectations were consistently high across the communities engaged during the site visit. Participants requested priority recruitment of local residents, advance vocational training, stable and formal employment, fair remuneration and targeted opportunities for women. Participants from Slaouiyine and Chaouia also reported that some residents previously engaged in construction work at the BTR site had experienced delayed payment, underpayment or non-payment, which they attributed to labour intermediaries or subcontractors.

Overall, the AoI communities are undergoing a transition from predominantly land-based livelihoods towards industrial and service activities. Many houses in Gouaret Meharza and Gouaret Mechahla villages are being rented out to Chinese and Moroccan workers. Some community members reported that housing prices have been increasing in these two villages, with accommodation rental being quite profitable for some homeowners. Agriculture and livestock nevertheless remain important, particularly for households that retain access to land, while alternative employment remains constrained by skills gaps, transport limitations and the availability and quality of local jobs.

5.2.10 INFRASTRUCTURE

5.2.10.1 WATER

Access to piped water is relatively high at the commune level, although coverage is not universal. According to the 2024 Census, 95.2% of households in Laaouama Commune have access to running water, which is substantially higher than the national rural average (54.6%), the regional rural average (27.5%) and the prefectural rural average (73.2%). In contrast, 75.9% of households in Sebt Azzinate Commune have access to running water, which is also above the national and regional rural averages, but only slightly above the prefectural rural average.[61] The communal action plans indicate that expansion of the potable-water network has been a longstanding local development priority. The Sebt Azzinate Communal Action Plan records that 3 out of 15 (20%) villages in the Commune remained unconnected to the potable-water network as of 2022.

A former community well in the Gouaret area was also documented during ERM's site visit. A Caidat representative explained that wells (communal and private) were still sometimes used by residents as water sources, even after piped water supply was installed. However, usage has decreased and some wells have been abandoned, reportedly due to concerns about pollution.

FIGURE 5-19 FORMER COMMUNAL WELL IN GOUARET



5.2.10.2 ELECTRICITY

Electricity access is high in both affected communes, although coverage is not universal. According to the 2024 Census, 96.6% of households in Laaouama Commune have access to electricity, which is higher than the national rural average of 93.8%, the regional rural average of 94.3% and the prefectural rural average of 93.7%. In Sebt Azzinate Commune, 97.8% of households have access to electricity, also above the national, regional and prefectural rural

[61] HCP, RGPH 2024 Database.

averages.[62] The communal action plans similarly indicate that electricity-network coverage was already high, while identifying network reinforcement, additional transformers and improved public lighting as continuing infrastructure development priorities.[63] During ERM's fieldwork, participants from the Gouaret communities identified inadequate public street lighting as a night-time safety concern, particularly for women.

FIGURE 5-20 TRANSMISSION/DISTRIBUTION LINE IN GOUARET MEHARZA



5.2.10.3 HOUSING

The 2024 census classifies housing into 5 categories: apartments, modern Moroccan houses, rural housing, basic houses or slums, and villa/villa apartment.

In Laaouama Commune, housing is overwhelmingly composed of Moroccan houses, which account for 95.4% of households, well above the national rural (40.5%), regional rural (49.7%) and prefectural rural (63.0%) averages. Only 1.5% of households live in rural dwellings, substantially below the national rural (53.3%), regional rural (48.1%) and prefectural rural (34.2%) averages, while 1.0% live in apartments, 0.9% in basic houses or slums and 0.5% in villas or villa apartments. The housing stock is also relatively new, with 75.9% of households living in dwellings less than 10 years old.

In Sebt Azzinate Commune, Moroccan houses are also the main housing type, accounting for 67.8% of households, broadly in line with the prefectural rural average and above the national rural and regional rural averages. Rural dwellings represent a much larger share than in Laaouama, at 29.7%, though still below the national rural, regional rural and prefectural rural averages. Basic houses or slums account for 1.6% of households, while apartments are absent and villas or villa apartments account for only 0.2%. Compared with Laaouama, Sebt Azzinate has an older and more rural housing profile, with 38.6% of households living in dwellings less

[62] HCP, RGPH 2024 Database.
[63] Commune of Laaouama, Communal Action Plan 2017–2022; and Commune of Sebt Azzinate, Communal Action Plan 2022–2027.

than 10 years old, 24.2% in dwellings aged 10–19 years, 17.2% in dwellings aged 20–49 years, and 20.0% in dwellings aged 50 years or more.[64]

Housing conditions observed across the Project AoI villages were generally modest and varied between settlements.

FIGURE 5-21 HOUSES OF DIFFERENT TYPES IN AOI VILLAGES



5.2.10.4 ROAD AND TRANSPORTATION

The Project area is accessed from Tangier via Provincial Road P4608, which provides the principal regional road approach to Phase I of the Cité Mohammed VI Tangier Tech Industrial Acceleration Zone and the Project Site. The surrounding Project AoI settlements are served by local roads and village access routes connecting them to the wider regional road network.

[64] HCP, RGPH 2024 Database.

FIGURE 5-22 ROADS IN THE AOI



Road accessibility varies considerably across the AoI settlements. Communities closer to Gouaret Centre have access to public transport connections to Tangier City, while participants from Chaouia reported that public transport is only available from designated pick-up points, some of which may be located a considerable distance from individual households. Participants from Slaouiyine and Chaouia also reported that the local road network was already inadequate and had deteriorated further, particularly following recent flooding and the blockage of waterways by waste. They also raised concerns regarding heavy-vehicle traffic associated with the development of the Industrial Acceleration Zone.

5.2.10.5 SEWAGE

Public sewerage coverage is limited in both Laaouama and Sebt Azzinate Communes, with most households relying on on-site sanitation systems. According to the 2024 Census, 9.5% of households in Laaouama Commune are connected to the public sewerage network, broadly in line with the national rural and regional rural averages of 9.6% and 8.4%, respectively, but below the prefectural rural average of 19.2%. Public sewerage coverage is even lower in Sebt Azzinate Commune, where only 2.4% of households are connected to the network. [65] The communal action plans indicate that limited sewerage coverage and reliance on on-site sanitation are longstanding infrastructure constraints.[66]

Septic tanks are consequently the predominant sanitation system, used by 85.8% of households in Laaouama and 78.0% in Sebt Azzinate. These proportions are substantially higher than the corresponding national, regional and prefectural averages and, in both communes, also exceed the prefectural rural average of 55.1%.[67]

Solid-waste collection and management are longstanding service constraints in both communes. The Laaouama Communal Action Plan reported that the Commune had acquired a waste-collection vehicle and contributed financially to an intercommunal waste-management arrangement, although the wider collection service had not become operational at the time covered by the Plan. The Sebt Azzinate Communal Action Plan similarly reported an absence of household waste collection across much of the Commune, with residents relying on burning or burying waste in unserved areas, despite the provision of a collection vehicle and containers in preparation for service expansion.

[65] HCP, RGPH 2024 Database.
[66] Commune of Laaouama, Communal Action Plan 2017–2022; and Commune of Sebt Azzinate, Communal Action Plan 2022–2027.

During ERM's site visit, community participants continued to raise concerns regarding inadequate waste management. For example, participants from Chaouia reported that waste had blocked local waterways following recent flooding and raised concerns regarding the disposal of household waste in public areas. Participants in Gouaret also expressed concern that improper management of waste generated by industrial activities could affect the surrounding environment, nearby water resources and community health.

FIGURE 5-23 POOR WASTE MANAGEMENT IN GOUARET MEHARZA



5.2.11 OCCUPATIONAL HEALTH AND SAFETY

Occupational health and safety remains an area of institutional concern in Morocco. In its 2020 national review of occupational health and safety, the Economic, Social and Environmental Council reported that only 17% of private-sector enterprises had established a health and safety committee.[68] The Council also identified limited occupational medical services, weaknesses in the implementation of labour legislation, a weak preventive safety culture, and limited social protection coverage for occupational accidents.[69]

According to the Ministry of Employment and Professional Integration, more than 50,000 occupational accidents were recorded in Morocco in 2018, including 756 fatalities.[70] More recent estimates published by the Moroccan Democratic Labour Organisation indicate that over 2,000 deaths are associated with occupational accidents and occupational diseases annually. The reported fatal occupational accident rate was 47.8 per 100,000 workers, approximately

[68] Under Article 336 of the Moroccan Labour Code, health and safety committees are mandatory in industrial, commercial and craft enterprises, and in agricultural and forestry operations and their associated establishments, where they employ at least 50 workers.
[69] Economic, Social and Environmental Council. (2021). Health and safety at work: Essential support for economic and social development.
[70] Préventica Maroc. (2023). *Sécurité et santé au travail: État des lieux de la situation au Maroc*. https://www.preventica.ma/actualites/2305141

2.5 times the reported average for the Middle East and North Africa region.[71] No publicly available official OHS accident statistics were identified below the national level.[72]

5.2.12 CULTURAL HERITAGE

Based on IFC Performance Standard 8 and AIIB Environmental and Social Framework, cultural heritage / cultural resources refers to tangible moveable or immovable objects, property, sites, structures, groups of structures, natural features and landscapes with archaeological, paleontological, historical, architectural, cultural, artistic, religious, aesthetic or other cultural significance. Such resources may be located in urban or rural settings, above or below ground, or under water, and may be of local, provincial/regional, national or international cultural interest. The definition also considers, in line with IFC Performance Standard 8, unique natural features or tangible objects that embody cultural values and certain intangible forms of culture, including cultural knowledge, innovations and practices of communities embodying traditional lifestyles.

The regulatory EIA does not provide a specific baseline assessment of cultural heritage resources or their potential interaction with the Project. ERM's site visit identified several religious, historical and community cultural heritage resources within the wider Project AoI. In Laaouama Commune, these comprise the Sidi Al Arabi shrine in Douar Al Kouaret, together with mosques and cemeteries reported in every village. Mosques are generally located within village centres, with the nearest mosque estimated to be at least 1 km from the Project site. The cemetery observed in Gouaret Mechahla is located approximately 1.01 km from the Project site. In Sebt Azzinate Commune, cultural heritage resources include the historic and archaeological sites of Kasr Raissouni and Kasbah Roumania near the Ibn Battouta Dam, as well as a local souk reported to be more than 100 years old.

None of these resources was identified within or in the immediate vicinity of the Project footprint, and no concerns regarding Project impacts on cultural heritage were raised by stakeholders during ERM's site visit. On this basis, no significant direct impacts on known cultural heritage resources are expected from Project construction or operation.

[71] Le360. (28 April 2024). *Les accidents du travail et les maladies professionnelles causent plus de 2,000 décès par an au Maroc*. https://fr.le360.ma/societe/les-accidents-du-travail-et-les-maladies-professionnelles-causent-plus-de-2000-deces-par-an-au-maroc_WV2V3TI3EJHJPJYNWGWY7MJYWA/

FIGURE 5-24 MOSQUE AND CEMETERY IN GOUARET MECHAHLA



5.3 BIODIVERSITY BASELINE

The Tangier-Assilah Prefecture has a Mediterranean climate influenced by the Atlantic Ocean, with mild, wet winters and hot, dry summers. Most rainfall occurs between October and April. The landscape is characterised by agricultural land, pasture, Mediterranean scrub, remnant cork-oak woodland, seasonal watercourses and temporary pools, alongside expanding urban and industrial areas. The region is ecologically important due to its location near the Strait of Gibraltar, a major migration route between Europe and Africa, as well as the Lower Tahaddart Ramsar Site and Oued Tahaddart Key Biodiversity Area. These areas include estuarine wetlands, mudflats, saltmarshes, freshwater and brackish pools, dunes, pasture and cork-oak woodland, which provide important habitat for migratory and wintering birds. Biodiversity in the region is under increasing pressure from urban and industrial development, habitat loss and fragmentation, changes to natural drainage and flooding patterns, water pollution, traffic, noise and artificial lighting, as well as soil erosion, drought and wildfire.

5.3.1 GLOBALLY RECOGNISED SITES AND LEGALLY PROTECTED AREAS

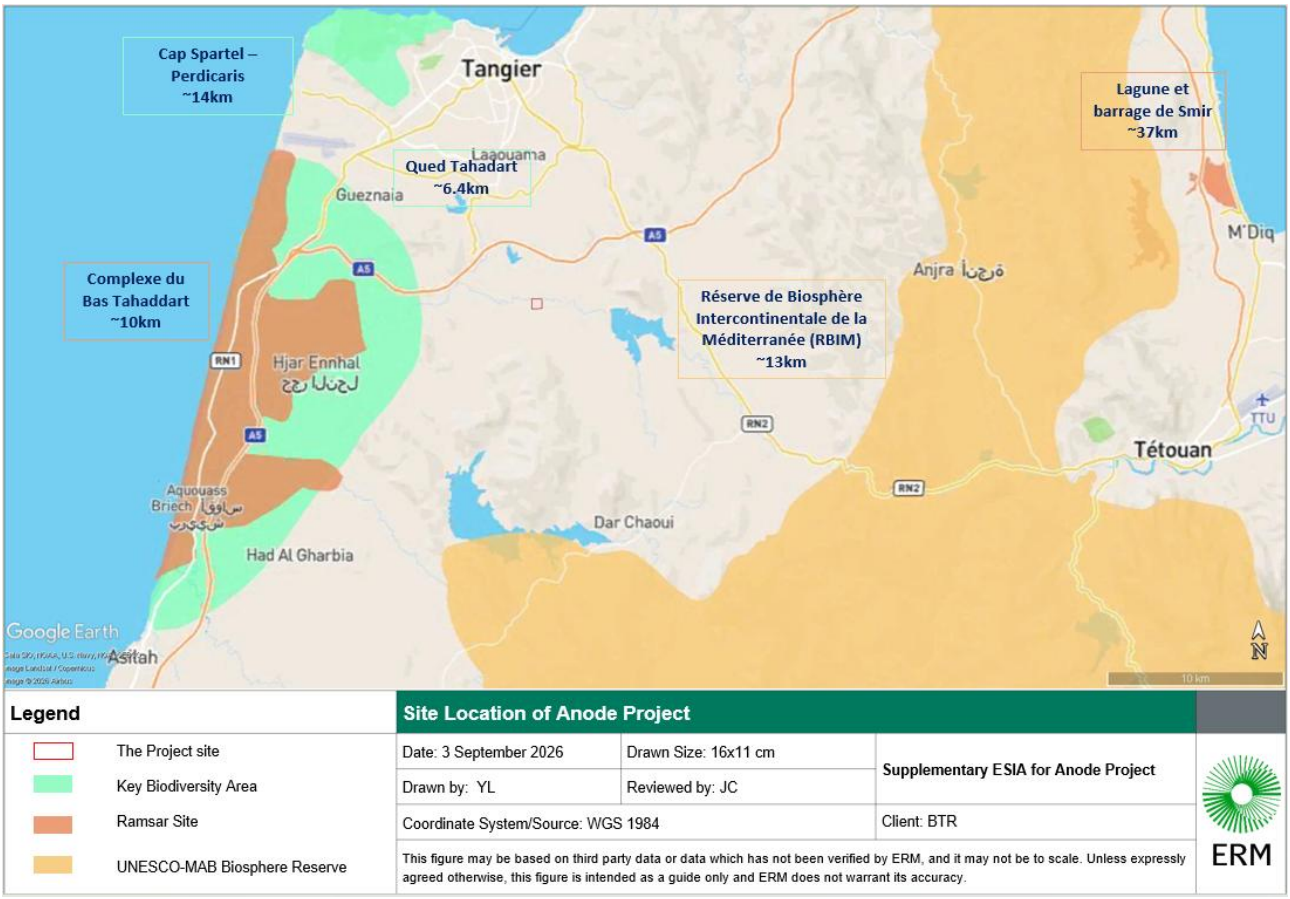
Legally Protected Areas ("PAs") include areas that are legally designated or officially proposed for biodiversity protection and conservation. For this ESIA, and in line with IFC PS6, internationally recognised areas of biodiversity include Key Biodiversity Areas (KBA[73], including Alliance of Zero Extinction (AZE)[74] and International Bird Areas (IBA)[75], UNESCO World Heritage sites, and Ramsar sites (***Figure*** 5-25).

[73] IUCN Species Survival Commission and IUCN. A Global Standard for the Identification of Key Biodiversity Areas - https://portals.iucn.org/union/sites/union/files/doc/a_global_standard_for_the_identification_of_key_biodiversity_areas_final_web.pdf

[74] AZE is a joint initiative of biodiversity conservation organisations from around the world working to prevent extinctions by promoting the identification and ensuring the safeguard and effective conservation of key sites that are the last remaining refuges of one or more Endangered or Critically Endangered species

[75] IBAs are areas identified by Birdlife International using an internationally agreed set of criteria (Globally threatened, Restricted-range, Biome-restricted, and Congregation). See Birdlife International (2023). Data Zone: IBA Criteria. http://datazone.birdlife.org/site/ibacriteria

Figure 5-25 THE MAP OF GLOBALLY RECOGNISED SITES AND LEGALLY PROTECTED AREA CLOSE TO THE PROJECT SITE



5.3.1.1 KEY BIODIVERSITY AREAS

Key Biodiversity Areas (KBAs) are sites contributing significantly to the global persistence of biodiversity, in terrestrial, freshwater, and marine ecosystems. Sites qualify as global KBAs if they meet one or more of 11 criteria[76], clustered into five categories: threatened biodiversity; geographically restricted biodiversity; ecological integrity; biological processes; and, irreplaceability. They include but are not limited to Important Bird and Biodiversity Areas (IBAs) and Alliance for Zero Extinction (AZE) sites. Nine (9) KBAs were identified within approximately 50 km of the main Project site, as summarised in ***Table*** 5-18. The closest KBA is Oued Tahaddart, which supports recorded occurrences of great bustard and Kentish plover. Four (4) of these KBAs are located in Spain and are separated from the Project site by the Strait of Gibraltar.

TABLE 5-18 SUMMARY OF KBAS IN THE VICINITY OF THE PROJECT

#	KBA Name	Area (km²)	Distance / Direction to Project Area	Description and Triggered Species	Remarks
1	Oued Tahaddart	222.5	7 km to the west	The site consists of the lower reaches of the Oued M'harhar and Oued Al Hachef, which join to form	IBA

[76] IUCN (2016) A Global Standard for the Identification of Key Biodiversity Areas. https://portals.iucn.org/library/sites/library/files/documents/2016-048.pdf

				the 3-km-long estuarine river of the Oued Tahaddart, the surrounding land and a sandy stretch of the coast between Tangier (Tangiers) and Asilah. Habitats include marshy basins, coastal mudflats, many small freshwater and brackish merjas and dayas, areas of rough pasture and some patches of cork-oak woodland. The site's principal qualifying biodiversity features are the great bustard (*Otis tarda*), qualifying under IBA criterion A1, and the Kentish plover (*Charadrius alexandrinus*), qualifying under IBA criterion A4i.	
2	Cap Spartel - Perdicaris	24.3	14 km to the northwest	The site is located on the outskirts of the town of Tangier (Tangiers) at the western extremity of the southern side of the Straits of Gibraltar. It consists of the small hill of Jbel Kebir (320 m), partly covered by the Forêt de Perdicaris and terminating at its western end in the rocky headland of Cap Spartel, which overlooks the Atlantic Ocean. The climate is very humid, due to the site's exposure to the Atlantic, with 900–1,200 mm annual precipitation. Its original IBA designation was triggered under Criterion A4iv, based on the collective passage of migratory soaring birds and cranes. The recorded passage population was approximately 141,700–281,900 individuals.	IBA
3	Estrecho de Gibraltar	1300.3	33 km to the north	The Estrecho de Gibraltar KBA is a marine site covering approximately 1,300 km² in the Strait of Gibraltar, between southern Spain and northern Morocco. The site comprises both neritic and oceanic marine habitats and represents an important passage and concentration area for seabirds moving between the Mediterranean Sea and the Atlantic Ocean. The KBA is triggered by the balearic shearwater (*Puffinus mauretanicus*), great skua (*Catharacta skua*) and Audouin's gull (*Larus audouinii*). Of these, the Balearic shearwater is particularly significant because it is recorded as Critically Endangered (CR).	IBA
4	Jbel Moussa	41.4	38 km to the northeast	Jbel Moussa is the southern of the two Pillars of Hercules, situated opposite the Rock of Gibraltar on the African side of the Straits of Gibraltar, at the narrow 15-km-wide western entrance to the Mediterranean. The terrestrial vegetation consists of Pinus and Quercus woodland. The site is recognised primarily as an important migration bottleneck for large numbers of soaring birds crossing between Europe and Africa, including the European honey-buzzard (*Pernis apivorus*), white stork (*Ciconia ciconia*), black stork (*Ciconia nigra*), black kite (*Milvus migrans*), booted eagle (*Hieraaetus pennatus*), short-toed	IBA

				snake-eagle (*Circaetus gallicus*) and Egyptian vulture (*Neophron percnopterus*).	
5	Tarifa	80.4	42 km to the northeast	A coastal area around Tarifa bordering the Strait of Gibraltar. The site includes plains and low hills covered by Mediterranean scrub and grassland. The site serves as a major migration bottleneck, through which more than 20,000 storks and raptors regularly pass between Europe and Africa. Its confirmed KBA trigger species are the Egyptian vulture (*Neophron percnopterus*), the white stork (*Ciconia ciconia*), and the black stork (*Ciconia nigra*). Other notable migratory species occurring in large numbers include the European honey-buzzard (*Pernis apivorus*), black kite (*Milvus migrans*), short-toed snake-eagle (*Circaetus gallicus*), common buzzard (*Buteo buteo*) and booted eagle (*Hieraaetus pennatus*).	IBA
6	De la Plata mountain range	50.3	46 km to the north	De la Plata Mountain Range, nationally known as Sierra de la Plata, is a Regional Legacy KBA located near the Strait of Gibraltar in southern Spain. Characterised by Mediterranean scrub, patches of Quercus woodland, rocky cliffs and eucalyptus plantations, the site is recognised primarily as a major migration bottleneck through which more than 20,000 storks and raptors regularly pass between Europe and Africa. Its important migratory assemblage includes species such as the white stork (*Ciconia ciconia*), black kite (*Milvus migrans*) and European honey-buzzard (*Pernis apivorus*), while notable resident or breeding species include the Egyptian vulture (*Neophron percnopterus*) and Griffon vulture (*Gyps fulvus*).	IBA
7	Ceuta	6.3	46 km to the northeast	The site comprises terrestrial and coastal habitats, including forest plantations, Mediterranean scrub, wetlands and intertidal areas, although parts have been modified by urban development and exotic Eucalyptus and Pinus plantations. It is a major migration bottleneck through which more than 20,000 storks and raptors regularly pass during spring and autumn. The site's confirmed KBA trigger species are the Egyptian vulture (*Neophron percnopterus*) and the black stork (*Ciconia nigra*). Other notable migratory species include the European honey-buzzard (*Pernis apivorus*), black kite (*Milvus migrans*), short-toed snake-eagle (*Circaetus gallicus*), white stork (*Ciconia ciconia*) and Griffon vulture (*Gyps fulvus*).	IBA
8	Bujeo, Ojén, del Niño and Blanquilla	448.1	47 km to the north	The site comprises a chain of limestone hills supporting Quercus woodland, Mediterranean scrub and rocky outcrops, and serves as both an important breeding habitat and a major migration bottleneck for at least 20,000 storks and raptors.	IBA

	mountain ranges			The Egyptian vulture (*Neophron percnopterus*) is the site's confirmed KBA trigger species. The broader IBA qualifying assemblage also includes the Griffon vulture (*Gyps fulvus*), Bonelli's eagle (*Aquila fasciata*), Eurasian eagle-owl (*Bubo bubo*) and white-rumped swift (*Apus caffer*), as well as the assemblage of migratory soaring birds and cranes.	
9	Bou Hachem	97.0	47 km to the southeast	The site is situated in the Rif Mountains of northern Morocco. The site supports several species of conservation importance, including the barbary macaque (*Macaca sylvanus*), North African fire salamander (*Salamandra algira*) and Moroccan midwife toad (*Alytes maurus*), as well as regionally characteristic reptiles such as the riffian skink (*Chalcides colosii*) and Tangier worm lizard (*Blanus tingitanus*).	-

5.3.1.2 LEGALLY PROTECTED AREAS

In addition to the KBAs, nine (9) legally Protected Areas (PAs) have been identified within 50 km of the Project site. Four (4) of these are located in Spain and are separated from the Project site by the Strait of Gibraltar.

A summary of the Protected Areas in the vicinity of the Project Site is provided in ***Table*** 5-19.

TABLE 5-19 SUMMARY OF THE PROTECTED AREAS IN THE VICINITY OF THE PROJECT

#	Protected Area Name	Area (km^2)	Distance / Direction to Project Area	Summary
1	Complexe du Bas Tahaddart	Not reported, GIS-calculated area: 106.87	10 km to the west	Designation: Wetland of International Importance (Ramsar Site) IUCN Management Category: Not Applicable Type: Marine and Coastal Protected Areas Management Authority: National Agency for Water and Forests, Morocco
2	Réserve de Biosphère Intercontinentale de la Méditerranée (RBIM)	Not reported, GIS calculation: 5048.14	13 km to the south	Designation: UNESCO-MAB Biosphere Reserve IUCN Management Category: Not Applicable Type: Terrestrial and Inland Waters Protected Area Management Authority: National Agency for Water and Forests, Morocco
3	Parc Naturel de Bouhachem	Not reported, GIS-calculated area: 817.75	32 km to the southeast	Designation: Natural Park IUCN Management Category: VI Type: Terrestrial and Inland Waters Protected Area Management Authority: National Agency for Water and Forests, Morocco

4	Lagune et barrage de Smir	Not reported, GIS-calculated area: 8.37	34 km to the east	Designation: Natural Park IUCN Management Category: VI Type: Terrestrial and Inland Waters Protected Area Management Authority: National Agency for Water and Forests, Morocco
5	Estrecho	189.32	34 km to the north	Designation: Natural Park IUCN Management Category: V Type: Marine and Coastal Protected Areas Management Authority: Ministerio de Agricultura y Pesca, Alimentación y Medio Ambiente, Spain
6	Littoral de Jbel Moussa	Not reported, GIS calculation: 5.04	40 km to the northeast	Designation: Wetland of International Importance (Ramsar Site) IUCN Management Category: Not Applicable Type: Marine and Coastal Protected Areas Management Authority: National Agency for Water and Forests, Morocco
7	Playa de los Lances	2.40	44 km to the northeast	Designation: Nature Place IUCN Management Category: II Type: Terrestrial and Inland Waters Protected Areas Management Authority: Ministerio de Agricultura y Pesca, Alimentación y Medio Ambiente, Spain
8	Los Alcornocales	1736.20	46 km to the northeast	Designation: Natural Park IUCN Management Category: IV Type: Terrestrial and Inland Waters Protected Areas Management Authority: Junta de Andalucía, Spain
9	Duna de Bolonia	0.13	48 km to the north	Designation: Natural Monument IUCN Management Category: III Type: Terrestrial and Inland Waters Protected Areas Management Authority: Ministerio de Agricultura y Pesca, Alimentación y Medio Ambiente, Spain

5.3.2 HABITATS

The Project is located in northern Morocco, within a predominantly rural landscape comprising an inland waterbody and surrounding agricultural and semi-natural habitats. The immediate surroundings are characterised mainly by agricultural land, with patches of semi-natural vegetation that have developed following the abandonment of former agricultural land.

For the purpose of the biodiversity baseline evaluation, the Project's Area of Influence (AoI) has been conservatively defined as a 2 km radius from the Project facilities/boundary. Habitats have been categorised into modified or natural habitat as per IFC PS6 standards:

- **Modified habitats** are areas that may contain a large proportion of plant and/or animal species of non-native origin, and/or where human activity has substantially modified an area's primary ecological functions and species composition. Modified habitats may include areas managed for agriculture, forest plantations, reclaimed coastal zones and reclaimed wetlands.
- **Natural habitats** are areas composed of viable assemblages of plant and/or animal species of largely native origin, and/ or where human activity has not essentially modified an area's primary ecological functions and species composition.

Five (5) habitats and land cover types are identified within Project AoI. Due to long-term agricultural activities in the surrounding area, most of the land surrounding the Project has been modified by human activities. Among all habitats, four are terrestrial and one is freshwater: developed areas, agricultural areas, bare land, shrubs and surface water, as described in ***Table*** 5-20.

Figure 5-26 describes the various types and extent of habitats within the AoI, based on the definitions stated in ***Table*** 5-20. The land cover information primarily comes from a desktop review of satellite imagery, dated in November 2024, via Geographic Information System. Since then, the channels have been constructed by the management of the industrial complex at the north edge of the Project, and the land of the Project's footprint has been cleared. The habitat map dated in November 2024 is able to indicate habitat conditions before construction commenced.

FIGURE 5-26 MAP OF LANDCOVER TYPE WITH THE PROJECT'S AOI

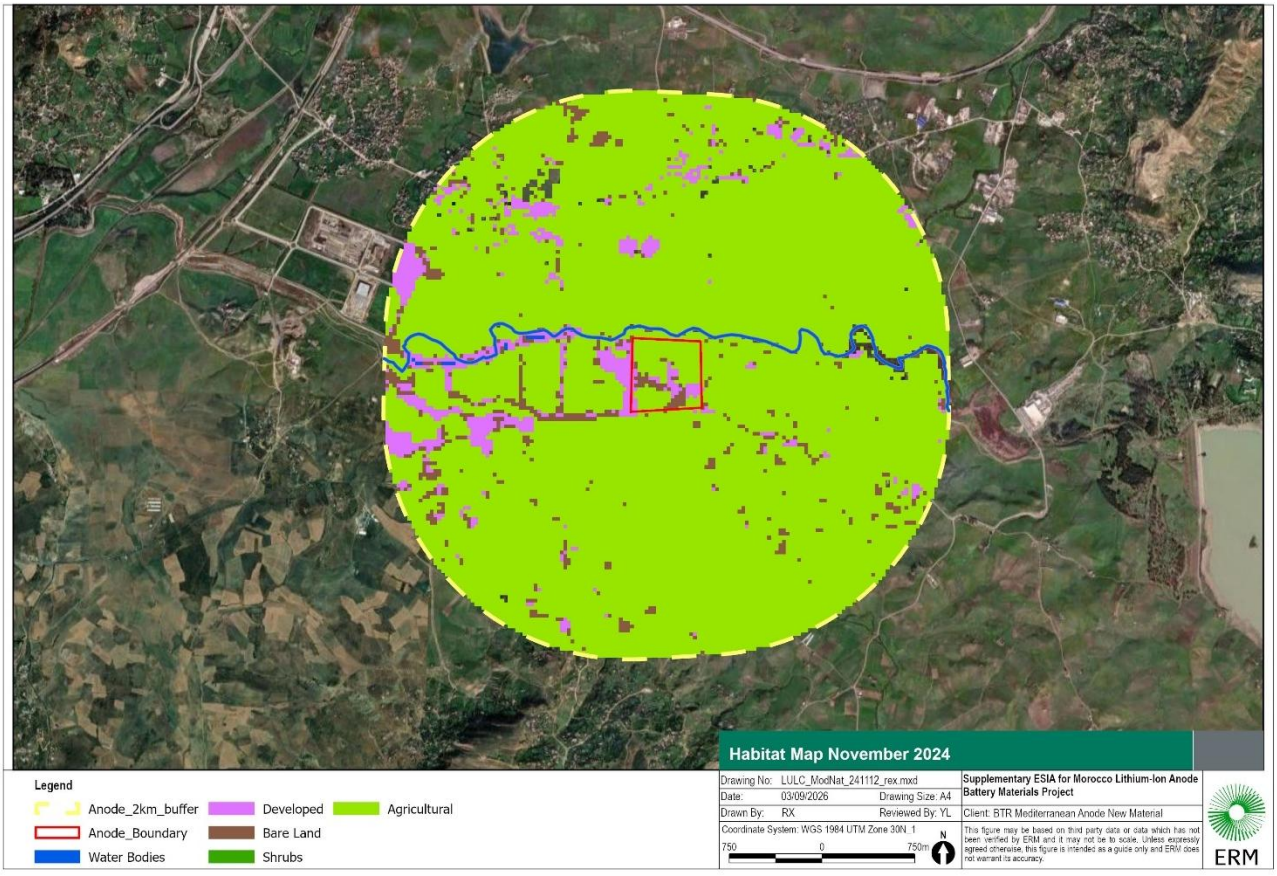


TABLE 5-20 HABITATS WITHIN THE STUDY AREA AND WITHIN A 2-KILOMETER BUFFER ZONE AROUND THE AREAS (NOVEMBER 2024)

Habitat Type	Description	Extent within AoI (km^2)	Habitat Type
Developed	Area covered by the building for residential or industrial use.	~1.17	Modified
Agricultural	The agricultural lands in the survey area are planted with various crops. Part of riparian agricultural land is merged during wet season with heavy rainfall.	~19.00	Modified
Surface Water	Waterways, and reservoirs for agricultural irrigation and other human uses, with hydrological conditions regulated by artificial dams in this area. However, there were no obvious anthropogenic changes towards hydrology within the AoI, based on satellite imagery in November 2024. After then, the drainage channel was structured by the industrial park to mitigate flooding risk.	~0.01	Disturbed Natural
Bare Land	The bare land was identified as abandoned cropland or fallow land with signs of decommissioned cultivation. It is currently characterised by a cover of native weedy vegetation or exposed.	~0.82	Modified
Shrubs	Shrub vegetation and seasonal wetland are merged during wet season with heavy rainfall. But the conditions are disturbed by the agricultural activities, so it is identified as the modified habitat.	~0.21	Modified

5.3.3 BIODIVERSITY CONDITION OF THE REGION

5.3.3.1 FLORA

The Project site lies within a highly modified agricultural landscape on the low-lying plain of the Wadi Mharhar catchment in northern Morocco. Vegetation within the Project site and surrounding area is expected to be dominated by fallow agricultural land, ruderal herbaceous communities and riparian vegetation associated with the main river channel, intermittent tributaries and artificial impoundments. Former agricultural land that is no longer cultivated is likely to support disturbance-tolerant annual and biennial herbs, grasses and other early-successional vegetation. Traditional agricultural landscapes on the Tingitane Peninsula can retain relatively diverse arable flora, including native and regionally endemic species, although agricultural intensification and changes in land management have contributed to the decline of such plant communities.

Riparian and wetland vegetation is likely to occur along the Wadi Mharhar, persistent pools and the artificial reservoir, particularly where water remains throughout the year. Such vegetation may include reeds, rushes, sedges, wetland grasses and other emergent or moisture-dependent plants. These habitats are likely to have greater local ecological value than the surrounding disturbed agricultural land because they provide cover, feeding areas and ecological connectivity for wildlife. At the wider landscape level, vegetation diversity and conservation importance increase westward toward the Oued Tahaddart KBA and the Lower Tahaddart Ramsar Site, where estuarine vegetation, saltmarsh, freshwater wetlands, grassland, mudflats and remnant cork-oak woodland occur. The wider wetland complex

supports several nationally rare or vulnerable plant species associated with saline and brackish habitats, including *Spartina maritima, Limoniastrum monopetalum, Ruppia maritima* and *Sarcocornia perennis*.

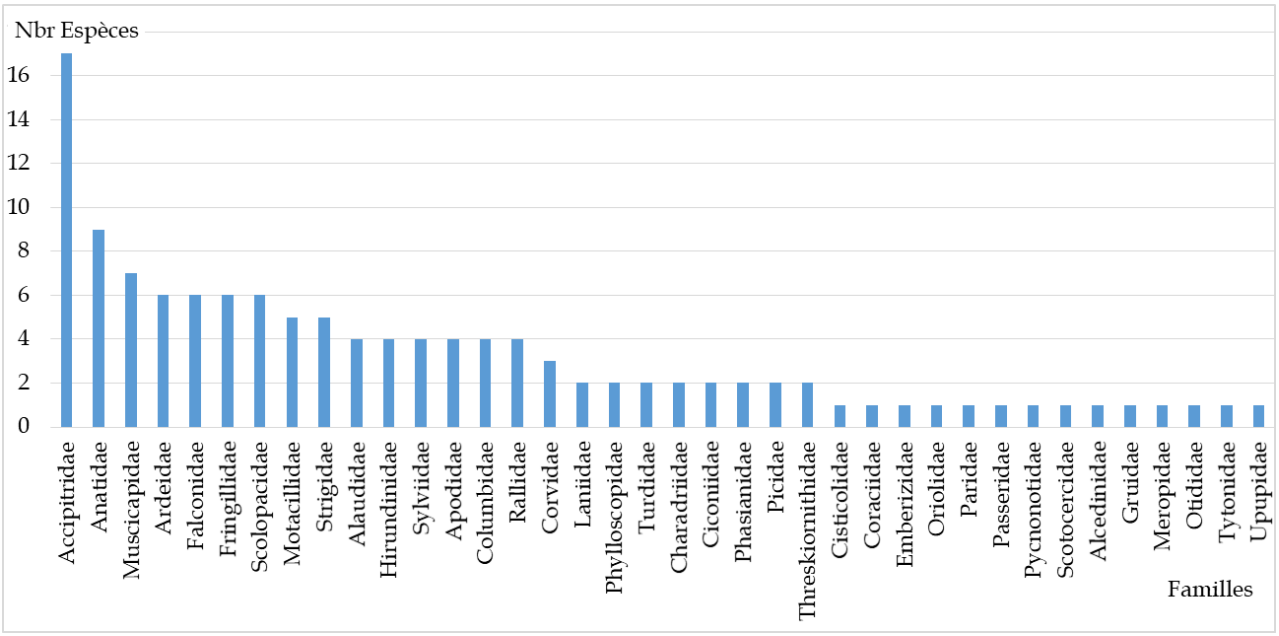
5.3.3.2 FAUNA

The fauna in the region is expected to comprise mainly common species associated with agricultural lands, fallow fields and other modified habitats. Birds are likely to be the predominant faunal group, with farmland passerines, pigeons, corvids, swallows, raptors and other common open-country species potentially using the area for foraging or passage. The Wadi Mharhar, isolated pools and artificial reservoir may also attract herons, waders and other water-associated birds. Dense vegetation around permanent or semi-permanent waterbodies may provide locally suitable feeding, sheltering and potentially breeding habitat, particularly for passerines.

At the wider landscape level, the Tahaddart wetland complex, approximately 10 km west to the Project site (see ***Figure*** 5-25), provides important habitat for migratory and wintering birds. The Oued Tahaddart KBA supports large numbers of migratory waders, gulls and waterfowl, particularly during wet winters when extensive areas become inundated. The area has historically supported common cranes (*Grus grus*), greater flamingos (*Phoenicopterus roseus*), Eurasian spoonbills (*Platalea leucorodia*) and one of Morocco's few remaining great bustard (*Otis tarda*) populations. The Lower Tahaddart Ramsar Site may also function as an important stopover area for migratory waterbirds crossing the Strait of Gibraltar, as it is among the first major African wetlands encountered during southward autumn migration and one of the last feeding areas before northward spring migration.

Based primarily on occurrence records extracted from an unpublished national database and supplemented by information from the IUCN Red List, an inventory of 124 bird species potentially occurring within the region was compiled. These species represent approximately one-third of Morocco's regularly occurring avifauna and comprise 38 families (***Figure*** 5-27). Passerines account for 37.9% of the inventory across 18 families, birds of prey within the Accipitridae and Falconidae account for 18.5%, and waterbirds account for a further 26.6% across nine families. Each species' phenological status in Morocco, global conservation status under the IUCN Red List, and national legal protection status under Law No. 29-05 are presented in ***Appendix D*****.**

FIGURE 5-27 POTENTIAL AVIFAUNA OF THE TANGIER REGION: NUMBER OF SPECIES PER FAMILY



Additionally, river channels, temporary pools, artificial reservoirs and seasonally inundated areas may provide habitat for amphibians, reptiles, aquatic invertebrates and freshwater fish. Seasonal waterbodies with suitable water quality and associated vegetation may provide breeding, foraging and refuge habitat for amphibians, while riverbanks, drainage channels, field margins, stone piles and dense vegetation may support reptiles by providing opportunities for foraging, shelter and movement. The main channel and permanent pools may also provide more persistent habitat for freshwater fish and other aquatic fauna. However, seasonal habitat fragmentation, low water levels, poor water quality and reduced dissolved oxygen may limit aquatic connectivity and reduce habitat suitability during the dry season.

A desktop review of relevant peer-reviewed literature indicates that the western Tingitana Peninsula, particularly the hills overlooking the Project area, supports a relatively diverse herpetofauna, comprising at least seven (7) amphibian and 12 reptile species (***Table*** 5-21).

TABLE 5-21 AMPHIBIANS AND REPTILES LIKELY TO OCCUR IN PROJECT' AOI

Scientific Name	Common Name	References	IUCN	End.
Amphibia				
Salamandra algira tingitana	North African Fire Salamander	Donaire Barroso & Bogaerts, 2003	VU	M
Pleurodeles waltl	Sharp-ribbed Salamander	Michahelles, 1830	LC	M, PI
Discoglossus scovazzi	Moroccan Painted Frog	Camerano, 1878	LC	M
Pelobates varaldii	Varaldi's Spadefoot Toad	Pasteur and Bons, 1859	EN	
Sclerophrys mauritanica	Moroccan Toad	Schlegel, 1841	LC	
Hyla meridionalis	Stripeless Treefrog	Boettger, 1874	LC	
Pelophylax saharicus	North African Green Frog	Boulenger in Hartert, 1913	LC	
Reptilia				

Testudo graeca	Common Tortoise	Linnaeus, 1758	VU	
Emys orbicularis	European Pond Turtle	Linnaeus, 1758	NT	
Tarentola mauritanica	Moorish Gecko	Linnaeus, 1758	LC	
Blanus tingitanus	Tangier Worm Lizard	Busack, 1988	LC	M
Timon tangitanus	Moroccan Ocellated Lizard	Boulenger, 1891	LC	
Podarcis vaucheri	Vaucher's Wall Lizard	Boulenger, 1905	LC	
Psammodromus algirus	Large Psammodromus	Linnaeus, 1758	LC	
Hemorrhois hippocrepis	Horseshoe Whip Snake	Linnaeus, 1758	LC	
Macroprotodon brevis	Iberian False Smooth Snake	Günther, 1862	LC	
Natrix maura	Viperine Snake	Linnaeus, 1758	LC	
Malpolon monspessulanus	Western Montpellier Snake	Hermann, 1804	LC	
Vipera monticola	North African Atlas Dwarf Viper	Saint Girons, 1953	VU	M, A, T

Endemism (End.): M: Morocco; A: Algeria; T: Tunisia; IP: Iberian Peninsula.

5.3.4 SCOPING SITE VISIT

During the scoping site visit undertaken in October 2025, the existing habitat conditions and land cover within the Project site and surrounding area were recorded. Prior to its acquisition in 2020, the Project site was used extensively for agriculture, primarily for large-scale crop cultivation. Following the acquisition, agricultural activities ceased, and the site remained largely unused for approximately five years. By the time of the site visit, much of the former agricultural land had developed into unmanaged fallow land dominated by yellowish-brown ruderal vegetation and other disturbance-tolerant plant species (***Figure*** 5-28).

The Project site is situated on a small plain drained by the Wadi Mharhar river system. The main channel crosses the plain and receives several minor tributaries from the north and south. While the main channel appears to maintain perennial flow, the smaller tributaries are intermittent and may dry out periodically. During the site visit, water levels in the river sections within the Project's AoI were considerably low, with some sections completely dry or exhibiting discontinuous flow (***Figure*** 5-29). Given the limited water depth, discontinuous flow and seasonal fragmentation of aquatic habitats, these watercourses are unlikely to support substantial or stable fish populations or a well-developed, large-scale aquatic ecosystem. However, permanent pools and sections retaining water throughout the year may still provide localized habitat for small fish, aquatic invertebrates, amphibians and other aquatic or semi-aquatic fauna.

Limited evidence of animal activity was recorded during the scoping visit. Long-term anthropogenic activities have substantially modified habitats within and surrounding the Project site, and the remaining habitats are expected to support mainly common species tolerant of human disturbance. Several roads also separate the Project site from the wider wetland complex to the west, contributing to habitat fragmentation, restricting wildlife movement and reducing ecological connectivity between the two areas. As a result, species associated with the wider wetland complex are considered less likely to occur regularly within the Project site. However, a small dam on the eastern branch of the Wadi Mharhar has created an artificial reservoir that supports a pumping station (5 km east to the Project site). The

reservoir appears to retain water throughout the year and is fringed by dense, often tall vegetation, providing locally suitable habitat for birds, particularly passerines.

FIGURE 5-28 VEGETATION IN BAREGROUND OBSERVED ADJACENT TO THE PROJECT'S SITE





FIGURE 5-29 RIVER/CHANNEL OBSERVED WITHIN THE PROJECT'S AOI



5.3.5 CRITICAL HABITAT RELATED LONG-LIST SEPECIES

5.3.5.1 INITIAL LITERATURE REVIEW AND CH SCREENING

A desktop review of available literature and secondary data was conducted to obtain an initial understanding of the biodiversity values with potential occurrence in Project AoI. This was carried out using the following key data sources:

- Online databases on protected and internationally recognised areas of biodiversity importance, including the Key Biodiversity Area Partnership, Important Bird and Biodiversity Area Factsheets by BirdLife, Alliance for Zero Extinction Sites, United Nations Educational, Scientific, and Cultural Organisation's World Heritage Site, and Protected

Planet by the United Nations Environment Programme World Conservation Monitoring Centre.

- Online databases on species, including the IUCN Red List of Threatened Species version 2026-2 ("IUCN" or "IUCN Red List"), Global Biodiversity Information Facility, iNaturalist; BirdLife DataZone, eBird, Avibase, and FishBase.
- Site-specific Integrated Biodiversity Assessment Tool ("IBAT") report generated for the Project;
- Information made available by the client; and
- Publicly available data and scientific literature.

This review constituted the initial CH screening practices. The Project-specific IBAT report was used to identify species with high biodiversity values that may exist within a 50 km radius from the Project site and that could potentially meet the thresholds for CH criteria 1, 2, and 3. In addition, the review of available data (as listed above) was used to identify additional ecological sensitivities and develop the checklist of potential species of conservation significance. The Critical Habitat (CH) screening applied a precautionary approach in cases where there was uncertainty about whether a species met the CH criteria thresholds.

The IBAT report showed the possible existence of at least 1,830 terrestrial, aquatic (freshwater), and marine species within a 50 km radius of the Project, among which the CH screening identified 458 initial CH long-list species (i.e. could potentially meet the thresholds for CH criteria 1-3), including:

- 18 mammals, 245 birds, five (5) reptiles, two (2) amphibians, 43 insects, one (1) Anthozoa, three (3) Bivalvia, five (5) gastropods, one (1) malacostracan crustaceans, one (1) lampreys, one (1) branchiopods, 74 ray-finned fishes, 35 cartilaginous fishes, two (2) fungi and 22 plants.
- 237 species from marine habitats (of which 114 are birds), 192 from freshwater habitats (of which 140 are birds), and 325 from terrestrial habitats (of which 245 are birds). Various species use more than one ecosystem type.

5.3.5.2 CRITICAL HABITAT SCREENING

The Critical Habitat Screening is based on the five criteria and their thresholds, as defined by IFC PS6 and Guidance Note 6, and shown in ***Table*** 5-22*,* where the qualifying requirements for Criteria 1 to 4 (i.e., thresholds) are indicated, while details of the likely qualifying interests for criterion 5 are defined based on research and expert opinion*.* ERM specialists have reviewed and analysed the data collected during the first two steps outlined above to determine whether the Project is situated within any Critical Habitat and, if present, for which specific high biodiversity values.

If any one of the criteria is met for the ecologically appropriate area of analysis (EAAA), it will be considered Critical Habitat irrespective of failing to meet any other criteria, i.e. each criterion is applied separately and not in combination, meaning that the scores are not cumulative. Equally, more than one criterion may be applicable (e.g., an endangered species

that is also endemic or range-restricted). Critical habitat Criteria 1-3 are based on the criteria and thresholds also used in the IUCN Key Biodiversity Area (KBA) Standard.[77]

TABLE 5-22 THRESHOLDS FOR CRITICAL HABITAT

High Biodiversity Value / Criteria	Thresholds
Criterion 1: Critically Endangered (CR)/Endangered (EN) species	(a) Areas that support globally important concentrations of an IUCN Red-listed EN or CR species (⩾ 0.5% of the global population AND ⩾ 5 reproductive units of a CR or EN species). (b) Areas that support globally important concentrations of an IUCN Red-listed Vulnerable (VU) species, the loss of which would result in the change of the IUCN Red List status to EN or CR and meet the thresholds in (a). (c) As appropriate, areas containing important concentrations of a nationally or regionally listed EN or CR species.
Criterion 2: Habitat of significant importance to endemic and/or restricted-range species	(a) Areas that regularly hold ⩾ 10% of the global population size AND ⩾ 10 reproductive units of a species.
Criterion 3: Habitat supporting globally significant concentrations of migratory species and/or congregatory species	(a) Areas known to sustain, on a cyclical or otherwise regular basis, ≥ 1% of the global population of a migratory or congregatory species at any point of the species' lifecycle. (b) Areas that predictably support ≥ 10% of the global population of a species during periods of environmental stress.
Criterion 4: Highly threatened and/or unique ecosystems	(a) Areas representing ≥ 5% of the global extent of an ecosystem type meeting the criteria for IUCN status of CR or EN. (b) Other areas not yet assessed by IUCN but determined to be of high priority for conservation by regional or national systematic conservation planning.
Criterion 5: Areas associated with key evolutionary processes	No set quantitative thresholds and determined on a case-by-case basis. Examples of spatial features associated with evolutionary processes include landscapes with high spatial *heterogeneity* are a driving force in speciation; *Connectivity* between habitats (for example, biological corridors) ensures species migration and gene flow, which is especially important in fragmented habitats and for the conservation of metapopulations.

Source: IFC Guidance Note 6, updated 27 June 2019.

Note:

[77] IUCN, "A Global Standard for the Identification of Key Biodiversity Areas", 2016. Available at: https://portals.iucn.org/library/node/46259.

Endemic/Restricted-range Species = Defined as: (i) terrestrial vertebrates and plants with an Extent of Occurrence (EOO) of less than 50,000 km2; (ii) marine species with an EOO of less than 100,000 km2; and (iii) coastal, riverine, and other aquatic species in habitats that do not exceed 200 km width at any point (for example, rivers) and with a global range of less than or equal to 500 km linear geographic span (i.e., the distance between occupied locations furthest apart).

Migratory species = Any species of which a significant proportion of its members cyclically and predictably move from one geographical area to another (including within the same ecosystem).

Congregatory Species = Species whose individuals gather in large groups on a cyclical or otherwise regular and/or predictable basis.

Reproductive Unit = The minimum number and combination of mature individuals necessary to meet the thresholds for a successful reproductive event at a site. Examples of five reproductive units include five pairs, five reproducing females in one harem, and five reproductive individuals of a plant species.

5.3.5.3 CRITICAL HABITAT SCREENING AREA

The Critical Habitat Screening covered the Project sites and relevant ecological receptors within approximately 2 km. According to the latest design, no wastewater will be discharged into the local surface water system during both construction and operation phases, and the stormwater will be stored on site temporarily then discharged into the channel. At the same time, the overhand transmission line for operation is planned in approximate 2-km length with undetermined route. The 2 km buffer is therefore deemed sufficient for this screening.

Given the limited Project footprint, limited impact pathway towards external biological environment, the predominantly modified surrounding landscape, and the absence of any biodiversity feature reasonably likely to meet the applicable IFC PS6 Critical Habitat thresholds, no candidate Critical Habitat features were retained. Consequently, no feature-specific EAAA or further threshold assessment was considered necessary.

5.3.5.4 CRITICAL HABITAT SCREENING OF SPECIES

Analysis of the Project's vicinity demonstrates that CH Criterion 5 is not applicable for this Project as areas associated with key evolutionary processes are not considered to be present and are therefore not discussed further.

The desk-based Critical Habitat (CH) screening applied a precautionary approach when there was uncertainty about whether a species met the CH criteria 1-3, and as stated previously, 458 species were considered in the initial CH long list based on the desktop CH screening. Further examination of available information for each species, included consideration of their ecology and the habitat required to support each, and was used to screen out additional species.

Geographic range screening

Among all potential CH candidates, 106 of them are dependent exclusively or primarily on marine habitats, such as North Atlantic right whale (*Eubalaena glacialis*, CR) and Hawksbill turtle (*Eretmochelys imbricata*, CR). As suitable marine and coastal habitats are not present within the Project's vicinity, these species were excluded from further assessment. In addition, the waterbody within the Project's Critical Habitat Area is the Wadi Mharhar river system, which comprises a main channel and several minor tributaries draining from the north and south. The main channel appears to maintain perennial flow, whereas the smaller tributaries are intermittent and may dry out periodically. Flow velocities are generally low due to the flat terrain. During the dry summer months, the water courses are typically reduced to isolated,

stagnant pools separated by dry channel sections or reaches with minimal flow. Therefore, 15 species (e.g. European eel (*Anguilla anguilla*), CR) that use or migrate into freshwater habitats but are dependent on connectivity between riverine and marine environments to complete their life cycles were also excluded from further assessment, as no such hydrological connectivity occurs within the Project area.

CH criterion 3

A total of 275 species were initially identified as potentially meeting CH criterion 3 due to their migratory or congregatory behaviour.

Most wetland-dependent species were screened out because the Project area does not contain an extensive or functionally intact wetland complex capable of supporting significant concentrations. Larger and more suitable wetlands and waterbodies occur both west and east of the Project. In particular, the Oued Tahaddart wetland complex to the west, which includes internationally recognised Ramsar and IBA/KBA areas, provides more extensive, continuous and resource-rich feeding and resting habitat. In contrast, wetlands around the Project have been reduced and fragmented by agricultural conversion, industrial development and infrastructure (highway and road system). The local watercourse has also been channelised, substantially reducing its natural morphology, riparian habitat and floodplain connectivity. Temporary waterlogging may occur, but there is no evidence that it provides sufficiently extensive, persistent or productive habitat to support regular and significant waterbird concentrations.

Other passage migrants, including raptors, soaring birds and farmland-associated species, may occasionally fly over or make transient use of the Project landscape. However, no important staging area, communal roost, consistently productive feeding area, migration bottleneck or other feature likely to concentrate migratory birds has been identified within or adjacent to the Project. The surrounding agricultural and former agricultural habitat is also fragmented and subject to ongoing human disturbance. Occasional overflight or low-level use would not indicate that the area regularly supports concentrations meeting Criterion 3 thresholds.

Great Bustard (*Otis tarda*) was considered separately because of its association with open landscapes and the nearby Oued Tahaddart IBA/KBA. The Project area, however, lacks the extensive, continuous and relatively undisturbed steppe-like grassland or low-intensity agricultural habitat generally required by the species. Industrial development, roads, cleared plots and other infrastructure have substantially fragmented the landscape, and no nearby records, display areas, regular feeding areas or other evidence of recurrent use were identified. Regular or significant use of the Project area by Great Bustard is therefore considered unlikely.

On this basis, none of the bird species identified solely under Criterion 3 was retained as a candidate Critical Habitat feature. Although occasional overflight or transient use cannot be excluded, the available evidence does not indicate that the Project area functions as an important staging, stopover, feeding, roosting or congregatory site, or that it is reasonably likely to support regular or predictable concentrations meeting the applicable Criterion 3 thresholds. Accordingly, no bird species was taken forward for assessment.

CH Criterion 2

A total of 51 species were initially identified as potentially meeting CH criteria 2 as restricted-range species. As the Project is located in northern Morocco, the 50 km IBAT screening radius extends across the Strait of Gibraltar into southern Spain. Consequently, the initial screening included several species whose known ranges are restricted to Spain and are unlikely to extend into Morocco, particularly insects and other taxa with limited dispersal capacity. Following a review of the known distribution and geographic range of each species, all species with no confirmed or potential range overlap with the Project's vicinity, including those restricted to Spain (e.g. Cadiz saddle bush-cricket, *Pycnogaster gaditana*, DD) and those occurring elsewhere outside the Project's vicinity (Varaldi's spadefoot toad, *Pelobates varaldii*, EN), were excluded from further Critical Habitat assessment.

CH Criterion 1

Five Endangered species were initially identified as potentially relevant to IFC PS6 Critical Habitat Criterion 1: Murphy's Oat (*Avena murphyi*), *Genista ancistrocarpa*, Saker Falcon (*Falco cherrug*), Egyptian Vulture (*Neophron percnopterus*) and the beetle *Thorectes distinctus*. These species were further reviewed based on their known distribution, habitat requirements, available records and the extent and condition of potentially suitable habitat within the Critical Habitat Screening Area.

The two plant species and *T. distinctus* were not recorded during the field survey, and no confirmed records were identified within or immediately adjoining the Project area. The Project landscape is dominated by cleared industrial plots, intensively modified agricultural land and disturbed ruderal vegetation, and does not contain known locations or sufficiently extensive, high-quality habitat expected to support significant populations of these species. Although *A. murphyi* is native to Morocco and southwestern Spain, regional occurrence alone does not demonstrate presence or a significant population within the Project screening area.

Saker Falcon and Egyptian Vulture may undertake wide-ranging movements, and occasional passage or overflight cannot be entirely excluded. However, no nesting, roosting or regularly used feeding sites, and no evidence of recurrent or concentrated use, were identified within or adjacent to the Project area. The fragmented and disturbed Project landscape is therefore not reasonably expected to support a concentration of either species meeting the applicable Criterion 1 thresholds. Egyptian Vulture is confirmed as an EN and migratory species with a wide global range, including occurrence in Morocco, but there is no project-specific evidence that the screening area supports a significant population or habitat of particular importance to the species.

On this basis, none of the five Endangered species was considered reasonably likely to occur in numbers, or depend upon habitat within the Project screening area to an extent, that could meet the applicable Criterion 1 thresholds. They were therefore screened out as candidate Critical Habitat features and were not taken forward for formal threshold assessment.

The Critical Habitat Screening considered biodiversity features potentially relevant to IFC PS6 Criteria 1–5, including species identified through IBAT and other desktop sources, potentially qualifying ecosystems, and the qualifying features of the nearby Oued Tahaddart KBA and Complexe du Bas Tahaddart Ramsar Site. Following review of geographic range, habitat requirements, local habitat availability, known records, ecological connectivity and the reasonable likelihood of meeting the applicable Critical Habitat thresholds, no candidate Critical Habitat features were identified within the Project's relevant ecological screening area.

Accordingly, no feature-specific EAAA or full Critical Habitat threshold assessment was considered necessary.

5.3.6 BASELINE SURVEY

Following a detailed desktop review and considering the presence of extensive cropland and wetland habitats in the surrounding area, baseline field surveys targeting avifauna and amphibians were undertaken 10–11 August 2026.

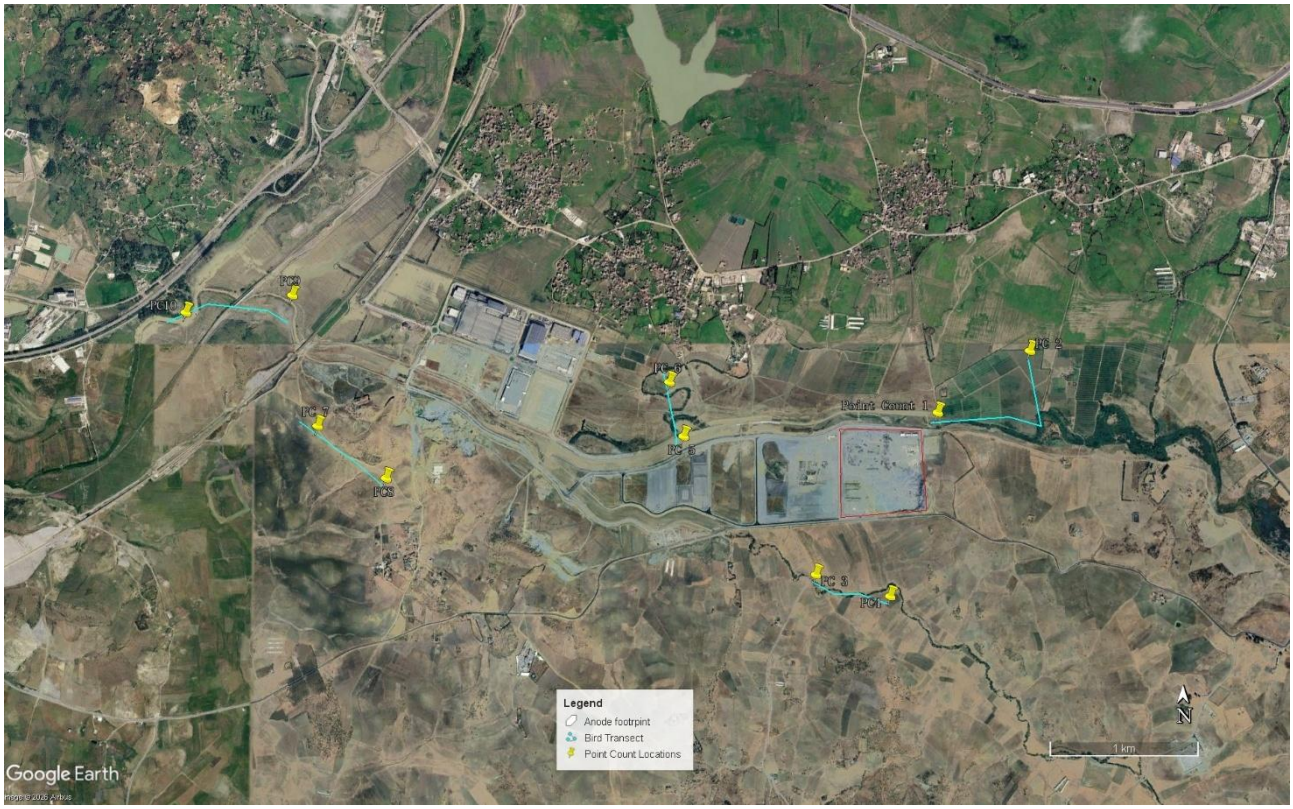
5.3.6.1 BASELINE SURVEY METHOD

The survey locations shown in ***Figure*** 5-30 were visited by two ornithologists on 10 and 11 August 2026. Each location was surveyed twice, once per day, using a combination of point counts, auditory detection and active visual searches with binoculars. Spotting scopes were also available but were not required, as observations were supported by high-resolution digital cameras fitted with 300 mm and 800 mm telephoto lenses. Each point-count session lasted at least 15 minutes. Where access permitted, the point counts were supplemented by pedestrian transects along adjacent watercourses, extending the survey effort to up to two hours at each point and associated transect.

All observations were recorded using the MaghreBirds Android application and subsequently compiled in a database. Each survey record included the date, survey period, GPS coordinates and dominant habitat type. All bird species detected visually or aurally were recorded by scientific name, together with the number of individuals observed or heard. Photographs were taken of representative habitats and, where practicable, all bird species encountered. The photographs were used to illustrate this report and to support subsequent verification of species identification, where required.

Targeted searches for reptiles were conducted concurrently with the bird surveys. Survey methods included turning over accessible stones and fallen branches at observation points and visually searching riparian vegetation and stands of Mediterranean dwarf palm. Searches for amphibians, freshwater turtles and aquatic snakes focused on waterbody margins, riparian vegetation and potential basking or resting substrates.

FIGURE 5-30 LOCATION OF BASELINE SURVEY TRANSECTS



5.3.6.2 BASELINE SURVEY RESULT

Of the 28 bird species recorded during the site visit, almost all are common and widespread in Morocco and are not nationally protected. The most abundant species was cattle egret (*Bubulcus ibis*), followed by house sparrow (*Passer domesticus*), common linnet (*Linaria cannabina*), European greenfinch (*Chloris chloris*) and crested lark (*Galerida cristata*), all of which are commonly associated with agricultural land. Barn swallow (*Hirundo rustica*), pallid swift (*Apus pallidus*) and common swift (*Apus apus*) were also recorded. These species breed in northern Morocco and may also occur as passage migrants.

The highest species richness was recorded at survey points associated with watercourses that retained water and supported well-developed riparian vegetation, particularly Points 03, 09 and 10. These watercourses appear to retain water throughout the year and provide more suitable bird habitat than the surrounding agricultural and fallow land. Overall, the survey results indicate that the Project site currently supports a relatively limited assemblage dominated by common and disturbance-tolerant bird species. The site is therefore considered to be of low ornithological importance, and no major bird-related constraint to either component of the Project was identified during the survey.

Nevertheless, the water courses and associated riparian vegetation retain localized ecological value by providing feeding, sheltering and potentially breeding habitat for birds. These habitats should therefore be retained in their current condition and, where practicable, enhanced through appropriate habitat management and restoration measures.

TABLE 5-23 NUMBER OF SPECIES RECORDS AT EACH SURVEY POINT

Species/ Observation Points	01	02	03	04	05	07	08	09	10	Totals

Cattle Egret (*Bubulcus ibis*), LC	60		18				3	17	11	109
Barn Swallow (*Hirundo rustica*), LC		5	3			13	3	7		31
House Sparrow (*Passer domesticus*), LC								25		25
Common Linnet (*Linaria cannabina*), LC	2					2	5	5	5	19
European Greenfinch (*Chloris chloris*), LC	3						3	11		17
Pallid Swift (*Apus pallidus*), LC		6	3			7				16
Crested Lark (*Galerida cristata*), LC	3		5			5				13
Common Swift (*Apus apus*), LC		5	7							12
Zitting Cisticola (*Cisticola juncidis*), LC		4	2					1	1	8
European Stonechat (*Saxicola rubicola*), LC				2				5		7
Common Kestrel (*Falco tinnunculus*), LC			3			1				4
Long-legged Buzzard (*Buteo rufinus*), LC		2	1							3
Common Woodpigeon (*Columba palumbus*), LC			1						2	3
Common Moorhen (*Gallinula chloropus*), LC		1						1	1	3
Sardinian Warbler (*Sylvia melanocephala*), LC			2						1	3
European Goldfinch (*Carduelis carduelis*), LC								2		2
Cetti's Warbler (*Cettia cetti*), LC	2									2
European Roller (*Coracias garrulus*), LC			2							2
Little Egret (*Egretta garzetta*), LC					1			1		2
House Bunting (*Emberiza sahari*), LC	2									2
Iberian Grey Shrike (*Lanius meridionalis*), VU						2				2
Northern Wheatear (*Oenanthe oenanthe*), LC								2		2
Glossy Ibis (*Plegadis falcinellus*), LC	2									2
Common Hoopoe (*Upupa epops*), LC									2	2
Meadow Pipit (*Anthus pratensis*), LC				1						1
White Stork (*Ciconia ciconia*), LC								1		1
Eurasian Blue Tit (*Cyanistes caeruleus*), LC									1	1
Eurasian Blackbird (*Turdus merula*), LC								1		1
No. of species	7	6	11	2	1	6	4	13	8	28
No. of individuals	**74**	**23**	**47**	**3**	**1**	**30**	**14**	**79**	**24**	**295**

Although the surveyed aquatic habitats appeared suitable for herpetofauna, the only evidence of their presence was a small number of Sahara frogs (*Pelophylax saharicus*) observed retreating into the water from the water's edge.

Nevertheless, based on the habitats currently present on the Project's AoI, approximately 12 species are considered potentially present. These include four (4) amphibians, including stripeless treefrog (*Hyla meridionalis*), sharp-ribbed salamander (*Pleurodeles waltl*), Moroccan toad (*Sclerophrys mauritanica),* and North African green frog (*Pelophylax saharicus*), and eight (8) reptiles, including spiny-footed lizard (*Acanthodactylus erythrurus*), Moorish gecko (*Tarentola mauritanica*), common tortoise (*Testudo graeca*), North African Atlas dwarf viper (*Vipera monticola*), horseshoe whip snake (*Hemorrhois hippocrepis*), Iberian false smooth snake (*Macroprotodon brevis*), western Montpellier snake (*Malpolon monspessulanus*), and viperine snake (*Natrix maura*). Of these, the common tortoise (*Testudo graeca*) is listed as Vulnerable (VU) on the IUCN Red List, while remaining species are classified as Near Threatened (NT) and Least Concern (LC).

Additionally, habitat conditions within and surrounding the Project area were assessed during the site visit, with particular focus on aquatic features. The majority of the Project site comprises abandoned and previously modified habitats that have been subject to long-term anthropogenic disturbance. These areas are predominantly characterised by open, relatively homogeneous vegetation dominated by annual ruderal and other disturbance-tolerant herbaceous species. Shrub and tree cover is largely absent, resulting in limited vertical and structural vegetation complexity and a general lack of suitable nesting, shelter, and refuge features for wildlife. The scarcity of mature vegetation, together with the fragmented and disturbed nature of the surrounding landscape, is likely to limit the site's capacity to support species associated with more natural or structurally diverse habitats.

Consistent with earlier observations, most drainage channels and watercourses within and around the Project site exhibited no visible surface flow at the time of the survey. The channel beds were generally dry, indicating that these features are likely to function primarily as temporary or seasonal watercourses following periods of rainfall. Water persisted at limited locations and was generally shallow, isolated, and limited in spatial extent. These residual waterbodies appeared to provide little permanent aquatic habitat and are unlikely to support established fish populations or large-scale aquatic ecosystems. Nevertheless, where suitable water quality and associated vegetation are present, they may provide temporary habitat for disturbance-tolerant amphibians, reptiles, aquatic invertebrates, and other fauna, particularly during wetter periods. Overall, the aquatic features observed are considered to have limited ecological functionality under the prevailing dry conditions, although their seasonal importance may increase following significant rainfall.

FIGURE 5-31 NATURAL AND MODIFIED HABITAT TYPES WITHIN THE PROJECT'S AOI



Downstream of the river close to PC9



Downstream of the river close to PC10



View of the channel close to the PC1



View of the channel between PC1 and PC5



The bare land close to PC8



The agricultural land close to PC4 without cultivation in dry season

5.3.7 BIODIVERSITY BASELINE SUMMARY

The Project area is dominated by modified habitats resulting from historical agricultural use, industrial development, vegetation clearance and ongoing human disturbance. Although the Project is situated within the wider ecological context of the Strait of Gibraltar migratory flyway and the Tahaddart wetland complex, habitats within its immediate vicinity are comparatively fragmented, disturbed and limited in extent. No evidence was identified that the Project area

functions as an important ecological corridor, migratory stopover, staging area or regularly used linkage with nearby internationally recognised wetlands.

Field surveys recorded predominantly common and disturbance-tolerant bird species associated with agricultural and human-modified environments. One IUCN Vulnerable species, Iberian Grey Shrike (*Lanius meridionalis*), was recorded, but there was no evidence that the Project area supports a significant population of this or any other threatened, restricted-range, migratory or congregatory species. Herpetofauna records were limited to North African Green Frog (*Pelophylax saharicus*). No reptiles, freshwater turtles or aquatic snakes were recorded, although their absence cannot be confirmed given the limited duration and seasonal timing of the surveys.

The Wadi Mharhar system, drainage channels, residual pools, riparian vegetation, and occasionally inundated areas represent the main biodiversity features within the 2 km buffering of the Project area. Their ecological function is constrained by seasonal and discontinuous flows, channel modification and reduced riparian and floodplain connectivity. Nevertheless, these features retain local value as potential seasonal feeding, breeding, refuge and movement habitat and should be avoided and protected where practicable.

Critical Habitat Screening considered biodiversity features relevant to IFC PS6 Criteria 1–5, including the qualifying features of nearby internationally recognised areas. Based on species distribution, habitat suitability, available records, ecological connectivity and the likelihood of meeting applicable thresholds, no candidate Critical Habitat features were identified. A feature-specific EAAA and further Critical Habitat threshold assessment was therefore not considered necessary. The approximately 2 km assessment area represents the Critical Habitat Screening Area and is not an EAAA.

Overall, the Project area is considered to comprise predominantly modified habitats of relatively low ecological significance, with localized biodiversity value associated mainly with aquatic and riparian features. These habitats should be protected through appropriate controls on vegetation clearance, runoff, pollution and drainage modification. The conclusions should be reviewed if further information identifies significant seasonal inundation, regular use by threatened or congregatory species, or material ecological or hydrological connectivity with the Tahaddart wetland complex.

6. STAKEHOLDER ENGAGEMENT AND GRIEVANCE REDRESS MECHANISM

6.1 STAKEHOLDER IDENTIFICATION

The objective of stakeholder identification is to establish which organisations and individuals may be directly or indirectly affected (positively and negatively) by, or have an interest in, the Project. Stakeholder identification is an ongoing process, involving regular review and the updating of the stakeholder register as the Project proceeds. A stakeholder mapping exercise was undertaken to identify key stakeholder groups and organisations.

The following detailed stakeholder identification process and findings can be located in the full Stakeholder Engagement Plan (SEP) as ***Appendix A***:

- Stakeholder identification criteria, in ***Appendix A Section 3.1***
- Identification of vulnerable people, in ***Appendix A Section 3.1.1***
- The Stakeholder Category List, in ***Appendix A Table 3-1***
- The Project Stakeholder Map, in ***Appendix A Figure 3-1***

6.2 SUPPLEMENTARY ESIA STAKEHOLDER ENGAGEMENT

Between 10 and 14 August, ERM conducted a site visit in support of the supplementary ESIA. During this period, ERM and representatives of the Project Company engaged certain key Project stakeholders. These consultations aimed to gather insights, collect feedback, understand previous land use and ensure alignment with local regulations and interests as part of the Project development process.

Table 6-1 shows the information on the date, location, stakeholder groups and participation for each of the meetings. Detailed information on ESIA stakeholder engagement activities is provided in ***Table 4-2*** of the SEP (Appendix A).

TABLE 6-1 CONSULTATIONS CONDUCTED FOR THE PROJECT

Date	Activities	Stakeholder Involved
11 August	Courtesy Call	Secretariat of General Secretary, Impact Assessment Department
11 August	Courtesy Call	Secretariat of CRI Directorate
11 August	Courtesy Call	Laaouama Commune Director and Vice-President
11 August	Courtesy Call	Laaouama Caid
12 August	Key informant interview	Head of Investment Advisory Division of CRI
12 August	Focus group discussion with men	Male villagers from Gouaret Meharza and Gouaret Mechahla
12 August	Focus group discussion with women	Female villagers from Gouaret Meharza and Gouaret Mechahla
12 August	Key Informant Interview	Mokadems (local administrative officers) of Gouaret Meharza and Gouaret Mechahla

12 August	Focus group discussion with men	Male villagers from Slaouiyine and Chaouia
12 August	Focus group discussion with women	Female villagers from Slaouiyine and Chaouia
12 August	Key Informant Interview (2nd group)	Mokadems (local administrative officers) of Slaouiyine and Chaouia
12 August	Key informant interview	SATT
13 August	Key informant interview	President and Director of Laaouama Commune
13 August	Key informant interview	President and Director of Sebt Azzinate Commune
17 August	Online Key informant interview	Representatives of ABHL, Ministry of Equipment and Water, Environmental Department and Regional ANEF Office

6.2.1 KEY FINDINGS

The stakeholder engagement activities held during the supplementary ESIA phase shed light on important Project contextual information, stakeholder dynamics, and baseline conditions, but more importantly, they highlighted certain key concerns, comments, or expectations that different stakeholders harboured toward the Project. Some of these concerns were already covered by the Project during the regulatory EIA phase, while others were either taken into account in the supplementary ESIA or noted by the Project for future consideration and/or communication with other relevant stakeholders such as SATT. ***Table*** 6-2 shows a high-level summary of the key findings from stakeholder engagement activities. A detailed list of concerns and expectations is provided in ***Table 4-3*** of the SEP (Appendix A).

TABLE 6-2 SUMMARY OF KEY FINDINGS DURING STAKEHOLDER ENGAGEMENT

Topics	Comments and/or Concerns	ESIA Consideration
Project information disclosure	Stakeholders reported limited access to clear Project information and expected regular, accessible updates on Project progress, impacts, employment and working conditions, together with opportunities to provide feedback.	This concern has been considered in the development of the Stakeholder Engagement Plan (SEP), which provides for regular, culturally appropriate and accessible information disclosure and consultation throughout construction and operation phases, including targeted engagement with women and other potentially vulnerable groups.
Land acquisition, compensation and livelihood impacts	Stakeholders raised concerns regarding historical land acquisition, compensation, loss of	The Project was not involved in the original government-led land acquisition and compensation

	agricultural and grazing land, and associated livelihood impacts, and expected fair treatment and support for affected households.	process for the wider Industrial Acceleration Zone. The Project has taken note of these concerns and will communicate relevant legacy land issues to SATT.
Access, traffic and road safety	Stakeholders raised concerns regarding restricted local access, heavy-vehicle movements, road conditions and accident risks. They expected improved access, traffic management and road-safety measures.	Potential Project-related impacts on roads are assessed in ***Section 7.3.4.2*** of the supplementary ESIA. Mitigation measures are recommended accordingly. Issues associated with industrial-zone fencing and wider road infrastructure will require coordination with SATT.
Local employment, skills development a nd working conditions	Stakeholders expected transparent local recruitment, vocational training and fair access to employment. They raised concerns regarding temporary work, intermediary recruitment, wages, contracts and working conditions.	Potential impacts associated with access to employment are assessed in ***Section 7.3.1.2*** of the supplementary ESIA. Labour rights and working conditions are assessed in ***Section 6.1*** of the HRIA.
Women's participation and access to Project benefits	Stakeholders identified barriers to women's access to information, training and employment, and expected targeted engagement, equal opportunities and safe channels for raising concerns.	Gender-related risks associated with Project labour influx and access to employment are assessed in ***Section 6.4 of HRIA***. The Stakeholder Engagement Plan provides for targeted and culturally appropriate engagement with women.
Environmental emissions, waste management and community health	Stakeholders raised concerns regarding air emissions, dust, noise, wastewater, waste management, water resources and potential community health impacts. They expected effective controls and compliance monitoring.	A Regulatory EIA has been adopted for the Project, and the Project will continue to meet regulatory requirements as addressed in ***Section 7.2*** of Supplementary ESIA
Public infrastructure, services and cost of living	Stakeholders raised concerns regarding pressure on roads, transport, housing, healthcare, education, utilities and other local	Potential Project-related pressure on roads, utilities, and healthcare facilities is assessed in ***Section 7.3.4*** of the supplementary ESIA.

	services, as well as potential increases in living costs.	Potential effects on employment, the local economy and living costs are considered in ***Section 7.3.5.2***.
Community cohesion, workforce influx and cultural relations	Stakeholders raised concerns regarding language and cultural differences, workforce conduct and unequal access to Project benefits. They expected measures to support respectful community relations by the Project workforce.	Potential impacts on community cohesion and social relations associated with labour influx and unequal access to Project benefits are assessed in ***Section 7.3.1.2*** of the supplementary ESIA, and mitigation measures are recommended accordingly.
Grievance mechanism, institutional coordination and accountability	Stakeholders reported limited awareness of grievance channels and unclear responsibilities among the Project, contractors, SATT and other parties. They expected accessible channels, timely feedback and effective coordination.	A Project-level community Grievance Redress Mechanism is presented in ***Section 6.4*** and further detailed in the full Stakeholder Engagement Plan in ***Appendix A***.

6.3 FUTURE STAKEHOLDER ENGAGEMENT

ERM has formulated a Stakeholder Engagement Plan (SEP) for the Project, aiming to support the Project to provide timely, relevant, and easily understandable information, establish a process that enables all stakeholders to share their views and concerns, and ensure that the Project can consider and respond to them effectively. The principles, structure, and strategies of stakeholder engagement to be undertaken during the construction and operation phases can be found in ***Section 5*** of the full SEP in ***Appendix A***.

6.4 GRIEVANCE REDRESS MECHANISM

An effective stakeholder engagement process can help to prevent grievances. However, projects with high potential for environmental and social impacts to occur, often result in grievances from stakeholders. This section provides a framework for the GRM that will be used to identify, track, and manage grievances raised by external Project stakeholders. The GRM will be maintained throughout the Project lifecycle, to ensure that grievances are promptly heard, analysed and, to the extent possible, resolved.

- BTR Anode should implement the Project-level GRM set out in ***Section 6*** of the SEP. A Community Liaison Officer (CLO) should be appointed within BTR Anode's GMO or ESG & Legal Compliance Function to manage SEP and GRM implementation, and serve as the focal point for coordination with SATT on community relations matters, as detailed in ***Section 8*** of the SEP. The Project may decide to appoint additional CLOs based on the Project's future operational needs.
- Considering that affected communities may have difficulty distinguishing between BTR Anode, BTR Cathode and other entities within the IAZ, the following additional measures should be implemented:

Construction phase (short-term):

- Inform SATT of the GRM and discuss how to address grievances relating to the wider Industrial Acceleration Zone. Request SATT's support in investigating and addressing such grievances.
- Coordinate with BTR Cathode on GRM implementation, including communicating relevant grievances and sharing regular GRM reports to support consistent handling, referral or joint investigation, while maintaining clear responsibilities between the two Projects.

Operation phase (medium to long-term):

- Discuss with SATT the potential establishment of an SATT-managed industrial zone-level GRM for the initial screening, investigation and allocation of grievances. SATT would address zone-wide grievances, with support from relevant companies as required. This arrangement would be subject to agreement with SATT and would not replace the Project-level GRM.

6.4.1 THE GRIEVANCE PROCEDURE

All grievances shall be managed in accordance with the Project's Grievance Procedure, as described in ***Section 6.4*** of the SEP and summarised below.

STEP 1: RECEIVE AND ACKNOWLEDGE GRIEVANCE:

Grievances can be submitted in French, Arabic, Chinese, and English, anonymously if preferred, with support for vulnerable groups to access the mechanism. Grievances can be submitted through multiple channels to ensure inclusivity and ease of access, including in writing using a grievance form (template provided in ***Appendix B*** of the SEP), submitted by hand or post (address to be confirmed). Other submission channels are detailed in ***Section 6.4.2*** of the SEP.

BTR Anode will acknowledge receipt of any grievance within three (3) working days of submission, seek clarification where necessary, and provide the complainant with a signed Grievance Receipt Form and an expected timeframe for resolution. Standard grievances should be resolved within 28 calendar days, while complex cases may take up to 60 days, with regular progress updates provided to the complainant. During the entire grievance procedure, the Project must not engage in retaliatory actions against complainants and other persons participating in the grievance redress process.

All grievances, whether deemed eligible or ineligible, will be recorded in a centralized Grievance Register (see ***Appendix C*** of the SEP). The CLO will be responsible for logging, tracking, and updating the register. All records will be securely stored and regularly reviewed to identify trends and recurring issues. BTR Anode should retain a record of grievances referred to SATT or coordinated with the BTR Cathode Project.

STEP 2: ASSESS AND INVESTIGATE GRIEVANCE

Once a grievance has been received and documented, the next step involves a thorough assessment and investigation to determine its eligibility, severity, and appropriate course of action. The CLO or designated Environmental & Social (E&S) personnel will undertake

information collection, site visits and stakeholder engagement, evidence collection for physical damage, and eligibility determination, as detailed in ***Section 6.4.5*** of the SEP.

Grievances will be assessed for eligibility based on their relevance to the Project's activities, impacts or commitments. Ineligible grievances will be explained to the complainant and recorded in the Grievance Register. At this stage, grievances concerning the wider Industrial Acceleration Zone or other companies will be deemed ineligible for the Project GRM and will be referred to SATT. See ***Figure 6-2*** of the SEP for the grievance eligibility assessment and handling process.

For eligible grievances, the CLO will assess the severity of the issue using a predefined significance matrix (See ***Table 6-1*** of Full SEP) to determine the required level of investigation, urgency, resources and management involvement. Where necessary, a Grievance Investigation Team will investigate the grievance, identify its root cause, recommend corrective actions and agree on a resolution with the complainant. All findings and actions will be recorded in the Grievance Register.

STEP 3: PROPOSE RESOLUTION

All grievances received by the Project Company will be addressed on a case-by-case basis, with a focus on fairness, transparency, and stakeholder engagement. Upon receipt and registration of a grievance, the CLO will initiate a resolution process that may involve:

- Direct engagement with the complainant to clarify the issue and explore potential solutions;
- Internal investigation by the relevant department, depending on the nature of the grievance; and
- Coordination with contractors, particularly if the grievance relates to construction activities, environmental impacts, or worker behaviour.

An Incident Investigation Report documenting the findings, proposed actions and follow-up measures will be prepared, and a resolution proposed within 28 days. Where additional time is required, the complainant will be informed of the reasons and revised timeline.

Where possible, grievances will be resolved directly by BTR Anode. The resolution will be communicated in a respectful and transparent manner, including:

- A clear explanation of the decision;
- Supporting data or rationale; and
- Any corrective actions to be taken.

STEP 4: IF THE COMPLAINT DOES NOT ACCEPT THE PROPOSED RESOLUTION

If the grievance cannot be resolved internally, or if the complainant is dissatisfied with the proposed resolution, the matter may be referred to a neutral third party. This may include:

- SATT
- Local NGOs or community leaders;
- Legal advisors or mediators; or
- Government representatives or regulatory bodies.

In cases where further arbitration is required, BTR Anode will support the involvement of appropriate government authorities. As a final recourse, complainants retain the right to pursue legal action through the judicial system.

STEP 5: GRIEVANCE CLOSE OUT AND DOCUMENTATION

Once a resolution has been agreed upon and implemented, the CLO will formally communicate the outcome to the complainant. This communication will confirm that:

- The grievance has been addressed;
- Corrective actions (if any) have been completed; and
- The complainant's concerns have been resolved to the extent possible.

Once the grievance is resolved and the complainant has accepted the outcome (or all reasonable efforts to resolve the issue have been exhausted), the grievance will be formally closed. The closure will be documented in the Grievance Register, including:

- Date of closure;
- Summary of actions taken;
- Confirmation of complainant satisfaction (if applicable); and
- Signature of the responsible Project Company staff member.

The staff member signing off on the closure must have sufficient knowledge of grievance and the resolution process to ensure that the matter has been handled appropriately and in accordance with the Project Company's grievance procedures.

6.4.2 COMMUNICATION OF THE GRIEVANCE REDRESS MECHANISM

The Project is required to communicate and disclose the GRM via formal and informal meetings and discussions. To ensure accessibility, transparency and cultural appropriateness, the GRM will be translated into Arabic and French, and other relevant languages spoken by the workforce and local communities. The mechanism will be communicated through:

- Community meetings and stakeholder consultations;
- Posters and signage at key locations (e.g., project site entrances, community centres, worker accommodations);
- Factsheets and brochures distributed during consultations; and
- Verbal communication by trained Project Company and contractor staff, if applicable.

The following information should be communicated and disclosed:

- Who can raise complaints (focusing on affected communities);
- Where, when, and how community members can log complaints;
- Who is responsible for receiving and responding to complaints, and if any external parties can receive complaints from communities;
- What type of responses complainants can expect from the Project including timing of responses;
- The availability of anonymous grievance redress channels, and the prohibition of retaliation against complainants; and
- The benefits that complainants can receive from using the grievance mechanism.

During all stakeholder engagements, the existence of the GRM will be highlighted, and stakeholders will be assured that the process is free of charge and that complainants are protected from retaliation. Special attention will be given to ensuring that women, youth, and vulnerable groups are aware of and can access the mechanism.

It is essential that the local government and contractors also fully understand the GRM to enable them to communicate the step-by-step process to the Project-affected people, particularly in the case where the grievances are submitted to them for resolution.

7. ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION

7.1 IMPACT ASSESSMENT METHODOLOGY

The principal impact assessment steps comprise:

- **Impact prediction:** to determine what could potentially happen to resources/receptors as a consequence of the Project and its associated activities;
- **Impact evaluation:** to evaluate the significance of the predicted impacts by considering their magnitude and likelihood of occurrence, and the sensitivity, value and/or importance of the affected resource/receptor;
- **Mitigation and enhancement:** to identify appropriate and justified measures to mitigate negative impacts and enhance positive impacts; and
- **Residual impact evaluation:** to evaluate the significance of impacts assuming effective implementation of mitigation and enhancement measures.

7.1.1 IMPACT PREDICTION

Prediction of impacts is the determination of what is likely to happen with the environmental and socio-economic Receptors / Resources (R/R) as a consequence of the Project and its associated activities.

At the stage of impact prediction, the following characteristics/ parameters are identified:

- Project-related activities.
- Embedded controls - measures envisaged by the Project to prevent / reduce impacts.
- Impacts' Receptors / Resources (R/R), and,
- All potentially possible impacts.

Project-related activities or **factors of impacts** (earthworks, traffic associated with the project needs, wastewater discharges, etc.) are determined to further identify the potential adverse and positive impacts.

The environmental and socio-economic components altered as a consequence of Project-related activities are **Receptors / Resources** (R/R) exposed to impacts.

The same factor can affect different R/Rs. For instance, the "traffic" impact factor influences several components and their condition, such as ambient air quality, vegetation and soil quality, and population/company's personnel safety and, in some cases, public health.

In addition, at the stage of impact prediction, the embedded controls (planned mitigation measures provided in the design documentation) are considered. Assessment of expected impacts is carried out taking into account the embedded controls. Potential impacts prevented at a source by the Project embedded controls are excluded from the impact assessment.

Environmental, social, and health impacts of the Project activities can be direct, indirect and cumulative.

Direct impacts result from a direct interaction between the Project and a R/R (e.g., between the occupation of a plot of land and the habitats which are affected).

Indirect impacts follow as a result of subsequent interactions between the Project and the environment (e.g., viability of a species population resulting from the loss of part of a habitat

as a result of the Project activities). Indirect impacts may be of different orders and may also occur in remote areas.

Cumulative impacts need to be addressed specifically in the assessment process. These are additional impacts and effects that arise as a result of an impact from the Project interacting with an impact from other activities, not related to the Project. Cumulative effects may be sudden, for example, as a result of a combination of ongoing or historical impacts (accumulated pollution, etc.), or intensification of impacts and effects of the Project throughout its lifecycle. The methodology of the cumulative impacts assessment (CIA) is presented in ***Chapter 8.***

7.1.2 IMPACT EVALUATION

Once the prediction of impacts is complete, each Impact and R/R are described in terms of its various relevant characteristics and finally impact significance is assessed.

The significance of the impact is assessed in three steps:

- **Step 1.** Assessment of the ***Impact Magnitude*** that is a combined characteristics of scale, duration, frequency and extent:
- **Step 2.** Assessment of the ***Sensitivity /Vulnerability/ Importance*** of R/Rs.
- **Step 3.** Determination of ***Impact Significance*** is the final step, conducted qualitatively in a matrix based on the previously assessed Impact Magnitude (Step 1) and R/R Sensitivity /Vulnerability/ Importance (Step 2), with the results expressed as Negligible, Minor, Moderate or Major. A detailed description of the impact significance evaluation steps is provided below.

STEP 1. IMPACT MAGNITUDE EVALUATION

Magnitude of impact is evaluated with consideration of the following characteristics/parameters of an impact: **Scale, Duration, Frequency, Extent**.

The Magnitude of impacts results from a combination of the basic characteristics (extent, frequency and duration) and the scale of impact (***Table*** 7-1). Out of extent, frequency and duration of impacts, the basic characteristic is selected, i.e. the most unfavourable (for example, if an impact is characterised as long-term instantaneous and local, the "long-term" will be used as the basis for evaluation).

TABLE 7-1 IMPACT MAGNITUDE

Basic Characteristic				**Scale**			
Duration	**Frequency**	**Extent**		**Negligible**	**Small**	**Medium**	**Large**
Temporary	One-off	Site		Negligible			
Short-term	Rare	Local			Small		
Medium-term	Occasional	Regional				Medium	
Long-term	Often	National					
Permanent	Continuous	International					Large

Frequency of Impact

Frequency describes the occurrence of impacts and their consequences. Frequency is ranged as: one-off, rare, occasional, often and continuous.

Criteria identifying the Frequency of impact are detailed in ***Table*** 7-2.

TABLE 7-2 IMPACT FREQUENCY

Frequency	Criteria
One-off (unlikely)	Impact might occur once during Project implementation
Rare	Impact is caused by the features of the construction or production cycle and might occur
Occasional	Impact occurs with a regular frequency (a high probability of occurrence)
Often	Impact occurs with a frequency of once a month or more (predetermined)
Continuous	Means static impact without discontinuity points over a certain period

Duration of Impact

Duration describes the temporal length of the Project's impact. Duration is ranged as: temporary, short-term, medium-term, long-term and permanent.

Criteria identifying the Duration of impact are detailed in the ***Table*** 7-3***.***

TABLE 7-3 IMPACT DURATION

Duration	Criteria	
	Environmental part of IA	**Social part of IA**
Temporary	Temporary, short impact on ecosystems, not affecting the seasonal background processes	Impact lasting several months
Short-term	Temporary, lasts from one season up to two years, predicted usually for the construction phase	Impact that lasts up to two years
Medium-term	Temporary, lasts for two to five years, usually in case of long-term construction and commissioning	Impacts during certain stages of Project implementation (first and second stages of construction operations, etc.) - several years

	period, in the early stages of operation	
Long-term	Temporary, lasts for five or more years, until the Project ends and the baseline conditions are restored	Impact during the Project lifetime (several decades)
Permanent	Persistent (permanent) change in the baseline conditions during the Project that are not restored after the closure	Permanent change in the characteristics of objects

Extent of Impact

Extent describes the spatial distribution of the impact and is ranged as site, local, regional, national and international.

Criteria identifying the Extent of impact are detailed in ***Table*** 7-4.

TABLE 7-4 IMPACT EXTENT

Extent	**Criteria**	
	Environmental part of IA	**Social part of IA**
Site	Impact that does not go beyond the limits of impacts on primary natural complexes (local populations of species, geological and soil ranges, etc.)	Impact on a separate small settlement, a group of settlements or within rural and urban settlements (or similar objects by area).
Local	Impact affects baseline properties of particular landscapes and locations, not usually associated with an impact on long watercourses	Impacts within a district or a town
Regional	Impacts related to a change in the baseline conditions of natural regions, usually associated with the impact on long watercourses and significant air pollution	Impact within the region of the Project
National	Affects significant natural resources, territories and sustainable development of nations	

International	Affects environmental components, territories and processes of international importance

Scale of Impact

Scale means intensity of the impacts, which is determined depending on the quantity, level and other characteristics of the impact factor. The scale of impacts can be classified into Negligible, Small, Medium and Large categories.

Scale, where possible, is a quantitative evaluation of predicted consequences (for instance, elevated concentrations of pollutants in the air, water and soils; areas of land plots allocated for Project implementation in percentage of land areas used for economic activities prior to Project implementation; a reduction in number of affected species, etc.). At that, the multivariable and diverse range of impacts does not always allow the use of quantitative methodologies of evaluation, in such cases it is admitted the use of semi-quantitative and qualitative approaches.

The scale of impact on each environmental and social component is defined individually.

Likelihood of Unplanned Events

This ESIA considers the impacts that are expected to result from planned activities on the physical, biological and the socioeconomic environment. It also considers cumulative impacts and impacts from unplanned events such as accidents.

These are different to impacts that would reasonably be predicted to occur in the normal course of activities (including the application of in-built control measures) during construction and operations.

The assessment approach and criteria for unplanned events differ from other topics; further details are provided in ***Section 9.1***.

STEP 2. RECEPTORS / RESOURCES SENSITIVITY /VULNERABILITY/ IMPORTANCE EVALUATION

Vulnerability/ Importance/ Value of Receptors / Resources

The evaluation of Vulnerability/ Importance/ Value of the affected R/Rs is based on the following properties:

- International / national standards and regulations;
- Protected status;
- Expert opinion of specialists involved in the ESIA development;
- Policy of the regional government;
- Economic value;
- Views of stakeholders; etc.

Sensitivity of Receptors / Resources

The Responsivity of RRs is identified based on their adaptation/recovery abilities (***Table*** 7-5).

TABLE 7-5 SENSITIVITY OF RECEPTORS / RESOURCES

Sensitivity	Environmental / Biophysical	Social
Low	High ability to recover the initial properties and functions, minor changes of spatial and dynamic indicators	High ability to adapt to changing conditions under the impact of the Project and associated activities
Medium	Limited / low ability to recover the initial properties and functions. Measures to minimise disturbance of ecosystems are required.	Limited ability to adapt to changing conditions under the impact of the Project and associated activities
High	Lack of ability to recover the initial properties and functions. Irreversible disturbances may be caused by minor impacts.	Adaptation to changing conditions under the impact of the Project and associated activities is extremely difficult / impossible.

STEP 3 IMPACT SIGNIFICANCE EVALUATION

The overall Significance of impacts is now finally determined by a combination of **Magnitude of impact** and **Sensitivity /Vulnerability/ Importance of Resources / Receptors** using the matrix as shown in ***Table*** 7-6. The Significance of a given impact falls within the categories of Negligible, Minor, Moderate or Major. The significance of positive impacts is not evaluated.

TABLE 7-6 IMPACT SIGNIFICANCE EVALUATION

Significance of impact	**Sensitivity /Vulnerability/ Importance of Receptors / Resources**		
Magnitude of Impact	**Low**	**Medium**	**High**
Negligible	Negligible		
Small		Minor	
Medium		Moderate	
Large			Major

Assessment of expected impacts is carried out taking into account the embedded controls. Potential impacts prevented at source by the Project embedded controls are excluded from the impact assessment.

A description of categories of environmental and social impacts' significance is presented in ***Table*** 7-7.

TABLE 7-7 IMPACT SIGNIFICANCE

Impact Significance	Verbal Description

Positive	There will be a beneficial impact to a resource/receptor, that will provide an opportunity for improvements of the baseline conditions. When possible, measures to enhance the positive impact can be recommended.
Negligible	An impact of Negligible significance is one where a resource/receptor (including people) will essentially not be affected in any way by a particular activity or the predicted effect is indistinguishable from natural background variations, i. e. practically does not change the environmental baseline conditions or conditions of livelihoods, culture or quality of life.
Minor	An impact of Minor significance is one where a resource/receptor will experience a noticeable effect, but the predicted effect is not accompanied by long-term degradation of sensitive resources and long-term reductions in livelihood or quality of life. Effects are usually reversible and minor (with or without mitigation). In either case, the magnitude should be well within applicable standards Receptors either easily adapt to changes brought by the Project or their livelihood remains unchanged.
Moderate	An impact of moderate significance is one where a resource/receptor will experience a notable effect and the predicted effect is accompanied by long-term degradation of sensitive resources, long-term reductions in livelihood or quality of life, and irreversible loss of species and habitats (with law and medium Responsivity). Changes can mainly be reversible. Impact magnitude is within the accepted limit or standard, but close to the threshold. Clearly, designing an activity so that its effects only just avoid exceeding allowed thresholds and/or a major impact is not best practice. The aim of the approach to the moderate impacts is therefore to demonstrate that the impact has been reduced to a level that is as low as reasonably practicable (ALARP). This does not necessarily mean that impacts of moderate significance have to be reduced to minor but that moderate impacts are being managed effectively and efficiently. Adaptation of the receptors might be challenging, and they will be able to return to their former livelihood under condition of some support**.**
Major	An impact of major significance is one where the predicted effect is irreversible: long-term degradation of baseline conditions or long-term impoverishment or societal breakdown; exceedance of the national environmental standards, transnational environmental issues; effects of toxic substances on receptors and potential emergencies affecting critical resources and sensitive receptors. Affected receptors are not able to adapt to changes or proceed with their previous livelihood. Mitigation measures are required to reduce impact significance to at least a moderate degree. IA aims to avoid any major residual impacts of the Project, especially the ones that would be long-term or extend over a large area.

7.1.3 MITIGATION AND ENHANCEMENT

One of the key objectives of an ESIA is to identify and define socially and environmentally acceptable, technically feasible and cost-effective mitigation measures. These should avoid unnecessary damage to the environment; safeguard valued or finite resources, natural areas, habitats and ecosystems; and protect humans and their associated social environments. For each significant adverse impact of the Project identified during the ESIA process, the specialists undertaking the assessments will identify mitigation measures that are consistent with statutory requirements and good practice in their respective field. Mitigation measures are developed to avoid, minimise, reduce or remedy (e.g., reinstate or restore) any negative impacts identified, and to create or enhance positive impacts such as environmental and social benefits. In this context, mitigation measures are taken to include design measures and construction practices, as well as management actions. In some instances, mitigation alone may not be sufficient to reduce an impact or effect to acceptable levels and other measure such as offsets can be considered. However, it is good practice to consider mitigation measures in the form of a hierarchy where avoidance is the primary objective and offset is a last resort. These measures are often established through industry standards and may include:

- Changes to the design of the Project during the design process (e.g., location of components, size of structures).
- Construction working practices (e.g., routing of construction traffic, dust suppression).

Operational plans and procedures (e.g., Environmental Management Systems).

For impacts that are initially assessed to be of major significance, a design change is usually required to avoid, minimise, or reduce these, followed by a reassessment of significance. For impacts assessed to be of moderate significance, specific mitigation measures such as engineering controls are usually required to reduce the impacts and their impacts to levels as low as reasonably practicable. This approach considers the technical and financial feasibility of mitigation measures. Impacts assessed to be of minor significance are usually managed through the implementation of management plans, good industry practice, operational plans and procedures.

Once the significance of an impact has been characterised, the next step is to evaluate what mitigation and enhancement measures are warranted. ERM will adopt the following mitigation hierarchy:

- **Avoid at Source; Reduce at Source:** avoiding or reducing at source through the design of the Project (e.g., avoiding by siting or re-routing activity away from sensitive areas or reducing by restricting the working area or changing the time of the activity);
- **Abate on Site:** add something to the design to abate the impact (e.g., pollution control equipment, traffic controls, perimeter screening and landscaping);
- **Abate at Receptor:** if an impact cannot be abated on-site then control measures can be implemented off-site (e.g., noise barriers to reduce noise impact at a nearby residence or fencing to prevent animals straying onto the site);
- **Repair or Remedy:** some impacts involve unavoidable damage to a resource (e.g., agricultural land and forestry due to creating access, labour camp or storage areas) and these impacts can be addressed through repair, restoration or reinstatement measures; and

- **Compensate in Kind; Compensate Through Other Means:** where other mitigation approaches are not possible or fully effective, then compensation for loss, damage and disturbance might be appropriate (e.g., planting to replace damaged vegetation, financial compensation for damaged crops or providing community facilities for loss of fisheries access, recreation and amenity space).

7.1.4 RESIDUAL IMPACT EVALUATION

In case implementation of any additional (not assumed under the Project design documentation embedded controls) mitigation, restoration and offset measures are possible, the relevant actions will be included in the ESMP, and any residual impacts will be assessed taking into account such measures. Residual impacts of **Negligible**, **Minor** and **Moderate** significance are considered acceptable.

However, for some aspects there may be **Major** residual impacts after all practicable mitigation options have been exhausted (i.e. ALARP has been applied). An example might be the visual impact of a facility. It is then the function of regulators and stakeholders to weigh such negative factors against the positive ones, such as employment, in deciding on the Project.

Recommended additional measures to reduce residual impact significance are obligations undertaken by the Company based on the ESIA results. These measures are to be included in the "Commitments Register" and then into the environmental and social management plans (ESMPs) and the regular monitoring plans.

7.2 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

7.2.1 AMBIENT AIR

7.2.1.1 SCOPE OF ASSESSMENT

According to the Regulatory EIA, the following pollutants will be generated during the Project operation and may have the potential to significantly impact the ambient air quality during the Project life cycle:

- Particulate matters (PMs) will be generated from material handling, loading, unloading, drying, crushing and graphitisation processes.
- VOCs will be generated from the granulation process.
- Benzo[a]pyrene (BaP) will be generated from the granulation, pre-carbonisation and carbonisation process.
- HCl and NOx will be generated from laboratory testing activities.
- NO_x and SO_2 will be generated from the combustion of petroleum gas (LPG).
- NH_3 and H_2S will be generated from the operation of water treatment facilities.

7.2.1.2 IMPACT ASSESSMENT CRITERIA

According to WBG General EHS Guidelines, *"Projects with significant sources of air emissions, and potential for significant impacts to ambient air quality, should prevent or minimise impacts by ensuring that:*

- *Emissions do not result in pollutant concentrations that reach or exceed relevant ambient quality guidelines and standards by applying national legislated standards, or in their absence, the current World Health Organisation (WHO) Air Quality Guidelines or other internationally recognised sources;*
- *Emissions do not contribute a significant portion to the attainment of relevant ambient air quality guidelines or standards. This Guideline suggests 25 percent of the applicable air quality standards to allow additional, future sustainable development in the same airshed.*
- *Facilities or projects located within poor quality airsheds, and within or next to areas established as ecologically sensitive (e.g. national parks), should ensure that any increase in pollution levels is as small as feasible, and amounts to a fraction of the applicable short-term and annual average air quality guidelines or standards as established in the project-specific environmental assessment.*

Morocco has established national legislated standards of ambient air quality. The ambient air quality standards (AAQS) of project related pollutants SO_2, NO_2, and PM (TSP, PM_{10} and $PM_{2.5}$) are listed in Decree No. 2-09-286 of 20 hija 1430 (8 December 2009) (see **Table** 7-8).

TABLE 7-8 AMBIENT AIR QUALITY STANDARD (NATIONAL)

Pollutant	Averaging Period	AAQS [(a)]
PM_{10}	24-hour	50 µg/m^3
	Annual	40 µg/m^3
$PM_{2.5}$	24-hour	45 µg/m^3

NO_2	24-hour	200 µg/m^3
	Annual	50 µg/m^3
SO_2	24-hour	125 µg/m^3

Note: (a) Decree No. 2-09-286 of 20 hija 1430 (8 December 2009).

For NO_2, the WHO 1-hour guideline value is adopted to assess short-term impacts, as no corresponding hourly standard is available under Moroccan legislation.

There is no applicable ambient air quality standard (AAQS) for VOCs, BaP, H_2S and NH_3 in national legislation of Morocco as well as World Organisation (WHO) Air Quality Guidelines. In this case, the following standards are referenced to, i.e. Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air[78], Chinese Technical guidelines for environmental impact assessment – Atmospheric environment[79] and Effects Screening Levels ("ESLs") from Texas Commission on Environmental Quality ("TCEQ")[80].

TABLE 7-9 REFERENCE STANDARDS FOR OTHER POLLUTANTS

Pollutant	Guideline Value	Duration	Remark
BaP	0.001 µg/m^3	Annual	Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air
TVOC	600 µg/m^3	8-hour	China Technical guidelines for environmental impact assessment – Atmospheric environment, Table D.1
H_2S	42 µg/m^3	1-hour	Short-term ESLs
	0.8 µg/m^3	Annual	Long-term ESLs
NH_3	1400 µg/m^3	1-hour	Short-term ESLs
	100 µg/m^3	Annual	Long-term ESLs

7.2.1.3 IMPACT ASSESSMENT

Assessment Methodology

The operation phase AQIA uses dispersion model, AERMOD, to determine the Project Contribution (PC) quantitatively at sensitive receptors by applying meteorological data of over a period of five years (2021 to 2025). The worst-case 1-hour/8-hour/24-hour average and the

[78] https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32004L0107
[79] https://www.mee.gov.cn/ywgz/fgbz/bz/bzwb/other/pjjsdz/201808/W020180814672740551977.pdf
[80] Effects Screening Levels (ESLs) from Texas Commission on Environmental Quality: https://www.tceq.texas.gov/toxicology/esl.

highest annual average predicted ground level concentrations of sulphur dioxide (SO_2), particulate matter (PM), nitrogen dioxide (NO_2), VOCs, BaP and HCl across the five modelled meteorological years are used to define the PC at each modelled receptor.

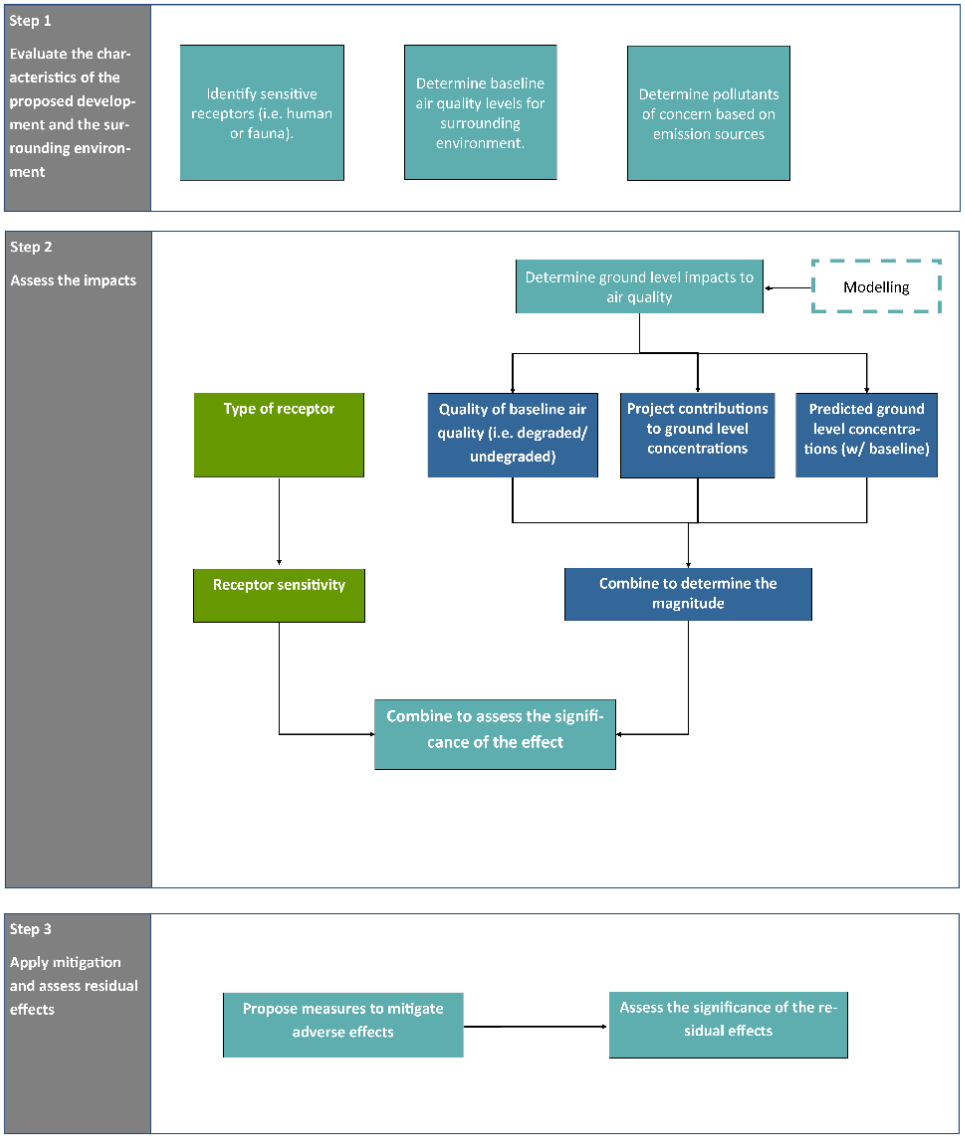
The identified potential ambient air quality impacts during the operation phase are determined following a three-stage approach provided in ***Figure*** 7-1. Impact magnitude is determined based on the comparison of PC and Predicted Environmental Concentration (PEC) results with the applicable ambient air quality standards (AAQS).

Impact significances are subsequently designated relative to the impact magnitude and sensitivity of the receptor using the matrix in ***Section 7.1***.

The extent of the airshed in which potential air quality impacts are considered 10 km from the centre of the Project site. This spatial extent is considered of sufficient size to capture the maximum offsite PC.

To be aligned with IFC guidelines, impact magnitude is deemed acceptable when determined as Negligible and Small (undegraded airshed: PC/AAQS<25%, degraded airshed: PC/AAQS<10%), otherwise additional mitigation measures will be proposed to reduce the impact of specific pollutant.

FIGURE 7-1 AQIA METHODOLOGY FOR INDUSTRIAL EMISSION SOURCES



Receptor Sensitivity

The sensitivity of ecological receptors is defined on the basis of their designated importance as an ecological resource. Any significant ecology impacts from air quality on non-designated sites will be assessed qualitatively as part of the Ecology assessment. This is typically determined on the basis of the statutory protection conferred on a receptor (for example, under the Ramsar convention). The table below provides receptor sensitivity with respects to human health. Sensitivity criteria for ecological receptors is as defined in the biodiversity methodology.

Sensitivity	Human	Ecology
Negligible	N/A	Non-designated habitats
Low	N/A	Locally designated sites
Medium	General population	Nationally designated sites
High	Particularly vulnerable individuals, e.g. a hospital with intensive care ward	Internationally designated sites

Magnitude of Change

The results of the air dispersion modelling are compared to the relevant air quality standards or guidelines (either for human health or ecology). Different standards/ guidelines will apply depending on the pollutant of concern and the averaging period. To determine magnitude, the Project's Contributions (PCs) to ground level pollutant concentrations are assessed in tandem with the total Predicted Environmental Contributions (PECs), where the PEC is the sum of the baseline concentration and the PC for a particular pollutant. The criteria used is presented below. Where national guidance exists for impact magnitude levels, this should take precedent to the value provided below.

PC as % of AQS	Magnitude
Undegraded Airsheds Where PEC < Air Quality Standards/Guidelines	
<10%	***Negligible***
10-25%	***Small***
25-75%	***Medium***
>75%	***Large***
Degraded Airsheds, i.e. Where PEC > Air Quality Standards/Guidelines	
<5%	***Negligible***
5-10%	***Small***
10-25%	***Medium***
>25%	***Large***

Note that in some countries a site-specific methodology is required to assess ecology impacts from air emissions (e.g. acid deposition and eutrophication). In such cases, an additional assessment would be required using site-specific ecology criteria.

Embedded Control

Based on the information provided by Client, the following treatment measures are adopted and considered as embedded control.

- PMs generated from material handling, loading, unloading, drying and crushing processes will be treated by filters and discharged through Stack 1~23.
- PMs generated from graphitisation processes will be treated by electrostatic precipitator and discharged through Stack 31 and 32.
- Hydrogen chloride (HCl) and NOx (Nitrogen oxides) generated from laboratory testing activities will be treated by an alkali scrubber and discharged through Stack 24 ~26.
- BaP generated from the pre-carbonisation process will be treated by the high-temperature zones of the production machinery and discharged through Stack 27 to 30.
- BaP generated from the carbonisation process will be treated by two thermal oxidisers separately and discharged through Stack 33 and 34.
- BaP generated from the granulation process will be treated by two-stage spray scrubbers and a Regenerative Thermal Oxidiser (RTO) and discharged through Stack 35 ~36.
- VOCs generated from the granulation process are treated by Regenerative Thermal Oxidiser (RTO) and discharged through Stack 35 ~36.
- NH_3 and H_2S generated from the operation of water treatment facilities are discharged through Stack 37 and 38.

Significance of Impact

Modelled Receptors

A receptor grid extending 10 km from the centre of the Project site is set up in the dispersion model. In addition to the receptor grid, the receptors likely to be worst affected by the Project are identified as the representative air sensitive receptors (ASRs) and are listed in ***Table*** 7-10.

There is no highly sensitive ecological site (nationally/ internationally designated ecological sites) identified within the AoI for AQIA. Thus, AQ impact to ecological receptors is thus not assessed. Locations of these ASRs are presented in ***Figure*** 7-2.

TABLE 7-10 SUMMARY OF REPRESENTATIVE AIR/NOISE SENSITIVE RECEPTORS

Type of Receptor	ASR/NSR ID	Description	Receptor Sensitivity	Nearest Distance to the Project Site (km)
Human receptor	ASR -1	Biane	Medium	2.69
	ASR -2	Sefsafa	Medium	1.9
	ASR -3	Ain Dalia	Medium	3.9
	ASR -4	Ain Dalia Lekbira	Medium	4.3
	ASR -5	Gouaret Meharza	Medium	2.41
	ASR -6	Gouaret Mechahla	Medium	1.01
	ASR -7	Slaouiyine	Medium	0.97

	ASR -8	Chaouia	Medium	1.77

FIGURE 7-2 LOCATIONS OF AIR SENSITIVE RECEPTORS



Legend	Air Sensitive Receptors		
Air Sensitive Receptor Project Boundary	Date: 24 August 2026	Drawn Size: 16x11 cm	Supplementary Environmental and Social Impact Assessment
	Drawn by: SX	Reviewed by: JC	
	Coordinate System/Source: WGS 1984		BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY
	This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.		

Emission Sources

The stack emission inventory is provided by Client's engineers.

Bitumen fumes are a complex mixture generated during the heating, melting, handling or application of bitumen and may contain both gaseous organic constituents and particulate- or droplet-phase materials formed through condensation. For the purpose of the emissions inventory, the particulate fraction of bitumen fumes is accounted for as PM, while the gaseous fraction is accounted for as VOCs. To avoid double counting, bitumen fumes are not quantified separately as an additional pollutant category.

In terms of PM distribution, PMs generated from material handling, loading, unloading, drying, crushing processes are assumed to be PM_{10}, reflecting the typical characteristics of dust generated by these processes; PMs generated from granulation, the granulation, pre-carbonisation, carbonisation and graphitisation process are conservatively assumed to comprise 100% $PM_{2.5}$. Likewise, PMs generated from the combustion of LPG are conservatively assumed to consist of 100% $PM_{2.5}$.

TABLE 7-11 STACK EMISSION INVENTORY-1

No.	Name	Process	Stack Information				Emission Information													
			Temp	Air Flow Rate	Diameter	Height	SO_2		NOx		PM_{10}		$PM_{2.5}$		BaP		VOCs		HCl	
			°C	Nm^3/h	m	m	mg/Nm^3	kg/h	mg/Nm^3	kg/h	mg/Nm^3	kg/h	mg/Nm^3	kg/h	mg/Nm^3	kg/h	mg/Nm^3	kg/h	mg/Nm^3	kg/h
1.	Stack (ST)1	Drying	25	29,580	0.9	2					7.96E-02	2.35E-03								
2.	ST2	Crushing, grinding, drying	25	149,238	2	3.8					5.94E-01	8.87E-02								
3.	ST 3	Crushing, grinding	25	35,139	1	2.2					3.20E+00	1.12E-01								
4.	ST 4	Crushing, grinding	25	203,069	2.5	4.45					1.81E-01	3.67E-02								
5.	ST 5	Crushing, grinding	25	12,000	0.6	1.55					2.96E+00	3.56E-02								
6.	ST 6	Crushing, grinding	25	7,649	0.5	1.2					1.28E-01	9.81E-04								
7.	ST 7	Crushing, grinding	25	88,638	1.6	3.15					5.72E-03	5.07E-04								
8.	ST 8	Crushing, grinding	25	20,209	0.75	1.78					2.34E-02	4.74E-04								
9.	ST 9	Crushing, grinding	25	9,144	0.5	1.2					8.36E-02	7.64E-04								
10.	ST 10	Crushing, grinding	25	11,220	0.6	1.55					1.50E+00	1.68E-02								
11.	ST 11	Material handling	25	9,000	0.5	1.37					3.92E-02	3.53E-04								
12.	ST 12	Magnetic separation	25	17,955	0.65	1.55					4.59E-01	8.24E-03								

13.	ST 13	Material handling	25	5,220	0.4	1.24					1.06E-01	5.56E-04								
14.	ST 14	Material handling	25	1,800	0.2	0.86					3.09E-01	5.56E-04								
15.	ST 15	Material handling	25	23,400	0.75	1.8					5.11E-01	1.20E-02								
16.	ST 16	Material handling	25	2,700	0.25	0.7					3.05E+00	8.24E-03								
17.	ST 17	Crushing, screening	25	29,546	0.9	2					2.79E-01	8.24E-03								
18.	ST 18	Material handling, crushing, screening	25	29,532	0.95	2.1					5.64E-01	1.67E-02								
19.	ST 19	Material handling	25	8,463	0.45	1.3					3.73E-01	3.16E-03								
20.	ST 20	Material handling	25	7,020	0.4	1.2					7.91E-02	5.56E-04								
21.	ST 21	Crushing	25	20,000	0.8	12					1.47E-01	2.95E-03								
22.	ST 22	Crushing	25	20,000	0.8	12					1.47E-01	2.95E-03								
23.	ST 23	Crushing	25	20,000	0.8	12					1.47E-01	2.95E-03								
24.	ST 24	Laboratory activities	25	25,000	1	20			2.14E-02	5.34E-04									4.00E-02	1.00E-03
25.	ST 25	Laboratory activities	25	25,000	1	20			2.14E-02	5.34E-04									4.00E-02	1.00E-03
26.	ST 26	Laboratory activities	25	25,000	1	20			2.14E-02	5.34E-04									4.00E-02	1.00E-03
27.	ST 27	Pre-carbonisation	120	40,000	1	16	1.40E-07	5.62E-09	1.40E-01	5.60E-03	5.10E+00	2.04E-01	5.10E+00	2.04E-01	4.43E-05	1.77E-06	8.11E-01	3.24E-02		

28.	ST 28	Pre-carbonisation	120	40,000	1	16	1.40E-07	5.62E-09	1.40E-01	5.60E-03	5.10E+00	2.04E-01	5.10E+00	2.04E-01	4.43E-05	1.77E-06	8.11E-01	3.24E-02		
29.	ST 29	Pre-carbonisation	120	80,000	1.3	20	1.40E-07	1.12E-08	1.40E-01	1.12E-02	5.10E+00	4.08E-01	5.10E+00	4.08E-01	4.43E-05	3.55E-06	8.11E-01	6.49E-02		
30.	ST 30	Pre-carbonisation	120	80,000	1.3	20	1.40E-07	1.12E-08	1.40E-01	1.12E-02	5.10E+00	4.08E-01	5.10E+00	4.08E-01	4.43E-05	3.55E-06	8.11E-01	6.49E-02		
31.	ST 31	Graphitisation	180	200,000	2.5	45	4.48E-03	8.97E-04	1.45E-02	2.91E-03	7.88E-04	1.58E-04	7.88E-04	1.58E-04						
32.	ST 32	Graphitisation	180	200,000	2.5	45	4.48E-03	8.97E-04	1.45E-02	2.91E-03	7.88E-04	1.58E-04	7.88E-04	1.58E-04						
33.	ST 33	Carbonisation	180	22,000	0.8	20					3.11E+01	6.83E-01	3.11E+01	6.83E-01	2.97E-05	6.53E-07	5.08E+00	1.12E-01		
34.	ST 34	Carbonisation	180	22,000	0.8	20					3.11E+01	6.83E-01	3.11E+01	6.83E-01	2.97E-05	6.53E-07	5.08E+00	1.12E-01		
35.	ST 35	Granulation	120	140,000	1.82	29	1.22E-07	1.71E-08	1.22E-01	1.70E-02	4.57E+00	6.39E-01	4.57E+00	6.39E-01	6.47E-07	9.05E-08	7.88E-01	1.10E-01		
36.	ST 36	Granulation	120	4,600	0.426	29	1.22E-07	5.62E-10	1.22E-01	5.60E-04	4.57E+00	2.10E-02	4.57E+00	2.10E-02	6.47E-07	2.97E-09	7.88E-01	3.62E-03		

Note: The coordinate system is referenced to the southwestern corner of the Project site, which is defined as (0,0).

TABLE 7-12 STACK EMISSION INVENTORY-2

No.	Name	Process	Stack Information				Emission Information			
			Temp	Flow	Height	Diameter	NH_3		H_2S	
			°C	Nm^3/h	m	m	mg/Nm^3	kg/h	mg/Nm^3	kg/h
37.	ST 37	Wastewater treatment	25		15	0.3	2.60E-02	7.80E-05	1.17E-04	3.50E-07
38.	ST 38	Wastewater treatment	25		15	0.2	3.90E-02	1.17E-04	1.75E-04	5.25E-07

Note: The coordinate system is referenced to the southwestern corner of the Project site, which is defined as (0,0).

The locations of emission sources are shown in ***Figure*** 7-3.

FIGURE 7-3 Locations of Emission Sources



i. Model inputs

The details of the air dispersion model setup are summarised in ***Table*** 7-13.

TABLE 7-13 AIR DISPERSION MODEL SETUP

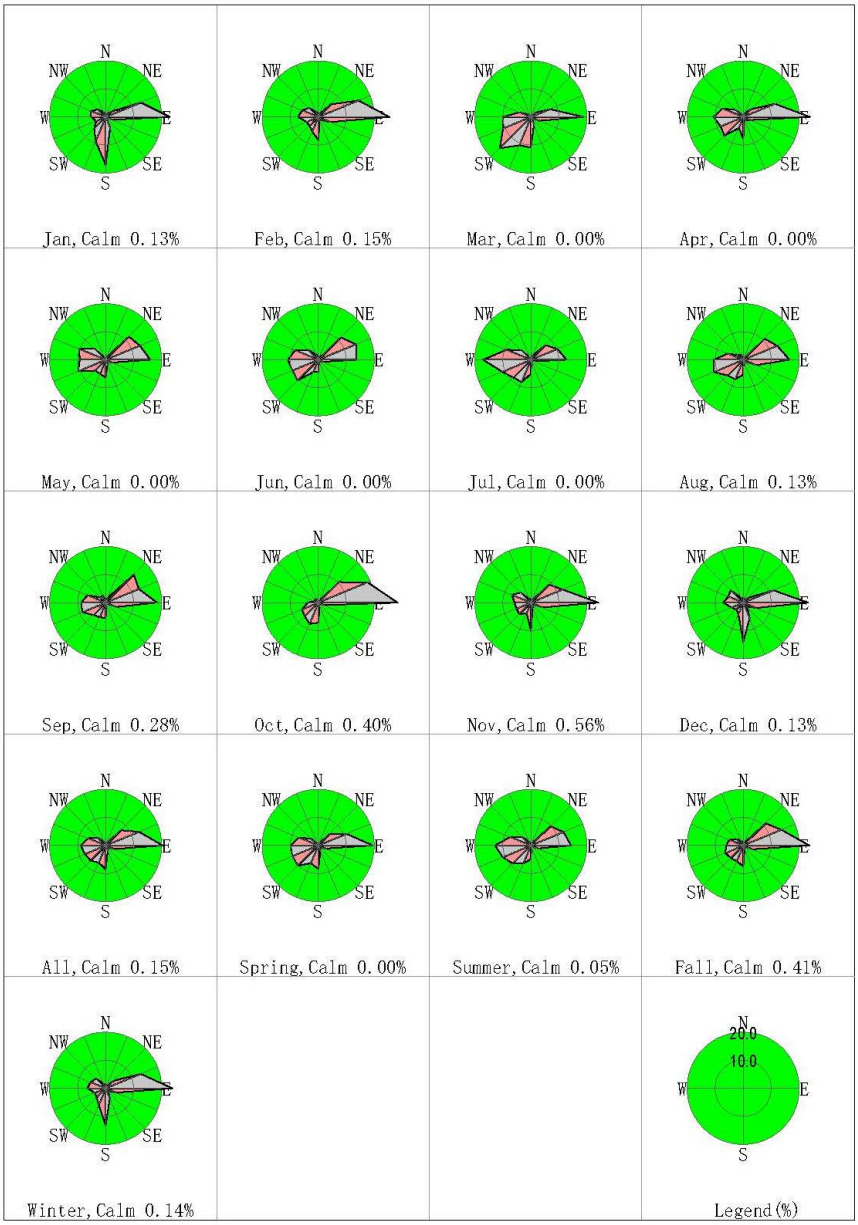
Item	Method
Dispersion Model	AERMOD model version 23132[81] AERMOD is a state-of-the-art detailed dispersion model that can be used to represent complex multiple emission sources and predict air quality at

[81] The United States Environmental Protection Agency (USEPA) Support Centre for Regulatory Atmospheric Modelling (SCRAM) [Online] Available at: https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models [Accessed 16 July 2025]

	receptor locations considering meteorology. AERMOD is the USEPA preferred near-field dispersion model and is widely recognised for use in this type of application, explicitly referred to in the WBG EHS guideline for air emissions and ambient air quality[82].
Receptor Grid	Dispersion modelling is completed using a 20 km. 20 km nested grid as follows: • Grid 1 extending to 2.5 km with 50 m spacing; • Grid 2 extending to 5 km with 100 m spacing; and • Grid 3 extending to 10 km with 200 m spacing.
Meteorology	Meteorological data representative of the Project location is crucial for supporting the modelling assessment. To define the meteorology in the model, a 5-year meteorological data set (2021 to 2025) at Tangiers Airport are used as input data to AERMET, the meteorological pre-processor of AERMOD. The wind rose for the meteorological station is presented in ***Figure*** 7-4. The predominant land uses in the Project vicinity are city and cultivated land. Surface Characteristics are as follows: Albedo: 0.3~1.00; Bowen: 1.76 Ro: 0.2.
Terrain	Hills, mountains, and valleys can affect dispersion by directing the plume. Shuttle Radar Topographic Mission (SRTM) data at a resolution of 90 m to inform the AERMOD terrain pre-processor AERMAP. AERMAP provides information on a) the base elevation of each receptor defined in the model; and b) the terrain height that has the most significant influence on dispersion for each receptor, otherwise known as the hill height scale. Both the base elevation and hill height scale are incorporated into AERMOD.
Building	When airflow passes over buildings, a phenomenon known as building downwash occurs where the air is entrained in the lee of the building and drawn down to ground level. This effect can bring the plume from a stack or group of stacks down to ground level quicker than would otherwise be the case, increasing the ground level concentration relative to a case where there are no buildings. Building downwash effects have been taken into account in the dispersion modelling.
NO_x to NO_2	Within the atmosphere, various processes oxidize NO to create NO_2. This process is highly dependent on the amount of oxidants in the atmosphere at the time of release. It is, therefore, overly pessimistic to assume 100% conversion from NO to NO_2, and it is necessary to use a factor to estimate ground level concentrations of NO_2 based on total NO_x emitted. The Ambient Ratio Method 2 (ARM2), a Tier 2 screening method recognised by the US EPA and incorporated into AERMOD, was applied to estimate NO_2 concentrations from the modelled total NO_x concentrations. ARM2 applies an empirically derived, concentration-dependent NO_2/NO_x ratio rather than assuming complete conversion of NO_x to NO_2.

[82] World Bank Group (WBG) Environmental, Health, and Safety Guidelines for Air Emissions and Ambient Air Quality (2007) [Online] Available at: https://www.ifc.org/content/dam/ifc/doc/2023/ifc-general-ehs-guidelines.pdf [Accessed 16 July 2025]

FIGURE 7-4 WIND ROSE DIAGRAM



ii. Modelling Results

The modelling results are presented in ***Table*** 7-14.

TABLE 7-14 MODELLING RESULTS

Receptor	Baseline Concentration (µg/m³) [a]	AAQS (µg/m³)	PC (µg/m³) [b]	PC/AAQS (%)	PEC (µg/m³) [c]	PEC/AAQS (%)	Receptor Sensitivity	Impact Magnitude	Impact Significance
24-hour Average PM_{10} Results (Air Quality Impact to Human Health)									
Max. on grid	55.55	50	1.69E+01	33.80	72.45	144.90	NA	NA	NA
ASR1	55.55	50	1.96E+00	3.92	57.51	115.02	Medium	Negligible	Negligible
ASR2	55.55	50	1.17E+00	2.34	56.72	113.44	Medium	Negligible	Negligible
ASR3	55.55	50	1.28E-01	0.26	55.68	111.36	Medium	Negligible	Negligible
ASR4	55.55	50	4.09E-01	0.82	55.96	111.92	Medium	Negligible	Negligible
ASR5	55.55	50	1.05E+00	2.10	56.60	113.20	Medium	Negligible	Negligible
ASR6	55.55	50	1.15E+00	2.30	56.70	113.40	Medium	Negligible	Negligible
ASR7	55.55	50	1.86E+00	3.72	57.41	114.82	Medium	Negligible	Negligible
ASR8	55.55	50	1.41E+00	2.82	56.96	113.92	Medium	Negligible	Negligible
Annual Average PM_{10} Results (Air Quality Impact to Human Health)									
Max. on grid	27.775	40	3.81E+00	9.53	31.59	78.96	NA	NA	NA

ASR1	27.775	40	3.41E-01	0.85	28.12	70.29	Medium	Negligible	Negligible
ASR2	27.775	40	3.50E-02	0.09	27.81	69.53	Medium	Negligible	Negligible
ASR3	27.775	40	5.64E-03	0.01	27.78	69.45	Medium	Negligible	Negligible
ASR4	27.775	40	2.69E-02	0.07	27.80	69.50	Medium	Negligible	Negligible
ASR5	27.775	40	3.16E-02	0.08	27.81	69.52	Medium	Negligible	Negligible
ASR6	27.775	40	5.17E-02	0.13	27.83	69.57	Medium	Negligible	Negligible
ASR7	27.775	40	2.07E-01	0.52	27.98	69.96	Medium	Negligible	Negligible
ASR8	27.775	40	1.10E-01	0.28	27.89	69.71	Medium	Negligible	Negligible
24-hour Average $PM_{2.5}$ Results (Air Quality Impact to Human Health)									
Max. on grid	55.55	45	1.24E+01	27.56	67.95	151.00	NA	NA	NA
ASR1	55.55	45	1.24E+00	2.76	56.79	126.20	Medium	Negligible	Negligible
ASR2	55.55	45	8.73E-01	1.94	56.42	125.38	Medium	Negligible	Negligible
ASR3	55.55	45	1.05E-01	0.23	55.66	123.68	Medium	Negligible	Negligible
ASR4	55.55	45	2.91E-01	0.65	55.84	124.09	Medium	Negligible	Negligible
ASR5	55.55	45	5.13E-01	1.14	56.06	124.58	Medium	Negligible	Negligible

ASR6	55.55	45	6.65E-01	1.48	56.22	124.92	Medium	Negligible	Negligible
ASR7	55.55	45	1.26E+00	2.80	56.81	126.24	Medium	Negligible	Negligible
ASR8	55.55	45	9.45E-01	1.89	56.50	125.54	Medium	Negligible	Negligible
24-hour Average NO_2 Results (Air Quality Impact to Human Health)									
Max. on grid	30.6	200	2.05E-01	0.103	30.81	15.40	NA	NA	NA
ASR1	30.6	200	1.52E-02	0.008	30.62	15.31	Medium	Negligible	Negligible
ASR2	30.6	200	1.06E-02	0.005	30.61	15.31	Medium	Negligible	Negligible
ASR3	30.6	200	1.62E-03	0.001	30.60	15.30	Medium	Negligible	Negligible
ASR4	30.6	200	3.15E-03	0.002	30.60	15.30	Medium	Negligible	Negligible
ASR5	30.6	200	6.96E-03	0.003	30.61	15.30	Medium	Negligible	Negligible
ASR6	30.6	200	8.70E-03	0.004	30.61	15.30	Medium	Negligible	Negligible
ASR7	30.6	200	1.82E-02	0.009	30.62	15.31	Medium	Negligible	Negligible
ASR8	30.6	200	1.49E-02	0.007	30.61	15.31	Medium	Negligible	Negligible
Annual Average NO_2 Results (Air Quality Impact to Human Health)									
Max. on grid	15.3	50	5.23E-02	0.105	15.35	30.70	NA	NA	NA

ASR1	15.3	50	3.17E-03	0.006	15.30	30.61	Medium	Negligible	Negligible
ASR2	15.3	50	3.90E-04	0.001	15.30	30.60	Medium	Negligible	Negligible
ASR3	15.3	50	8.00E-05	1.60E-04	15.30	30.60	Medium	Negligible	Negligible
ASR4	15.3	50	2.30E-04	4.60E-04	15.30	30.60	Medium	Negligible	Negligible
ASR5	15.3	50	2.30E-04	4.60E-04	15.30	30.60	Medium	Negligible	Negligible
ASR6	15.3	50	4.20E-04	0.001	15.30	30.60	Medium	Negligible	Negligible
ASR7	15.3	50	2.18E-03	0.004	15.30	30.60	Medium	Negligible	Negligible
ASR8	15.3	50	1.17E-03	0.002	15.30	30.60	Medium	Negligible	Negligible

24-hour Average SO_2 Results (Air Quality Impact to Human Health)

Max. on grid	3.72	125	8.08E-03	0.006	3.73	2.98	NA	NA	NA
ASR1	3.72	125	3.50E-04	2.80E-04	3.72	2.98	Medium	Negligible	Negligible
ASR2	3.72	125	1.90E-04	1.52E-04	3.72	2.98	Medium	Negligible	Negligible
ASR3	3.72	125	9.00E-05	7.20E-05	3.72	2.98	Medium	Negligible	Negligible
ASR4	3.72	125	7.00E-05	5.60E-05	3.72	2.98	Medium	Negligible	Negligible
ASR5	3.72	125	1.50E-04	1.20E-04	3.72	2.98	Medium	Negligible	Negligible

ASR6	3.72	125	2.30E-04	1.84E-04	3.72	2.98	Medium	Negligible	Negligible
ASR7	3.72	125	3.90E-04	3.12E-04	3.72	2.98	Medium	Negligible	Negligible
ASR8	3.72	125	2.50E-04	2.00E-04	3.72	2.98	Medium	Negligible	Negligible

Annual Average BaP Results (Air Quality Impact to Human Health)

Max. on grid	0.001	0.001	1.32E-05	1.320	1.01E-03	101.32	NA	NA	NA
ASR1	0.001	0.001	8.50E-07	0.085	1.00E-03	100.09	Medium	Negligible	Negligible
ASR2	0.001	0.001	1.10E-07	0.011	1.00E-03	100.01	Medium	Negligible	Negligible
ASR3	0.001	0.001	2.00E-08	0.002	1.00E-03	100.00	Medium	Negligible	Negligible
ASR4	0.001	0.001	6.00E-08	0.006	1.00E-03	100.01	Medium	Negligible	Negligible
ASR5	0.001	0.001	6.00E-08	0.006	1.00E-03	100.01	Medium	Negligible	Negligible
ASR6	0.001	0.001	1.20E-07	0.012	1.00E-03	100.01	Medium	Negligible	Negligible
ASR7	0.001	0.001	5.80E-07	0.058	1.00E-03	100.06	Medium	Negligible	Negligible
ASR8	0.001	0.001	3.20E-07	0.032	1.00E-03	100.03	Medium	Negligible	Negligible

8-hour Average TVOC Results (Air Quality Impact to Human Health)

Max. on grid	50	600	1.00E+00	0.167	51.00	8.50	NA	NA	NA

ASR1	50	600	9.89E-02	1.65E-02	50.10	8.35	Medium	Negligible	Negligible
ASR2	50	600	8.01E-02	1.34E-02	50.08	8.35	Medium	Negligible	Negligible
ASR3	50	600	1.47E-02	2.45E-03	50.01	8.34	Medium	Negligible	Negligible
ASR4	50	600	2.30E-02	3.83E-03	50.02	8.34	Medium	Negligible	Negligible
ASR5	50	600	3.72E-02	6.20E-03	50.04	8.34	Medium	Negligible	Negligible
ASR6	50	600	7.11E-02	1.19E-02	50.07	8.35	Medium	Negligible	Negligible
ASR7	50	600	1.47E-01	2.45E-02	50.15	8.36	Medium	Negligible	Negligible
ASR8	50	600	9.85E-02	1.64E-02	50.10	8.35	Medium	Negligible	Negligible
1-hour Average H_2S Results (Air Quality Impact to Human Health)									
Max. on grid	42	42	8.14E-02	0.194	42.08	100.19	NA	NA	NA
ASR1	42	42	4.10E-03	9.76E-03	42.00	100.01	Medium	Negligible	Negligible
ASR2	42	42	6.57E-03	1.56E-02	42.01	100.02	Medium	Negligible	Negligible
ASR3	42	42	6.30E-04	1.50E-03	42.00	100.00	Medium	Negligible	Negligible
ASR4	42	42	3.42E-03	8.14E-03	42.00	100.01	Medium	Negligible	Negligible
ASR5	42	42	7.40E-03	1.76E-02	42.01	100.02	Medium	Negligible	Negligible

ASR6	42	42	1.25E-02	2.98E-02	42.01	100.03	Medium	Negligible	Negligible
ASR7	42	42	7.56E-03	1.80E-02	42.01	100.02	Medium	Negligible	Negligible
ASR8	42	42	5.90E-03	1.40E-02	42.01	100.01	Medium	Negligible	Negligible
Annual Average H_2S Results (Air Quality Impact to Human Health)									
Max. on grid	0.8	0.8	2.48E-03	0.310	0.80	100.31	NA	NA	NA
ASR1	0.8	0.8	1.40E-04	1.75E-02	0.80	100.02	Medium	Negligible	Negligible
ASR2	0.8	0.8	1.00E-05	1.25E-03	0.80	100.00	Medium	Negligible	Negligible
ASR3	0.8	0.8	1.41E-06	1.76E-04	0.80	100.00	Medium	Negligible	Negligible
ASR4	0.8	0.8	1.00E-05	1.25E-03	0.80	100.00	Medium	Negligible	Negligible
ASR5	0.8	0.8	2.00E-05	2.50E-03	0.80	100.00	Medium	Negligible	Negligible
ASR6	0.8	0.8	3.00E-05	3.75E-03	0.80	100.00	Medium	Negligible	Negligible
ASR7	0.8	0.8	1.00E-04	1.25E-02	0.80	100.01	Medium	Negligible	Negligible
ASR8	0.8	0.8	6.00E-05	7.50E-03	0.80	100.01	Medium	Negligible	Negligible
1-hour Average NH_3 Results (Air Quality Impact to Human Health)									
Max. on grid	1400	1400	1.81E-02	0.001	1400.02	100.00	NA	NA	NA

ASR1	1400	1400	9.10E-04	6.50E-05	1400.00	100.00	Medium	Negligible	Negligible
ASR2	1400	1400	1.46E-03	1.04E-04	1400.00	100.00	Medium	Negligible	Negligible
ASR3	1400	1400	1.40E-04	1.00E-05	1400.00	100.00	Medium	Negligible	Negligible
ASR4	1400	1400	7.60E-04	5.43E-05	1400.00	100.00	Medium	Negligible	Negligible
ASR5	1400	1400	1.65E-03	1.18E-04	1400.00	100.00	Medium	Negligible	Negligible
ASR6	1400	1400	2.79E-03	1.99E-04	1400.00	100.00	Medium	Negligible	Negligible
ASR7	1400	1400	1.69E-03	1.21E-04	1400.00	100.00	Medium	Negligible	Negligible
ASR8	1400	1400	1.31E-03	9.36E-05	1400.00	100.00	Medium	Negligible	Negligible

Annual Average NH_3 Results (Air Quality Impact to Human Health)

Max. on grid	100	100	5.50E-04	0.001	100.00	100.00	NA	NA	NA
ASR1	100	100	3.00E-05	3.00E-05	100.00	100.00	Medium	Negligible	Negligible
ASR2	100	100	1.43E-06	1.43E-06	100.00	100.00	Medium	Negligible	Negligible
ASR3	100	100	3.13E-07	3.13E-07	100.00	100.00	Medium	Negligible	Negligible
ASR4	100	100	3.22E-06	3.22E-06	100.00	100.00	Medium	Negligible	Negligible
ASR5	100	100	4.87E-06	4.87E-06	100.00	100.00	Medium	Negligible	Negligible

ASR6	100	100	1.00E-05	1.00E-05	100.00	100.00	Medium	Negligible	Negligible
ASR7	100	100	2.00E-05	2.00E-05	100.00	100.00	Medium	Negligible	Negligible
ASR8	100	100	1.00E-05	1.00E-05	100.00	100.00	Medium	Negligible	Negligible

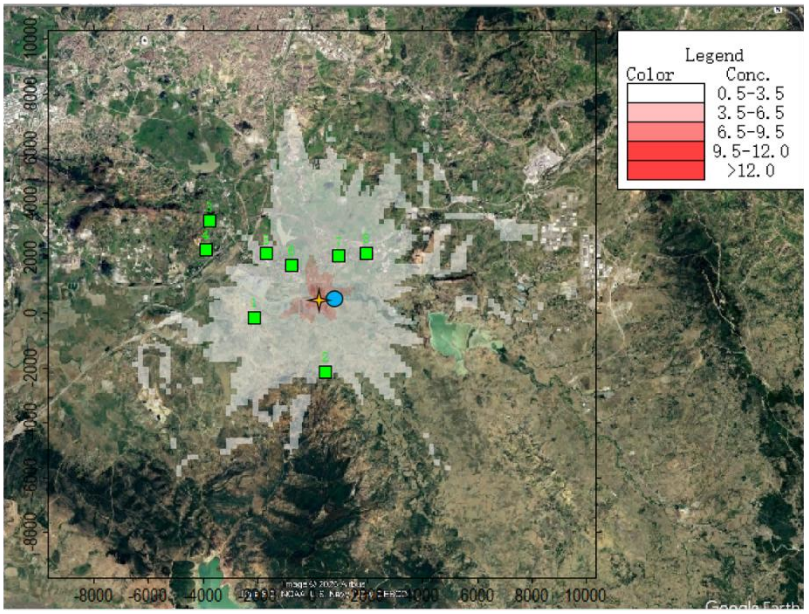
Note:

(a) Degraded airsheds are assumed in the absence of baseline. In the absence of background monitoring data for benzo[a]pyrene (BaP), ammonia (NH_3), and hydrogen sulfide (H_2S), the applicable ambient air quality standard values were conservatively assumed as background concentrations for the assessment. For PM_{10} and $PM_{2.5}$, background monitoring results reported below the method detection limits were assigned the corresponding detection limit values to ensure a conservative assessment.

(b) The contribution of the emissions of the Project is taken as PC.

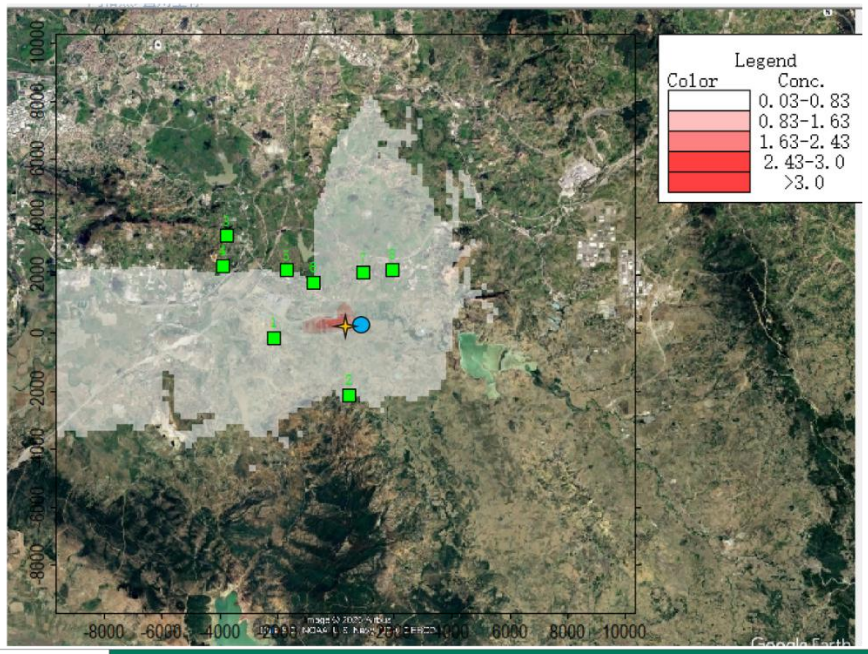
(c) The contribution of the emissions of the Project combined with baseline is taken as PEC.

FIGURE 7-5 CONTOUR OF 24-HOUR AVERAGE PM_{10} PROJECT CONTRIBUTION (µg/m³)



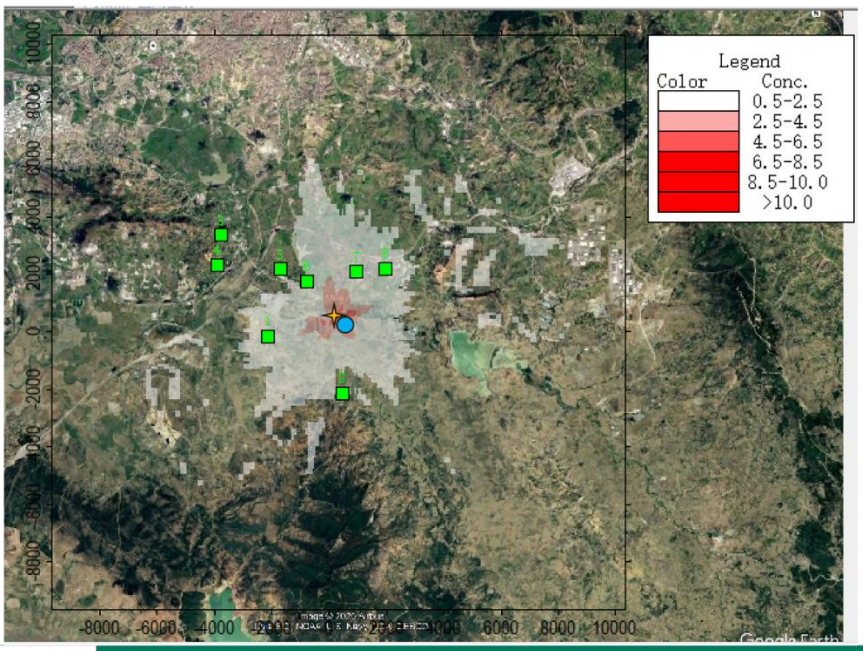
Legend	CONTOUR OF 24-HOUR AVERAGE PM10 PROJECT CONTRIBUTION (µg/m3)			
ASR	Date: 28 August 2026	Drawn Size: 16x11 cm	Supplementary Environmental and Social Impact Assessment	ERM
BTR	Drawn by: XS	Reviewed by: JC		
Max. Conc.	Coordinate System/Source: WGS 1984		BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY	
	This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.			

FIGURE 7-6 CONTOUR OF ANNUAL AVERAGE PM_{10} PROJECT CONTRIBUTION (µg/m³)



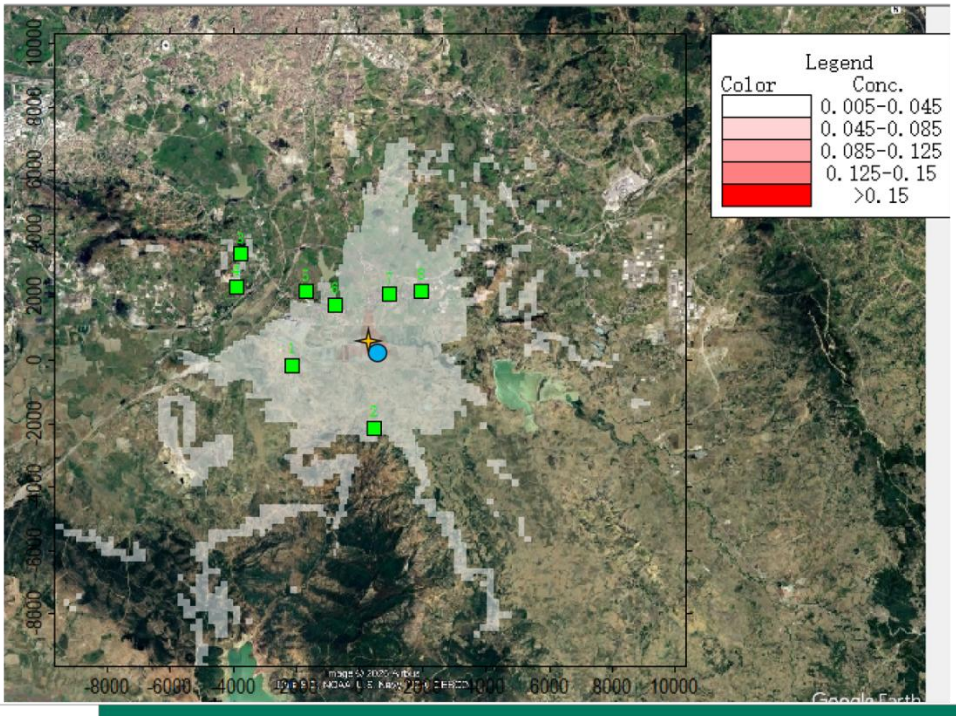
Legend	CONTOUR OF ANNUAL AVERAGE PM10 PROJECT CONTRIBUTION (µg/m3)			
ASR	Date: 28 August 2026	Drawn Size: 16x11 cm	Supplementary Environmental and Social Impact Assessment	ERM
BTR	Drawn by: XS	Reviewed by: JC		
Max. Conc.	Coordinate System/Source: WGS 1984		BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY	
	This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.			

FIGURE 7-7 CONTOUR OF 24-HOUR AVERAGE $PM_{2.5}$ PROJECT CONTRIBUTION (µg/m³)



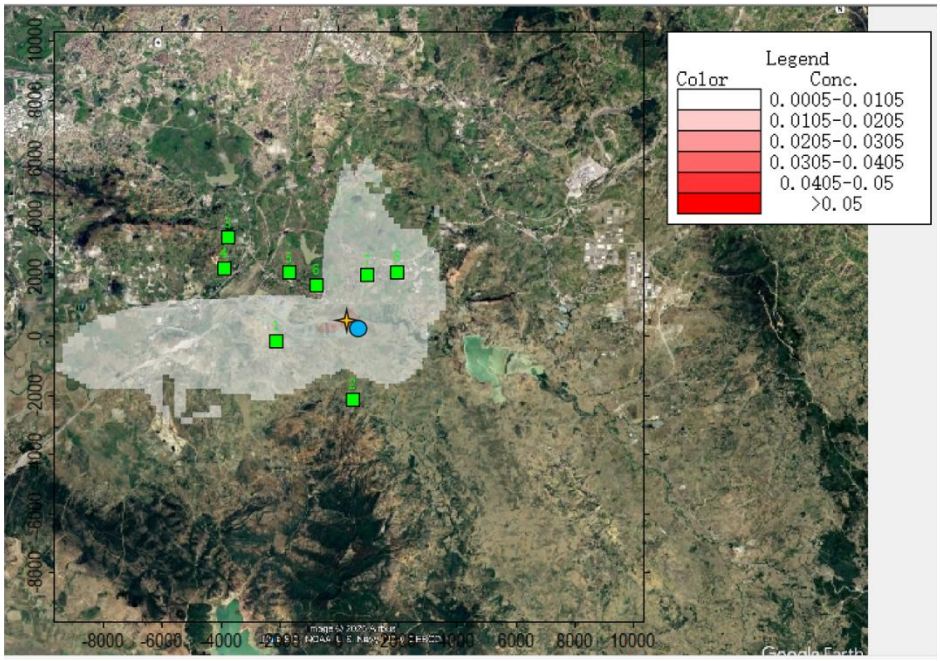
Legend	CONTOUR OF 24-HOUR AVERAGE PM2.5 PROJECT CONTRIBUTION (µg/m3)		
ASR	Date: 28 August 2026	Drawn Size: 16x11 cm	Supplementary Environmental and Social Impact Assessment
BTR	Drawn by: XS	Reviewed by: JC	
Max. Conc.	Coordinate System/Source: WGS 1984		BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY
	This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.		ERM

FIGURE 7-8 CONTOUR OF 24-HOUR AVERAGE NO_2 PROJECT CONTRIBUTION (µg/m³)



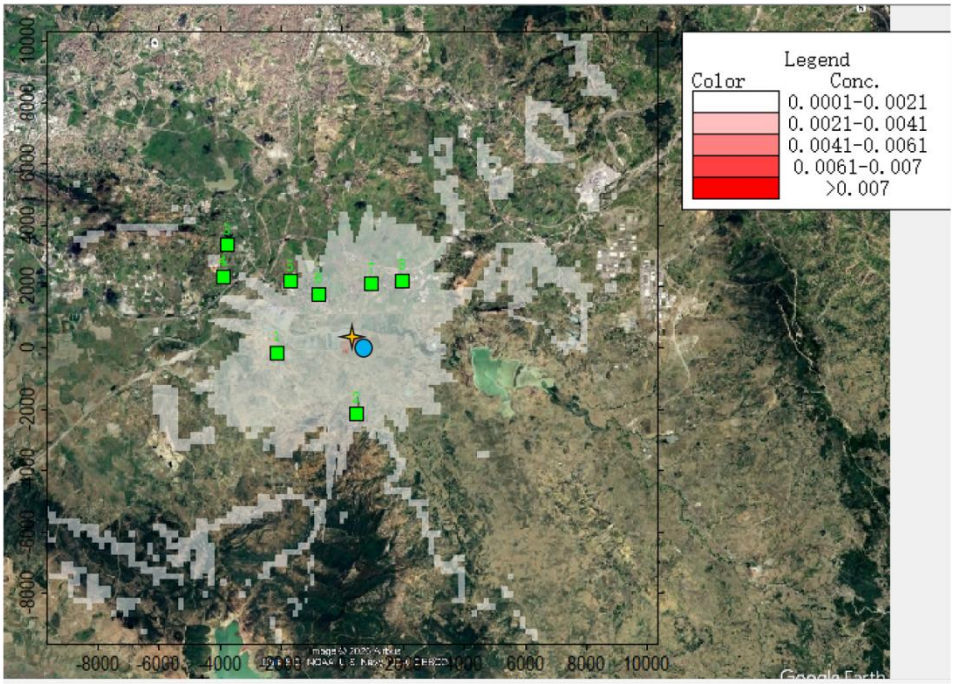
Legend	CONTOUR OF 24-HOUR AVERAGE NO2 PROJECT CONTRIBUTION (µg/m3)		
ASR	Date: 28 August 2026	Drawn Size: 16x11 cm	Supplementary Environmental and Social Impact Assessment
BTR	Drawn by: XS	Reviewed by: JC	
Max. Conc.	Coordinate System/Source: WGS 1984		BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY
	This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.		ERM

FIGURE 7-9 CONTOUR OF ANNUAL AVERAGE NO_2 PROJECT CONTRIBUTION (µg/m³)



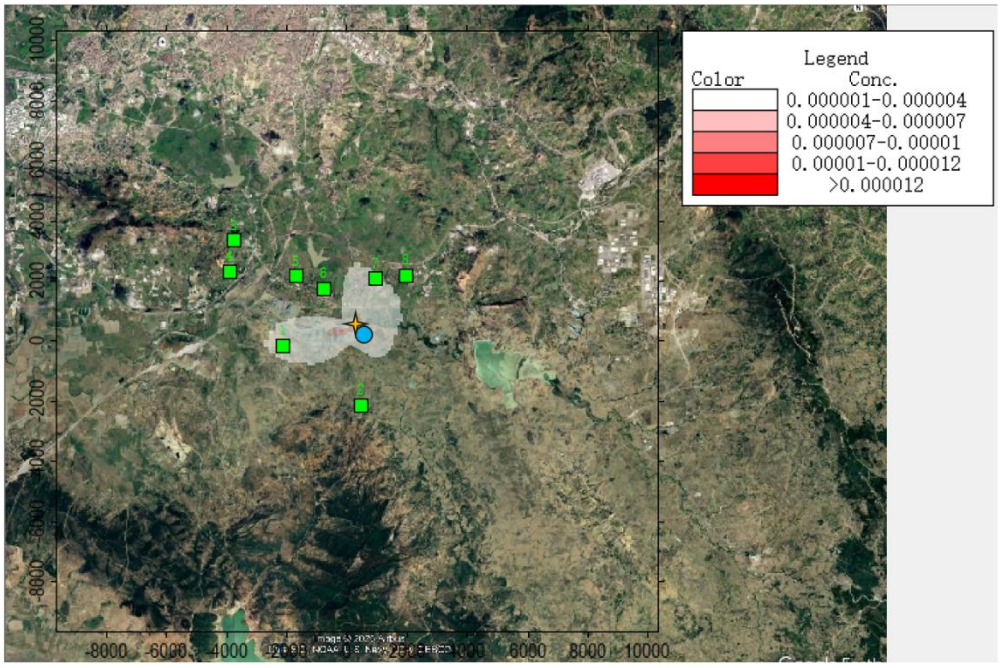
Legend	CONTOUR OF ANNUAL AVERAGE NO2 PROJECT CONTRIBUTION (µg/m3)			
ASR	Date: 28 August 2026	Drawn Size: 16x11 cm	Supplementary Environmental and Social Impact Assessment	ERM
BTR	Drawn by: XS	Reviewed by: JC		
Max. Conc.	Coordinate System/Source: WGS 1984		BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY	
	This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.			

FIGURE 7-10 CONTOUR OF 24-HOUR AVERAGE SO_2 PROJECT CONTRIBUTION (µg/m³)



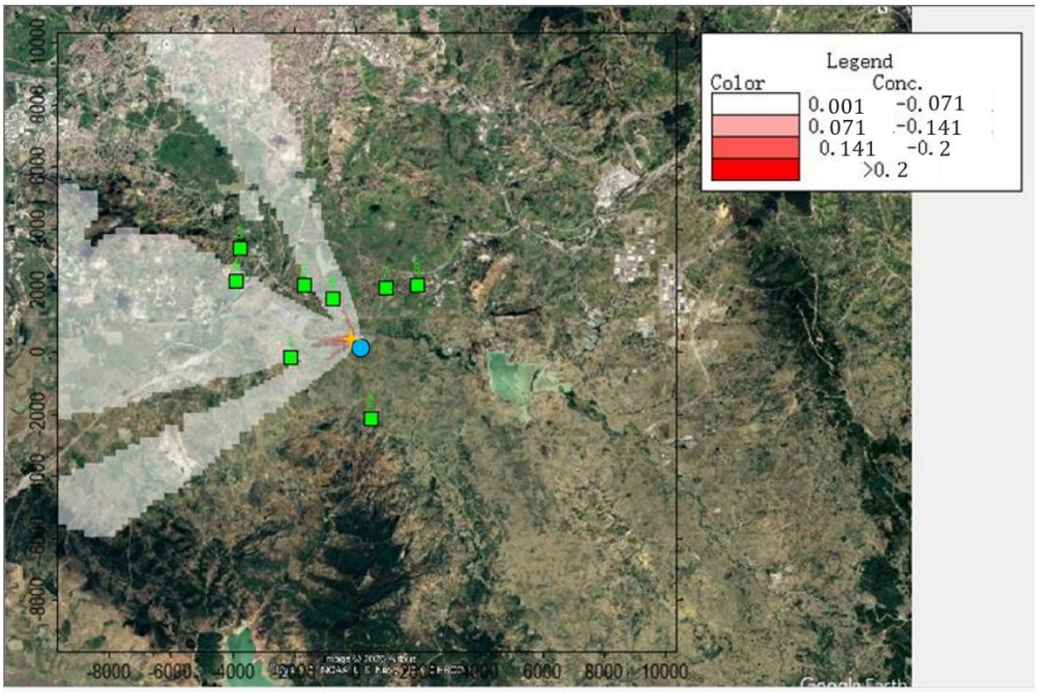
Legend	CONTOUR OF 24-HOUR AVERAGE SO2 PROJECT CONTRIBUTION (µg/m3)			
ASR	Date: 28 August 2026	Drawn Size: 16x11 cm	Supplementary Environmental and Social Impact Assessment	ERM
BTR	Drawn by: XS	Reviewed by: JC		
Max. Conc.	Coordinate System/Source: WGS 1984		BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY	
	This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.			

FIGURE 7-11 CONTOUR OF ANNUAL AVERAGE BAP PROJECT CONTRIBUTION (μg/m³)



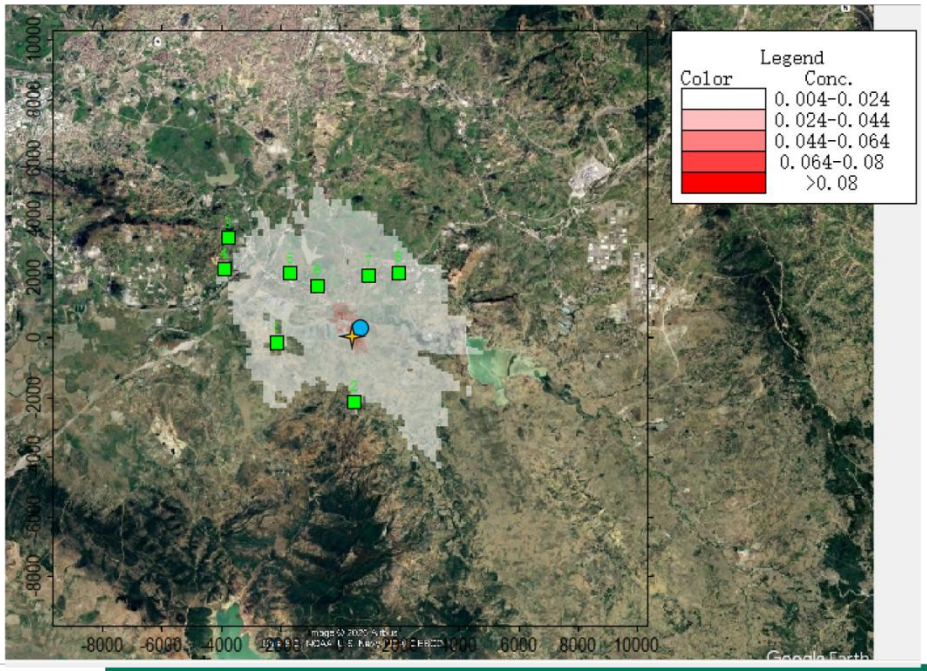
Legend	CONTOUR OF ANNUAL AVERAGE BAP PROJECT CONTRIBUTION (μg/m3)		
ASR	Date: 28 August 2026	Drawn Size: 16x11 cm	Supplementary Environmental and Social Impact Assessment
BTR	Drawn by: XS	Reviewed by: JC	
Max. Conc.	Coordinate System/Source: WGS 1984		BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY
	This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.		

FIGURE 7-12 CONTOUR OF 8-HOUR AVERAGE TVOC PROJECT CONTRIBUTION (μg/m³)



Legend	CONTOUR OF 8-HOUR AVERAGE TVOC PROJECT CONTRIBUTION (μg/m3)		
ASR	Date: 28 August 2026	Drawn Size: 16x11 cm	Supplementary Environmental and Social Impact Assessment
BTR	Drawn by: XS	Reviewed by: JC	
Max. Conc.	Coordinate System/Source: WGS 1984		BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY
	This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.		

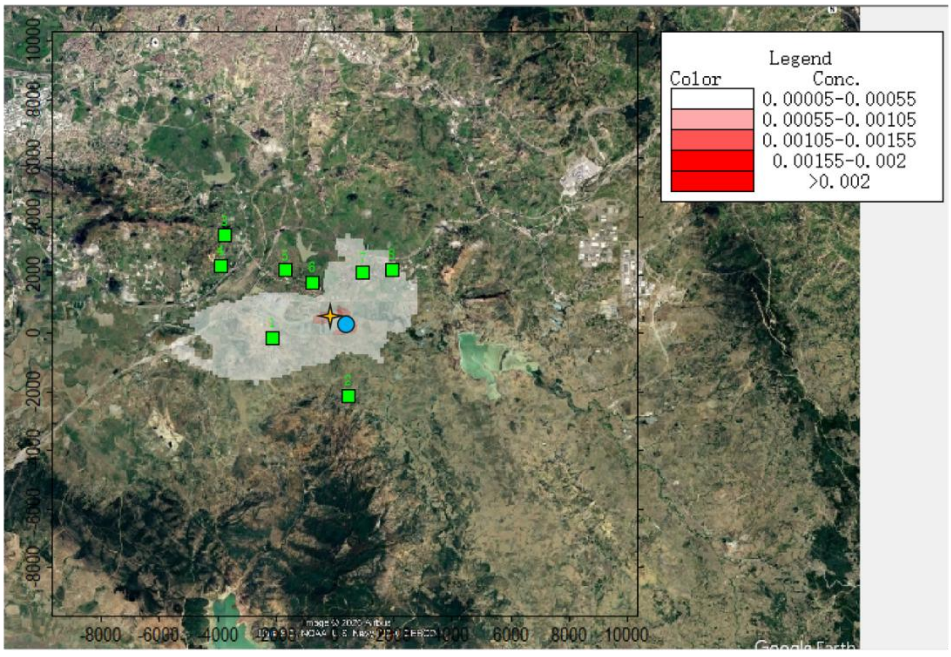
FIGURE 7-13 CONTOUR OF ONE HOUR AVERAGE H_2S PROJECT CONTRIBUTION (µg/m^3)



Legend	CONTOUR OF ONE HOUR AVERAGE H2S PROJECT CONTRIBUTION (µg/m3)		
ASR	Date: 28 August 2026	Drawn Size: 16x11 cm	Supplementary Environmental and Social Impact Assessment
BTR	Drawn by: XS	Reviewed by: JC	
Max. Conc.	Coordinate System/Source: WGS 1984		BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY
	This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.		

ERM

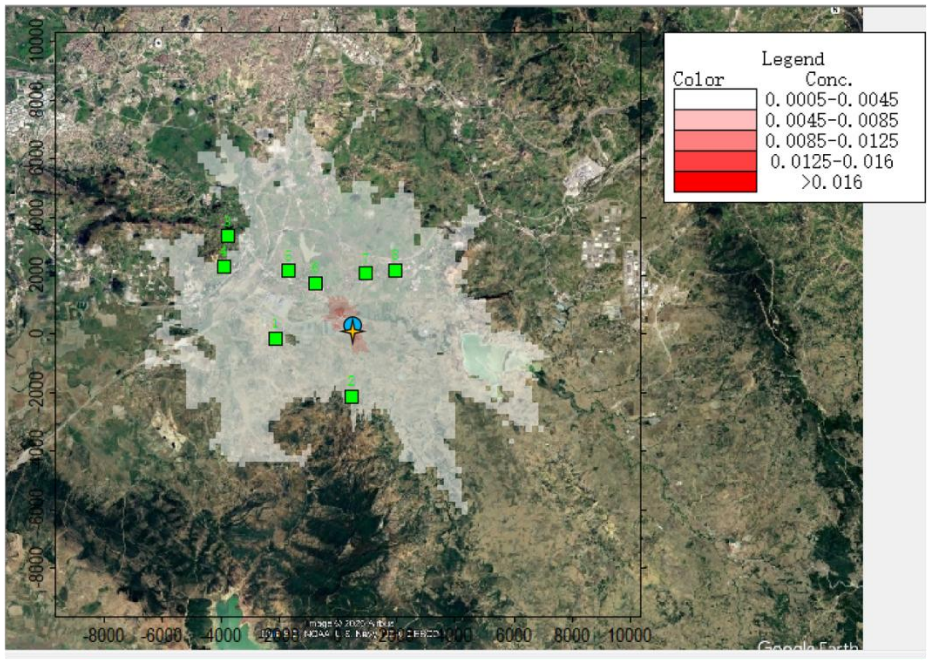
FIGURE 7-14 CONTOUR OF ANNUAL AVERAGE H_2S PROJECT CONTRIBUTION (µg/m^3)



Legend	CONTOUR OF ANNUAL AVERAGE H2S PROJECT CONTRIBUTION (µg/m3)		
ASR	Date: 28 August 2026	Drawn Size: 16x11 cm	Supplementary Environmental and Social Impact Assessment
BTR	Drawn by: XS	Reviewed by: JC	
Max. Conc.	Coordinate System/Source: WGS 1984		BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY
	This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.		

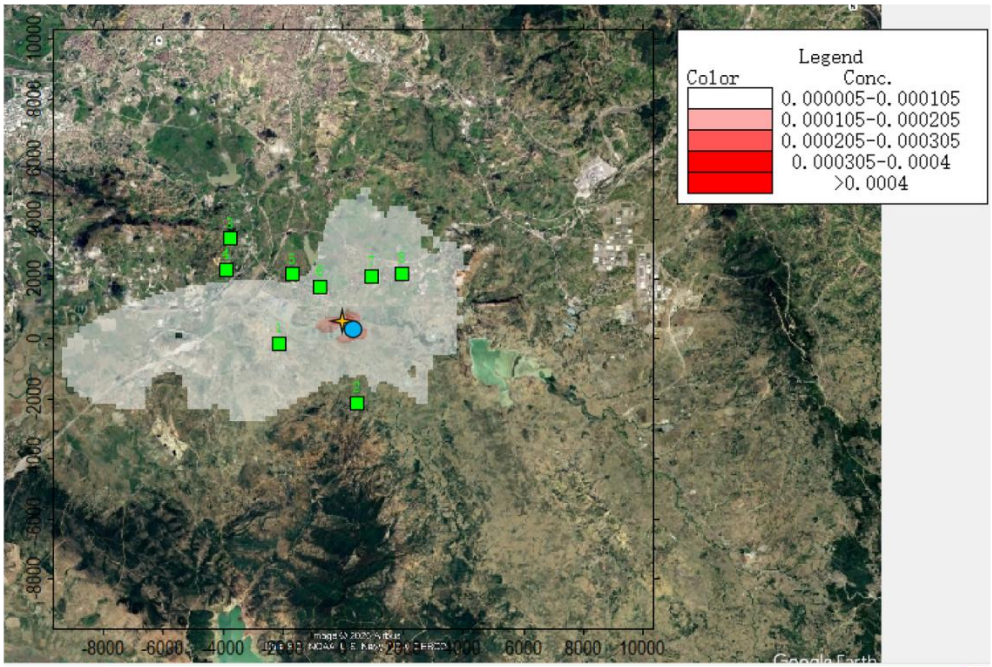
ERM

FIGURE 7-15 CONTOUR OF ONE HOUR AVERAGE NH_3 PROJECT CONTRIBUTION ($\mu g/m^3$)



Legend	CONTOUR OF ONE HOUR AVERAGE NH3 PROJECT CONTRIBUTION (µg/m3)		
ASR	Date: 28 August 2026	Drawn Size: 16x11 cm	Supplementary Environmental and Social Impact Assessment
BTR	Drawn by: XS	Reviewed by: JC	
Max. Conc.	Coordinate System/Source: WGS 1984		BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY
	This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.		ERM

FIGURE 7-16 CONTOUR OF ANNUAL AVERAGE NH_3 PROJECT CONTRIBUTION ($\mu g/m^3$)



Legend	CONTOUR OF ANNUAL AVERAGE NH3 PROJECT CONTRIBUTION (µg/m3)		
ASR	Date: 28 August 2026	Drawn Size: 16x11 cm	Supplementary Environmental and Social Impact Assessment
BTR	Drawn by: XS	Reviewed by: JC	
Max. Conc.	Coordinate System/Source: WGS 1984		BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY
	This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.		ERM

According to the modelling result, the impact magnitudes of PM (PM_{10} and $PM_{2.5}$), NO_2, SO_2, BaP, H_2S, NH_3 and TVOC, on ASRs are **Negligible**.

Impact		**Impact of Project Operation**				
Impact Nature		**Negative**	Positive	Neutral		
IMPACT CHARACTERISTICS	**Type**	**Direct**	Indirect	Induced		
	Extent	Site	**Local**	Regional	National	International
	Scale	Small	**Medium**	Large		
	SPATIAL EFFECTS	**Low**	Medium	High		
	The spatial impact contamination on ambient air is considered as **Low**, since the impact is expected to be limited to the vicinity of the Project Site and can therefore be considered as local, up to 10 km from the Project site.					
	Duration	Temporary	Short-term	Medium-term	**Long-term**	Permanent
	Frequency	Often				
	TEMPORAL EFFECTS	Negligible	Low	Medium	**High**	
	The temporal impact is considered as **High**, since it will occur throughout the operation phase.					
IMPACT MAGNITUDE		**Negligible**	Small	Medium	Large	
		Impact magnitude is **Negligible** based on diffusion modelling result.				
RECEPTOR VULNERABILITY		Low	**Medium**	High		
		The identified human sensitive receptors are general population and classified with **Medium** sensitivity.				
IMPACT SIGNIFICANCE		**Negligible**	Minor	Moderate	Major	

Additional Mitigation Measure

The regular monitoring should be undertaken to verify the effectiveness of the proposed mitigation measures and to ensure ongoing compliance with applicable standards. A suitably trained person with knowledge of air quality monitoring will manage the stack emission monitoring performance and findings.

TABLE 7-15 AIR EMISSION MONITORING PROGRAMME

Item	Monitoring Location	Monitoring Parameters	Monitoring Frequency
1	Stack 1~23	• Conc. of PM • Flow rate	Quarterly
2	Stack 24~26	• Conc. of HCl, NOx • Flow rate	Quarterly
3	Stack 27~30	• Conc. of SO_2, NOx, PM, BaP • Flow rate	Quarterly
4	Stack 31,32	• Conc. of SO_2, NOx, PM • Flow rate	Quarterly

5	Stack 33,34	• Conc. of PM, BaP • Flow rate	Quarterly
6	Stack 35,36	• Conc. of SO_2, NOx, PM, BaP, VOC • Flow rate	Quarterly
7	Stack 37, 38	• Conc. Of NH_3 and H_2S • Flow rate	Quarterly

Residual Impact

With the implementation of the recommended mitigation measures, impacts to ambient air quality due to project operation are expected to be **Negligible**.

7.2.2 NOISE

7.2.2.1 SCOPE OF ASSESSMENT

The Project Lifecycle has been reviewed to identify the Project activities with potential to generate noise (***Table*** 7-16). The noise sources identified are associated mainly with the use of powered mechanical equipment ("PME") during construction phase and operation of fixed plant items during the operation phase.

TABLE 7-16 POTENTIAL SOURCES OF NOISE FROM THE PROJECT LIFECYCLE

Project Activity	Potential Noise Sources
Construction Phase • Delivery of construction materials, machines and equipment; • Site clearance; • Earthwork; • Construction of temporary facilities; • Construction of manufacturing workshops; • Construction of office area and other auxiliary facilities; • Installation of manufacturing equipment.	• Noise from the transportation of construction materials, machines and equipment. • Noise from the use of powered mechanical equipment for the activities during the construction phase.
Operation Phase • Artificial graphite anode material manufacturing, including crushing, granulation, pre-carbonisation, graphitisation, carbonisation and finished product processing. • Operation of auxiliary facilities, e.g. RTO and Air Compressor Station. • Exhaust and wastewater treatment device operation.	• Noise from fixed sources (air compressor, packing machine, magnetic separator, cooling towers, desulphurisation system and RTO etc).

7.2.2.2 IMPACT ASSESSMENT CRITERIA

Law 11-03 on the Protection and Enhancement of the Environment stipulates (Art 47) that noise likely to cause a nuisance to neighbours or harm the environment must be avoided. It does not, however, lay down any specific noise levels to be respected. Similarly, Law 99-12 establishing the framework confirms the need to establish and improve regulations on noise emissions. However, no specific noise level was stipulated in both local decrees.

In the absence of regulatory values in Morocco, the thresholds published in the WBG EHS General Guidelines were used as a reference, as shown in the following table.

TABLE 7-17 NOISE LEVEL STANDARDS FROM THE WBG GENERAL EHS GUIDELINES

Receptor	One-hour L_{Aeq}, in dB(A)	
	Daytime (07:00 – 22:00)	Nighttime (22:00 – 07:00)

Residential; institutional; educational	55	45
Industrial; commercial	70	70

7.2.2.3 IMPACT ASSESSMENT METHODOLOGY

Potential impact significance is determined considering the impact characteristics, impact consequences, magnitude of the impact and receptor sensitivity.

The criteria for sensitivity and magnitude of the impact to ambient noise environment are defined in ***Table*** 7-18 and ***Table*** 7-19 respectively.

There are two types of noise impacts that should be considered. Disturbance impact means impact from unwanted or disturbing sound in the environment that affects the health and well-being of humans and other living organisms. Amenity impacts are more likely when existing noise levels (baseline) are relatively low, typically when background levels are less than 35 dB $L_{A90,1hr}$.

Construction phase noise impacts are usually determined by evaluating the likelihood of disturbance impacts, while operation phase noise impacts are usually determined by the likelihood of both disturbance impacts and amenity impacts. Where there is a difference in impact significance between the two types, the higher rating should be taken.

TABLE 7-18 IMPACT SIGNIFICANCE FOR NOISE – DISTURBANCE IMPACTS

Duration / Frequency	Noise Receptor Type	Period	Project Noise Level (dB(A))[83]			
			Not Significant	Minor	Moderate	Major
Permanent / Constant	Residential, institutional, educational	Daytime	**<50**	**50-55**	**>55-60**	**>60**
		Nighttime	**<40**	**40-45**	**>45-50**	**>50**
	Industrial, commercial	Daytime & Nighttime	<65	65-70	>70-75	>75
Temporary, long-term / Often	Residential, institutional, educational	Daytime	<55	55-60	>60-65	>65
		Nighttime	<45	45-50	>50-55	>55
	Industrial, commercial	Daytime & Nighttime	<70	70-75	>75-80	>80
Temporary, medium-term / Occasional	Residential, institutional, educational	Daytime	<65	65-70	>70-75	>75
		Nighttime	<45	45-50	>50-55	>55

[83] The rating framework is referred to ERM IA methodology, drawn from British Standard 4142 and the Australian New South Wales Industrial Noise Policy.

	Industrial, commercial	Daytime & Nighttime	<70	70-75	>75-80	>80
Temporary, short-term / Rare	Residential, institutional, educational	Daytime	<70	70-75	>75-80	>80
		Nighttime	<55	55-60	>60-65	>65
	Industrial, commercial	Daytime & Nighttime	<70	70-75	>75-80	>80

TABLE 7-19 IMPACT SIGNIFICANCE FOR NOISE - AMENITY IMPACTS

Duration / Frequency	**Noise Receptor Type**	**Period**	**PNL $L_{Aeq,1hr}$ - $L_{A90,1hr}$ (for background noise above L_{A90} 30 dB)**			
			Negligible	**Minor**	**Moderate**	**Major**
Permanent / Constant	Residential	All	<5	5-10	>10-15	>15

The distance between point sources and NSRs are larger than twice the scale of the point sources, therefore the noise prediction mode of point sources is selected for this Project. The prediction mode adopts the geometric dispersion attenuation mode of point sources as follows:

(1) Outdoor point source attenuation mode

$$L_p(r_2) = L_p(r_1) - 20lg\frac{r_2}{r_1}$$

Where: $L_p(r_1)$--Sound level at the distance, r_1, from the sound source, dB(A);

$L_p(r_2)$--Sound level at the distance, r_2, from the sound source, dB(A);

r_1--Distance between noise receptor 1 and the source, m;

r_2--Distance between noise receptor 2 and the source, m;

(2) Noise superposition calculation mode

The formula for calculating the equivalent sound level contribution value generated by multiple sources at the same receptor is:

$$L_{eqg} = 10\,lg\frac{1}{T}\sum_i t_i\,10^{0.1L_{Ai}}$$

Where: L_{eqg}--Equivalent sound level contribution value of the source at the receptor, dB(A);

L_{Ai} -- A sound level generated by sound source i at the receptor, dB(A);

T -- the time period for prediction calculation at the receptor, s;

t_i -- the operation time of sound source i in the time period T, s.

(3) Calculation mode of total sound level at the prediction point

The formula for calculating the predicted equivalent sound level at the prediction point is:

$$L_{eq} = 10\,lg(10^{0.1L_{eqg}} + 10^{0.1Leqb})$$

Where: L_{eqg}--the equivalent sound level contributed by all the sources at the receptor, dB(A);

L_{eqb} --background noise level at the receptor, dB(A).

7.2.2.4 IMPACT ASSESSMENT

Construction Phase

Source of Impact

Noise is sourced from the following activities in the construction phase:

- Delivery of construction materials, machines and equipment;
- Remaining civil and structural works, including building finishing and completion of auxiliary facilities;
- Installation and commissioning of manufacturing and environmental control equipment; and
- Associated movement and operation of mobile construction plant and vehicles.

Embedded Control

None

Significance of Impact

During the remaining construction phase, noise will primarily be generated by mobile cranes, mobile elevating work platforms and diesel forklifts. Construction noise will be temporary and limited to the remaining construction period, which is expected to last approximately four months. The impact is therefore classified as temporary and short-term. Major construction plant will operate during daytime hours only, typically over an 8-hour working period. Predicted construction noise levels at the identified noise-sensitive receptors are presented in ***Table*** 7-20.

TABLE 7-20 CONSTRUCTION EQUIPMENT NOISE PREDICTION RESULTS

Equipment Group	Main Equipment Included	Total Quantity	Maximum Concurrent Operation	Reference Noise Level at 10 m, LAeq,T dB(A)[84]	PNL at Slaouiyine dB(A)	PNL at Gouaret dB(A)
Mobile cranes	25 t, 50 t, 90 t, 200 t and 500 t mobile cranes	14	8	67–78	43.3	43
Mobile elevating work platforms	Boom lifts and diesel scissor lifts	10	9	67–78	46.2	45.9

[84] BS 5228-1:2009+A1:2014: *Code of practice for noise and vibration control on construction and open sites*

Forklifts	3.5 t, 5 t, 7 t, 10 t and 15 t diesel forklifts	17	10	76–94	55.7	55.3
Combined construction equipment	**All equipment listed above**	**41**	**27**	**N/A**	**56.0**	**56.0**

The predicted daytime construction noise levels of approximately 56.0 dB(A) at Slaouiyine and 56.0 dB(A) at Gouaret are both below the applicable threshold for a significant short-term construction noise impact. Therefore, the disturbance impact at both identified residential receptors is assessed as Not Significant. Accordingly, the overall construction noise impact is considered **Negligible**.

Impact		**Noise from Construction Activities**				
Impact Nature		**Negative**	Positive	Neutral		
IMPACT CHARACTERISTICS	**Type**	**Direct**	Indirect	Induced		
		This impact is a direct result of construction machinery associated with construction activities.				
	Extent	Site	**Local**	Regional	National	International
	Scale	**Small**	Medium	Large		
	SPATIAL EFFECTS	**Low**	Medium	High		
	The spatial impact of construction machinery noise from the Project is considered as **Low**, as the impact is expected to be limited to the vicinity of the Project Site.					
	Duration	Temporary	**Short-term**	Medium-term	Long-term	Permanent
		Construction noise will occur only during the remaining approximately four-month construction period and will cease upon completion of the works.				
	Frequency	**Occasional** Intermittent during daytime construction activities. Noise-generating equipment will operate as required by the construction programme rather than continuously, and major construction plant will not operate at night.				
	TEMPORAL EFFECTS	**Negligible**	Low	Medium	High	
	Impact will only occur during a relatively short period of time.					
IMPACT MAGNITUDE		**Negligible**	Small	Medium	Large	
		Predicted construction noise levels at the identified residential receptors are below the applicable daytime criterion for short-term construction activities.				
RECEPTOR VULNERABILITY		Low	**Medium**	High		
		Sensitivity of receptor is considered **Medium** for general residential community.				
IMPACT SIGNIFICANCE		**Negligible**	Minor	Moderate	Major	

Additional Mitigation Measures

Conduct regular noise monitoring throughout the remaining construction phase to verify the effectiveness of mitigation measures and ensure compliance with the applicable noise criteria.

Residual Impact

The residual impact will remain **Negligible** as no additional mitigation measure is proposed.

Operation Phase

Source of Impact

During the operation phase, noise emissions are expected to result from the operation of various equipment, such as air compressor, packing machine, magnetic separator, cooling towers, desulphurisation system and RTO. As indicated in the Feasibility Report, desulphurisation system (fans/pumps) and cooling towers will be placed in open air, while other equipment will be installed in workshops.

The main noise sources from outdoor equipment are listed in ***Table*** 7-21. The quantity of equipment is derived from project feasibility study, while reference noise levels were estimated based on applicable technical standards and guidelines for industrial equipment[85] and low-noise cooling towers[86].

TABLE 7-21 MAIN NOISE SOURCES FROM OUTDOOR EQUIPMENT

No.	Equipment	Quantity	Noise Level (dB(A))[87] before control	Embedded Control	Noise Level (dB(A)) after control
1	Cooling tower	25	85	Low noise equipment, Foundation vibration reduction	75
2	Desulphurisation system	1	90		80

Embedded Control

Based on a review of received information and onsite interview, the following Project-specific embedded measures for noise were identified in ***Table*** 7-21.

Significance of Impact

Given the inventory of noise sources and embedded control, the PNL at NSRs are 29.8 dB(A) and 29.4 dB(A) respectively. The impact significance of disturbance and amenity are **Negligible,** as shown in ***Table*** 7-22. Note that this prediction is conservatively performed based on simultaneous operation of all outdoor fixed plant items[88].

TABLE 7-22 PREDICTED NOISE LEVEL

No.	Equipment	Distance to NSR-1 (1)	Distance to NSR-2(1)

[85] DB4403/T 636-2025, *Technical Specification for Prevention and Control of Industrial Noise Pollution*, Appendix B, Table B.2.
[86] HJ/T 385-2007, *Technical Requirement for Environmental Protection Product: Low Noise Type Cooling Tower*, Section 4.2, Table 1
[87] Noise Level dB(A) refers to the sound pressure level (SPL) at 1m.
[88] Indoor equipment was screened out from quantitative modelling because it will be enclosed within workshop buildings. Given the large separation distances to the NSRs, building envelope attenuation is expected to render its off-site contribution immaterial relative to the outdoor sources.

1	Cooling tower	970m	1,010 m
2	Desulphurisation system	970m	1,010 m
Project Noise Level (PNL) $L_{Aeq,1hr}$		29.8 dB(A)	29.4 dB(A)
L_{A90} at NSR		33.4 dB(A)	31.9 dB(A)
$L_{Aeq,1hr}$ - $L_{A90,1hr}$		-3.6 dB(A)	-2.5 dB(A)
Impact significance - Disturbance		Negligible	Negligible
Impact significance - Amenity		Negligible	Negligible
Impact significance - Overall		Negligible	Negligible

Note: (1) The detailed equipment layout is not available at the time of reporting, the distances from site boundary to NSR are used in noise modelling conservatively.

Impact		**Noise from Fixed Plant Items During Operation Phase**				
Impact Nature		**Negative**	Positive	Neutral		
IMPACT CHARACTERISTICS	**Type**	**Direct**	Indirect	Induced		
		This impact is a direct result from the facility operation.				
	Extent	Site	**Local**	Regional	National	International
	Scale	**Small**	Medium	Large		
	SPATIAL EFFECTS	**Low**	Medium	High		
	Impact is expected to be limited to the vicinity of the Project Site.					
	Duration	Temporary	Short-term	Medium-term	**Long-term**	Permanent
	Frequency	Constant				
	TEMPORAL EFFECTS	Negligible	Low	**Medium**	High	
	The temporal effect is considered **Medium** because the noise would occur on a long-term and continuous basis throughout Project operation.					
IMPACT MAGNITUDE		**Negligible**	Small	Medium	Large	
		Given the low predicted PNLs at the NSRs, which are below the applicable disturbance and amenity thresholds, the impact magnitude is considered **Negligible**.				
RECEPTOR VULNERABILITY		Low	**Medium**	High		
		Receptor vulnerability is **Medium** for residential area.				
IMPACT SIGNIFICANCE		**Negligible**	Minor	Moderate	Major	

Additional Mitigation Measures

- Regular maintenance of equipment such as lubricating moving parts, tightening loose parts and replacing worn out components;
- Provide employees with training and instructions to properly operate the machines.

- Place noise sources (fixed plant items) as far as possible from the project boundary, especially east boundary to maximize the distances to NSRs.

Residual Impact

The recommended good-practice management measures are expected to further minimise operational noise and prevent noise levels from increasing due to equipment deterioration or improper operation. The residual impact will remain **Negligible**.

7.2.3 WASTE

The Project will generate waste during both the construction and operation phases. This section provides an assessment of the potential impacts associated with waste management, encompassing aspects such as storage, handling, collection, transportation, recycling, treatment, and disposal.

7.2.3.1 SCOPE OF ASSESSMENT

Table 7-23 presents the anticipated waste inventory detailing the types of waste that will be generated during the construction and operation phases, including estimated quantities.

TABLE 7-23 WASTE INVENTORY

Project Phase	Waste	Waste Generation Source	Estimated Quantities	Hazardous waste/ non-hazardous waste
Construction Phase	Excess construction material (e.g. concrete, wooden formwork, packaging, scrap metals, excess cables)	From construction and installation works	The quantity cannot be estimated at the current stage.	Non-hazardous waste
	Domestic waste	From construction workers	0.5 kg per person per day	Non-hazardous waste
Operation Phase	Domestic waste (e.g. paper, food waste)	From onsite workers	500 t/yr	Non-hazardous waste
	Non-conforming products	Non-conforming products refer to the residues arising from crushing, screening and demagnetisation processes.	3829.5 t/yr	Non-hazardous waste
	Gypsum	Wet scrubber will be utilised for SO_2 abatement. Gypsum will be formed through the chemical reaction between alkaline solution and SO_2.	11,000 t/yr	Non-hazardous waste
	Spent packaging materials	Spent packaging materials will originate from feeding, handling and storage of non-chemical raw materials.	210 t/yr	Non-hazardous waste

	Spent bag filters	Bag filters will be used to remove the dust in the emissions and will be replaced regularly to maintain treatment performance.	10 t/yr	Non-hazardous waste
	Waste oil	Waste oil will be generated form inspection and maintenance activities.	300 t/yr	Hazardous waste
	Coking oil	During carbonisation and granulation processes, volatile components are released and condensed to form coking tar.	100 t/yr	Hazardous waste
	Waste activated carbon	Activated carbon will be used in the air emission treatment and will be replaced regularly to maintain treatment performance.	2 t/yr	Hazardous waste
	Spent packaging materials	Spent packaging materials will originate from chemical feeding, handling and storage.	30 t/yr	Hazardous waste
	Sludge	Sludge will be generated from wastewater treatment facilities for process wastewater and domestic wastewater.	170 t/yr	Hazardous waste
	Collected dust	Collected dust refers to dust captured by bag-house filters.	490.5 t/yr	Non-hazardous waste
	Waste refractory materials	The refractory materials will be replaced regularly to maintain thermal insulation performance.	100 t/yr	Non-hazardous waste
	Spent pallets	Spent pallets will be generated from the production and storage activities.	20 t/yr	Non-hazardous waste

	Waste paper	Waste paper will be generated from the production and office activities.	5 t/yr	Non-hazardous waste
	Scrap ferrous metal	Scrap ferrous metal will be generated form inspection and maintenance activities.	10 t/yr	Non-hazardous waste

7.2.3.2 IMPACT ASSESSMENT CRITERIA

The criteria for sensitivity and magnitude of the impact of waste will be set out in the following sub-sections.

TABLE 7-24 IMPACT MAGNITUDE FOR WASTE

Category	Extent / Duration / Scale / Frequency
Large	Change in waste disposal and treatment over a large area that lasts over the course of several months with quality likely to cause secondary impacts on ecosystems and nearest household or community. Affects the majority of the area or population in the area of influence and / or persists over many years. The impact may be experienced over a regional or national area.
Medium	Clearly evident difference from baseline conditions. Tendency is that impact affects a substantial area, ecosystem or number of people and / or is of medium duration. Frequency may be occasional, and impact may potentially be regional in scale.
Small	The change in waste disposal and treatment exceeds the expected. Perceptible difference from baseline conditions. Tendency is that impact is local, rare and affects a small proportion of receptors and is of a short duration.
Negligible	Changes in relation to waste disposal and treatment correspond to the expected range. Change remains within the range commonly experienced within the household or community.

TABLE 7-25 RECEPTOR SENSITIVITY FOR LOCAL COMMUNITIES

Category	Designation / Importance / Vulnerability
High	Profound or multiple levels of vulnerability that undermine the ability to adapt to changes brought by the Project.
Medium	Some but few areas of vulnerability; but still retaining an ability to at least in part adapt to change brought by the Project.
Low	Minimal vulnerability; consequently, with a high ability to adapt to changes brought by the Project and opportunities associated with it.

7.2.3.3 IMPACT ASSESSMENT

Waste Generation and Management (Construction phase)

Embedded control

Based on a review of received information and onsite interview, the following Project-specific embedded measures for construction waste were identified:

- The waste generated during the construction phase will be managed by the construction contractors.
- Suitable containers will be provided for the collection of the construction waste and domestic waste.
- Waste will be segregated, collected, store and disposed of depending on the waste nature.
- Construction waste will be tracked and documented.
- Domestic waste will be collected and transported to a landfill by a licensed service provider.
- Non-hazardous waste will be collected and reused to the maximum extent practicable. Non-reusable waste will be transported to landfill by qualified third party companies.

Significance of impact

Impact		**Impact from Waste Generation, Collection, Transport and Disposal in Construction Phase**				
Impact Nature		**Negative**	Positive	Neutral		
IMPACT CHARACTERISTICS	**Type**	Direct	**Indirect**	Induced		
		Indirect impacts associated with the improper handling, storage, transport and disposal of solid waste may result in the contamination of the environment leading to health impact on receptors.				
	Extent	Site	**Local**	Regional	National	International
	Scale	**Small**	Medium	Large		
	SPATIAL EFFECTS	**Low**	Medium	High		
	The spatial impact of solid waste handling, storage, transport and disposal is considered as **Low**, since the solid waste will be collected in suitable containers and managed by the construction contractors.					
	Duration	Temporary	**Short-term**	Medium-term	Long-term	Permanent
	Frequency	Temporary during the construction phase				
	TEMPORAL EFFECTS	Negligible	**Low**	Medium	High	
	The temporal impact of solid waste handling, transporting and disposal is considered as **Low**, since the generation of solid waste in construction phase is temporary and the solid waste will be transported and disposed of depending on the waste nature.					
IMPACT MAGNITUDE		Negligible	**Small**	Medium	Large	
		Waste will be stored onsite and transported to landfill by qualified third party companies. Considering the low level of spatial and temporal effects, the impact magnitude of solid waste is determined to be **Small.**				
RECEPTOR VULNERABILITY		**Low**	Medium	High		
		Receptor vulnerability is **Low**, as the construction waste does not contain hazardous material and will be disposed in landfill.				

IMPACT SIGNIFICANCE	Negligible	**Minor**	Moderate	Major

Recommended Mitigation Measures

Impacts are assessed of **Minor** significance. The following mitigation measures shall be applied to reduce the potential impacts of waste:

- Oversee the contractors' waste-management practices by regular inspection;
- Containers for construction waste shall be intact and prevent scattering of waste;
- Deliver awareness and management training to all personnel involved in waste management; Conduct ongoing housekeeping training for staff on litter prevention and proper waste handling.

Residual impact

With the additional mitigation measures outlined, the significance of residual impacts from construction waste is expected to be **Negligible**.

Waste Generation and Management (Operation Phase)

Embedded control

Based on a review of received information and onsite interview, the following Project-specific embedded measures for waste generated in the operation were identified:

- A dedicated waste storage facility will be constructed for waste storage. This facility will be partitioned into separate zones for domestic waste, non-hazardous waste and hazardous waste. Appropriate signage will be installed at the waste storage facility.
- Waste will be segregated, collected, stored and disposed of depending on the waste nature.
- Waste will be tracked and documented.
- Wastes will be transported by the qualified disposal vendors for landfill, reuse, incineration or disposal, depending on the waste nature.
- Domestic waste will be collected and transported to a landfill by a licensed service provider.
- Coking oil will be treated by onsite RTO.
- Non-hazardous waste will be collected and reused to the maximum extent practicable. Non-reusable waste will be sent to landfill by disposal vendors.
- The hazardous-waste storage areas will be equipped with containment pallets, diversion ditches and a sump.

Significance of impact

Impact		**Impact from Waste Generation, Collection, Transport and Disposal in Operation Phase**				
Impact Nature		**Negative**	Positive		Neutral	
IMPACT CHARACTER		Direct	**Indirect**		Induced	
	Type	Indirect impacts associated with improper handling, storage, transport and disposal or reuse of non-hazardous waste and hazardous waste may result in the contamination of the environment, leading to health impacts on receptors.				
	Extent	Site	**Local**	Regional	National	International

	Scale	**Small**	Medium	Large		
	SPATIAL EFFECTS	**Low**	Medium	High		
	The spatial impact of waste generated during operation phase is considered as **Low**, since the waste will be stored in the dedicated waste storage facility and disposed of site by qualified third party company. Coking oil will be treated by onsite RTO.					
	Duration	Temporary	Short-term	Medium-term	**Long-term**	Permanent
	Frequency	Constant through the operation phase				
	TEMPORAL EFFECTS	Negligible	**Low**	Medium	High	
	The temporary impact of hazardous waste handling, transportation, and disposal is regarded as **Low.** This is primarily because hazardous waste generation during the operation phase is infrequent and will be managed by a qualified third-party company for offsite transportation and disposal.					
IMPACT MAGNITUDE		Negligible	**Small**	Medium	Large	
		Classified as **Small** scale based on the above.				
RECEPTOR VULNERABILITY		**Low**	**Medium**	High		
		Receptor vulnerability is **Medium,** since hazardous waste contains hazardous substances which will impact the environment and human health by potential release and exposure.				
IMPACT SIGNIFICANCE		Negligible	**Minor**	Moderate	Major	

Additional Mitigation Measure

Impacts are assessed of **Minor** significance. The following mitigation measures shall be applied to reduce the potential impacts of waste:

- The available volume of ditches and the sump should be at least 110 percent of the largest storage container, or 25 percent of the total storage capacity (whichever is greater) in the hazardous waste storage area.
- Mark waste containers clearly with appropriate warning labels that accurately describe their contents and safety precautions. Ensure labels are waterproof, securely attached, and written in Chinese and Arabic for the workforce.
- Hazardous waste will be collected and disposed of by qualified companies. The qualification and capacity of disposal company should be verified before contracting.
- Sludge from the water/wastewater treatment facility should be collected regularly. This can be done manually using shovels and buckets or directly pumped out by a third party. Workers must be equipped with appropriate personal protective equipment (PPE), including gloves, masks, boots, and protective clothing, to minimise exposure to sludge during the collection process.
- Implement sludge dewatering techniques to reduce moisture content and thereby minimise the potential risk of leachate generation.
- Store the sludge in the closed containers to prevent the odour issues.
- Operating specifications for the RTO shall be developed to specify combustion temperature and residence time, ensuring that the hazardous properties of coking tar are eliminated.
- Introduce coking tar into the RTO only after the optimum temperature is reached in the RTO.

- Deliver awareness and management training to all personnel involved in waste management.

Residual impact

With the additional mitigation measures outlined, the significance of residual impacts from construction waste is expected to be **Negligible**.

7.2.4 GREENHOUSE GAS EMISSIONS

7.2.4.1 INTRODUCTION

The development and operation of the Project will result in greenhouse gas (GHG) emissions during both the construction and operational phases.

During the construction phase, GHG emissions may arise primarily from the combustion of diesel in construction machinery, heavy equipment and transport vehicles used for site preparation, civil works, building construction, equipment installation and material delivery. Additional indirect emissions are associated with temporary electricity consumption for site offices, lighting, welding, fabrication, water pumping, equipment installation and commissioning, and worker accommodation facilities, where applicable.

During the operational phase, GHG emissions will be generated from both direct and indirect sources. Direct emissions (Scope 1) will arise from LPG combustion and the thermal treatment of carbon-containing process materials. Pitch-derived bitumen fumes generated during pre-carbonisation and granulation are collected and directed to high-temperature treatment zones or the regenerative thermal oxidiser Regenerative Thermal Oxidiser (RTO), where their carbon content is oxidised to CO_2. In addition, tar carried into the production process with incoming needle coke is directed to the RTO for combustion. Process-related Scope 1 emissions also include the oxidation loss of calcined coke, and the oxidation loss of graphite crucibles. These process and thermal-treatment emissions are quantified separately from LPG combustion. Potential additional Scope 1 sources include diesel or gasoline consumed by onsite mobile equipment and vehicles, periodic testing or emergency operation of diesel generators, and fugitive refrigerant emissions from refrigeration and air-conditioning systems. These additional sources are quantified only where sufficiently reliable activity data are available.

Indirect energy-related emissions (Scope 2) arise from electricity purchased from the Moroccan national grid. Purchased electricity is expected to represent the principal source of operational GHG emissions due to the electricity-intensive nature of artificial graphite anode material production, particularly the graphitisation process and other electrically powered production and utility systems. Other indirect emissions (Scope 3) may arise from the production and transportation of raw materials and auxiliary materials, inbound and outbound logistics, construction-material production, off-site wastewater and waste treatment, and other upstream and downstream activities. These emissions are not under the Project's direct operational control and are quantified only where sufficiently reliable data are available.

An alternative Scope 2 scenario, presented as "Scope 2*", has also been assessed based on the anticipated electricity supply mix provided by the Client. Under this scenario, 90% of the Project's annual electricity consumption is assumed to be supplied by green electricity, 2% by photovoltaic electricity, and the remaining 8% by the Moroccan national grid. The Scope 2* emissions are calculated by applying the relevant emission factors to the green electricity and residual grid-electricity components.

The objective of this assessment is to identify the Project's main GHG emission sources, define the quantification methodology and accounting boundary, estimate emissions based on available Project information, assess the significance of quantified emissions, and identify technically and financially feasible measures to reduce the Project's gross emissions and GHG intensity.

7.2.4.2 SCOPE OF ASSESSMENT

The GHG assessment has been undertaken in accordance with the applicable requirements of AIIB ESF ESS1, EP4 and IFC PS3. The organisational and operational boundaries have been established with reference to the GHG Protocol Corporate Accounting and Reporting Standard and the GHG Protocol for Project Accounting developed jointly by the World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI).

The assessment covers GHG emissions associated with the construction and operational phases of the Project. The quantitative assessment focuses on material Scope 1 and Scope 2 emission sources for which sufficiently reliable activity data and emission factors are available. Relevant Scope 3 sources are identified and screened qualitatively and may be quantified in future assessments when sufficiently reliable data become available.

For the purpose of this project-level assessment, fuel combustion by construction contractors within the Project boundary is reported as construction-phase direct emissions. This project-level classification does not necessarily represent the classification that would apply in BTR Anode's corporate GHG inventory.

The assessment presents construction-phase emissions over the full construction period and operational emissions for one representative year at the planned production capacity. Operational emissions are presented on an annual basis because production levels, facility performance, electricity procurement arrangements and the carbon intensity of Morocco's electricity supply may change over the Project's operational life.

7.2.4.3 METHODOLOGY FOR QUANTIFICATION OF GHG EMISSIONS

The Project's GHG emissions have been estimated by combining measured or estimated activity data with appropriate emission factors reflecting the carbon content or energy intensity of each source. The general calculation method follows the standard activity data approach, as illustrated in the following equation:

$$\boldsymbol{GHG\ Emission\ (tCO_2e)\ = \sum [Activity\ Data \times Emission\ Factor_i \times GWP_i]}$$

Where:

- Activity Data represents the measurable quantity associated with an emission source, such as tonnes or litres of fuel consumed, kWh or MWh of electricity purchased, quantities of refrigerant lost, or tonnes of material processed.
- Emission Factors (EF_i) correspond to the emissions per unit of activity, such as tCO_2 per MWh of electricity, per tonne of fuel, or per unit of material processed.
- Global Warming Potential (GWP_i) represents the cumulative radiative forcing effect of greenhouse gas i relative to CO_2 over a 100-year time horizon and is used to convert emissions of individual greenhouse gases into carbon dioxide equivalent (CO_2e). Where an emission factor is already expressed in CO_2e per unit of activity, no additional GWP conversion is applied.

Given the nature of the Project as an artificial graphite anode material manufacturing facility, the quantification approach focuses on fuel combustion, purchased electricity consumption, and process-related emissions associated with the thermal oxidation or combustion of carbon-containing materials. Where Project-specific activity data are available, emissions are calculated using the reported or estimated activity data and the applicable emission factors.

Where Project-specific emission factors are unavailable, appropriate national or internationally recognised default factors or literature-based proxy values are applied.

A hierarchical data-selection approach has been adopted. Project-specific activity data and supplier-specific emission factors are prioritised where available and sufficiently reliable. Where these are unavailable, national or grid-specific factors are used, followed by internationally recognised default factors. Relevant Scope 3 emission sources are screened qualitatively and quantified only where sufficiently reliable activity data and emission factors are available.

The Project is not expected to involve material sources of biogenic emissions, landfill gas recovery, waste-to-energy activities or electricity exports that would generate avoided-emission claims. No avoided-emission credits have therefore been applied, and the assessment reports the Project's gross quantified emissions.

To reflect the principal emission mechanisms associated with the Project, the following quantification methodologies have been applied:

- Fuel Combustion Approach: Direct emissions from the combustion of LPG, diesel and other fossil fuels are quantified based on fuel consumption, net calorific value, carbon oxidation factor, and relevant CO_2, CH_4 and N_2O emission factors. Diesel used by construction machinery and vehicles is calculated using the applicable mobile combustion emission factors, while LPG used in production-related thermal processes (i.e. pre-carbonisation and RTO process) and supporting systems is calculated using the applicable stationary combustion emission factors.

  Tar carried into the production process with incoming needle coke and subsequently directed to the RTO for combustion is quantified as a separate Scope 1 source. The associated CO_2, CH_4 and N_2O emissions are estimated using the annual quantity of tar treated, the applicable net calorific value, carbon oxidation factor and fuel-combustion emission factors. This tar stream is separate from the pitch-derived bitumen fumes generated during granulation and pre-carbonisation.
- Bitumen-Fume Thermal-Oxidation Approach: Pitch-derived bitumen fumes generated during pre-carbonisation and granulation are collected and directed to high-temperature treatment zones or the RTO. The associated CO_2 emissions are quantified using the estimated mass of bitumen fumes generated, the applicable thermal-oxidation efficiency, and the assumed carbon content of the fumes, as follows:

  CO_2 emissions = Bitumen fumes generated × Oxidation efficiency × Carbon content × 44/12
- Carbonaceous-Material Oxidation-Loss Approach: In addition to emissions from fuel combustion and the thermal treatment of carbon-containing fumes, the Scope 1 assessment includes process-related CO_2 emissions arising from the oxidation loss of calcined coke and graphite crucibles during high-temperature treatment. These sources have been quantified based on estimated annual material consumption, carbon content, oxidation or mass-loss assumptions, and the stoichiometric conversion of oxidised carbon to CO_2.
- Purchased Electricity Approach: Scope 2 emissions are quantified by multiplying purchased electricity consumption by the applicable Morocco grid emission factor or, where supported by appropriate contractual and technical evidence, a supplier-specific emission factor. Total electricity consumption is used for the current assessment, with process-level electricity data applied where available.

- Process and Thermal-Treatment Emissions Screening: Potential process-related emissions from thermal drying, pre-carbonisation, carbonisation, graphitisation, TO/RTO operation, tar incineration and other off-gas treatment systems are screened to determine whether material emissions occur independently of purchased energy and fuel combustion. Where material and supported by sufficient data, such emissions should be quantified using carbon content, process mass balance, waste-gas flow and concentration data, destruction efficiency, stack-monitoring data or other appropriate operating information.
- Energy and GHG Intensity Assessment: Energy and GHG intensity indicators, including kWh per tonne of finished product and tCO_2e per tonne of finished product, are calculated or developed where reliable production data are available. These indicators support performance monitoring over time but do not replace the calculation of absolute gross emissions.
- Scope 3 Screening Approach: Relevant upstream and downstream sources are screened qualitatively and quantified where reliable data are available. Potential sources include the production and transportation of raw coke, calcined coke, pitch and auxiliary materials; construction-material production and transport; outbound transportation of finished products; off-site waste treatment and disposal; and other third-party logistics. Where reliable data are unavailable, these sources are identified as data gaps rather than quantified using unsupported assumptions.

7.2.4.4 SCOPE OF QUANTIFICATION

The assessment scope is defined according to the GHG Protocol, which categorises emissions within three system boundaries, described as Scope 1, Scope 2 and Scope 3:

- Scope 1 describes 'direct' greenhouse gas emissions from sources that are owned by or under the direct control of the reporting entity.
- Scope 2 describes 'indirect' greenhouse gas emissions associated with the Project but
- occurring at sources owned or controlled by another organisation and therefore not under the direct control of the reporting entity.
- Scope 3 describes wider greenhouse gas emissions occurring upstream and downstream of the reporting entity and typically associated with the 'life cycle' of its product. Scope 3 emissions are not under the direct control of the reporting entity.

The Project is an integrated anode material manufacturing facility. In defining the GHG accounting boundary, the assessment focuses on emission sources within the Project's operational control, in accordance with the GHG Protocol. The primary controllable emission sources include fuel combustion for thermal processes and supporting utilities, thermal oxidation or combustion of carbon-containing process materials, purchased electricity consumption, and onsite activities directly managed by the Project.

Certain upstream and downstream activities may generate Scope 3 emissions, including the production and transportation of raw materials and auxiliary materials, construction-material supply, outbound transportation of finished anode materials, and off-site treatment, recycling or disposal of waste and by-products. These activities are undertaken by suppliers, logistics providers, waste-management contractors or other third parties and are outside the Project's direct operational control.

In addition, at the ESIA stage, key parameters associated with these activities, including supplier locations, transportation distances, transport modes, routing, vehicle fuel efficiency, waste-treatment routes and supplier-specific emission factors, remain subject to uncertainty. This limits the robustness of quantitative estimation for Scope 3 emissions.

Potential emissions from emergency generators, onsite mobile equipment during operation and refrigerant leakage have not been quantified due to insufficient design and operating data. These sources should be reviewed following detailed design and commissioning and incorporated into the operational GHG inventory where material.

Accordingly, the quantitative assessment focuses on Scope 1 and Scope 2 emissions, which represent the primary and most controllable sources of GHG emissions associated with the Project, which include:

TABLE 7-26 GHG QUANTIFICATION BOUNDARY

Phase	Scope 1 Emissions	Scope 2 Emissions
Construction Phase	Diesel combustion by construction machinery and vehicles within the Project construction boundary	Temporary electricity consumption during construction
Operation Phase	LPG combustion during Project operation; thermal oxidation of pitch-derived bitumen fumes generated during pre-carbonisation and granulation; combustion of tar carried into the process with incoming needle coke and treated in the RTO; oxidation loss of calcined coke during high-temperature processing; and oxidation loss of graphite crucibles during graphitisation.	Purchased electricity consumption for production processes and supporting utility systems

7.2.4.5 DATA SOURCES

Activity data used in the assessment have been derived from the Project feasibility study, current design documentation, regulatory EIA, engineering specifications, material and energy estimates, construction schedule, and information provided by BTR Anode and its engineering representatives.

Emission factors used to convert activity data into GHG emissions have been obtained from Project-specific or supplier-specific information where available. Where such information is unavailable, Morocco-specific factors and recognised international sources, including the Harmonized IFI Default Grid Factors and IPCC Guidelines, have been used. A literature-based proxy has been applied to estimate the carbon content of pitch-derived bitumen fumes because Project-specific elemental analysis of the volatilised fraction is not currently available.

TABLE 7-27 PROJECT ACTIVITY DATA BY EMISSION SOURCE DURING CONSTRUCTION AND OPERATION

Phase	Scope 1 Emissions	Scope 2 Emissions

Construction Phase	The estimated total diesel consumption for construction machinery, equipment and vehicles is 570 tonnes over the 20-month construction period, comprising 150 tonnes, 220 tonnes and 200 tonnes reported for the relevant construction packages or contractors.	The estimated total electricity consumption during construction is 2,098.20 MWh over the 20-month construction period. This comprises 1,600 MWh based on an estimated consumption of 80 MWh/month, together with additional estimated consumption of 206.67 MWh and 291.53 MWh for the relevant construction contractors.
Operation Phase	The estimated LPG consumption for thermal processes and supporting systems is 2,256 tonnes/year, based on 188 tonnes/month; Pitch-derived bitumen fumes generated during pre-carbonisation and granulation and directed to high-temperature treatment zones or the RTO are estimated at 2,641.36 tonnes/year. In addition, approximately 100 tonnes/year of tar carried into the process with incoming needle coke is treated by the RTO; Annual calcined coke consumption is estimated at 90,000 tonnes/year. Annual graphite crucible consumption is estimated at 10,800 tonnes/year, based on an individual crucible mass of 180 kg and the annual purchase of 60,000 crucibles. The estimated annual fugitive refrigerant releases is currently unavailable.	The estimated electricity consumption for production processes and utilities is 811.2 GWh/year.

GWP values are taken from the IPCC Sixth Assessment Report (AR6), ensuring consistent conversion of individual greenhouse gases, such as CO_2, CH_4, and N_2O, into CO_2 equivalent (CO_2e).

TABLE 7-28 GLOBAL WARMING POTENTIALS

Industrial Designation or Common Name	Chemical Formula	Global Warming Potential for 100 years' Time Horizon from IPCC Sixth Assessment Report (AR6)[89]
Carbon dioxide	CO_2	1
Methane – non-fossil	CH_4	27.0
Methane – fossil	CH_4	29.8
Nitrous oxide	N_2O	273

The Project is currently under construction and certain detailed design and operating data are not yet available. Assumptions have therefore been applied where necessary and should be reviewed and updated during detailed design, commissioning and operation.

TABLE 7-29 ASSUMPTIONS

Item	Assumption	Source
Net calorific value of diesel (TJ/1,000 tonnes)	Client-provided assumption (withheld from public disclosure)	Provided by the Client
Effective CO_2 emission factor for diesel combustion (kg CO_2/TJ)	74,100	2006 IPCC Guidelines for National Greenhouse Gas Inventories[90]
Effective CH_4 emission factor for diesel combustion (kg CH_4/TJ)	1.6	2006 IPCC Guidelines for National Greenhouse Gas Inventories[91]
Effective N_2O emission factor for diesel combustion (kg N_2O/TJ)	1.3	2006 IPCC Guidelines for National Greenhouse Gas Inventories[92]
Carbon oxidation factor of diesel and gasoline	1	2006 IPCC Guidelines for National Greenhouse Gas Inventories[93]
Net calorific value of LPG (TJ/1,000 tonnes)	47.3	2006 IPCC Guidelines for National Greenhouse Gas Inventories[94]

[89] https://ghgprotocol.org/sites/default/files/2024-08/Global-Warming-Potential-Values%20%28August%202024%29.pdf
[90] ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_3_Ch3_Mobile_Combustion.pdf
[91] ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_3_Ch3_Mobile_Combustion.pdf
[92] ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_3_Ch3_Mobile_Combustion.pdf
[93] https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf
[94] https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf

Effective CO_2 emission factor for LPG combustion (kg CO_2/TJ)	63,100	2006 IPCC Guidelines for National Greenhouse Gas Inventories[95]
Effective CH_4 emission factor for LPG combustion (kg CH_4/TJ)	1	2006 IPCC Guidelines for National Greenhouse Gas Inventories[96]
Effective N_2O emission factor for LPG combustion (kg N_2O/TJ)	0.1	2006 IPCC Guidelines for National Greenhouse Gas Inventories[97]
Carbon oxidation factor of LPG	1	2006 IPCC Guidelines for National Greenhouse Gas Inventories[98]
Net calorific value of tar	28.0 TJ/1,000 tonnes	2006 IPCC Guidelines for National Greenhouse Gas Inventories[99]
Effective CO_2 emission factor for tar combustion	80,700 kg CO_2/TJ	2006 IPCC Guidelines for
Effective CH_4 emission factor for tar combustion	10 kg CH_4/TJ	National Greenhouse Gas Inventories[100]
Effective N_2O emission factor for tar combustion	1.5 kg N_2O/TJ	2006 IPCC Guidelines for
Carbon oxidation factor of tar	1	2006 IPCC Guidelines for National Greenhouse Gas Inventories[101]
Thermal-oxidation efficiency for pitch-derived bitumen fumes	Client-provided assumption (withheld from public disclosure)	Provided by the Client
Carbon content of pitch-derived bitumen fumes	84% by mass	Literature-based midpoint proxy derived from the typical bitumen carbon-content range of 80% to 88%[102]
Carbon content (wt%)	99%	Conservative assumption

[95] https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf
[96] https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf
[97] https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf
[98] https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf
[99] https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf
[100] https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf
[101] https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf
[102] A Comprehensive Technical Guide to the Chemical Composition and Molecular Structure of Bitumen. Please note that the composition of the Project pitch and its volatilised fraction may differ from the referenced material. The assumption should therefore be replaced with Project-specific elemental analysis when such data become available

Note: Certain client-provided assumptions have been withheld from the public-disclosure version for commercial confidentiality reasons.

Carbon oxidation factor	1	Conservative assumption
Mass per graphite crucible	Client-provided assumption (withheld from public disclosure)	Provided by the Client
Annual number of graphite crucibles purchased	Client-provided assumption (withheld from public disclosure)	Provided by the Client
Average number of uses per graphite crucible	Client-provided assumption (withheld from public disclosure)	Provided by the Client
Reference graphite crucible mass-loss rate	1.78% per use	Literature reference cited in the GHG calculation workbook[103]
Proportion of calculated graphite crucible mass loss assumed to be oxidised	100%	Conservative assumption
Carbon content of graphite crucibles	99.9% by mass	Conservative assumption
Carbon oxidation factor for graphite crucibles	1	Conservative assumption
Annual net oxidation loss rate (%)	Client-provided assumption (withheld from public disclosure)	Provided by the client
National grid emission factor	0.547 $kgCO_2/kWh$	Harmonized IFI Default Grid Factors 2021 v3.2[104]

7.2.4.6 SUMMARY OF BASELINE CONDITIONS

The baseline GHG emission profile for Morocco is based on national data reported under the UNFCCC. The primary reference is Morocco's NDC 3.0, submitted by the Government of Morocco on 30 September 2025. According to NDC 3.0, Morocco's reference year is 2010, for which total national GHG emissions were reported as 76.28 $MtCO_2e$. The reference-year emissions were derived from Morocco's national GHG inventory presented in the NIR and the combined Fifth National Communication and First Biennial Transparency Report, submitted to the UNFCCC in December 2024. [105]

[103] Material and Heat Balance Analysis of an Acheson Crucible Graphitisation Furnace for Lithium-Ion Battery Anode Materials
[104] Harmonized_IFI_Default_Grid_Factors_2021_v3.2_0.xlsx
[105] Morocco Third NDC.pdf

7.2.4.7 ASSESSMENT OF PROJECT EMISSIONS

This section presents the results of the GHG assessment undertaken using the methodology and assessment boundaries described above. The assessment covers the approximately 20-month construction period and one representative year of operation at the planned production capacity.

The anticipated operational life of the Project is 30 years. However, operational emissions are presented on an annual basis rather than as cumulative 30-year emissions because future production levels, grid carbon intensity, electricity procurement arrangements, energy efficiency and facility performance may change over the Project life.

The results represent the Scope 1 and Scope 2 emission sources quantified based on activity data currently available. Sources identified but not quantified due to insufficient information should be reviewed and incorporated into future inventories, where material.

7.2.4.8 IMPACTS DURING CONSTRUCTION PHASE

During the construction phase, the principal quantified sources of GHG emissions are diesel combustion by construction machinery and vehicles and purchased electricity consumption. The construction period is expected to be approximately 20 months.

The total quantified GHG emissions during construction are estimated at 3,097.31 tCO_2e over the 20-month construction period, equivalent to approximately 1,821.95 tCO_2e/year when annualised.

Construction-phase emissions are temporary and substantially lower than annual operational emissions. Nevertheless, appropriate fuel-efficiency, vehicle-management and temporary electricity-management measures should be implemented through the construction environmental and social management arrangements.

TABLE 7-30 EMISSIONS BREAKDOWN BY SCOPE AND ACTIVITY DURING CONSTRUCTION

Emission Scope	Quantified Emission Source	Total Emission during Construction (20 months) (tCO_2e)
Scope 1	Diesel combustion by construction machinery, equipment and vehicles operating within the Project construction boundary	1,813.21
Scope 2	Purchased electricity consumed for construction activities and temporary construction facilities	1,284.10
Total quantified Scope 1 and Scope 2 emissions during construction		**3,097.31**

7.2.4.9 IMPACTS DURING OPERATION PHASE

During the operational phase, quantified GHG emissions are primarily associated with purchased electricity, LPG combustion, thermal oxidation of pitch-derived bitumen fumes, combustion of tar carried into the process with incoming needle coke, oxidation loss of calcined coke, and oxidation loss of graphite crucibles. Scope 1 emissions quantified in the current

assessment comprise emissions from LPG combustion, thermal oxidation of pitch-derived bitumen fumes generated during pre-carbonisation and granulation, and combustion of tar in the RTO. Scope 2 emissions arise from grid electricity consumed by production processes and supporting utility systems, particularly graphitisation and other electrically powered systems.

Calcined coke is a principal carbon-containing raw material used in the production process. During high-temperature processing, a proportion of the carbon contained in the calcined coke may be oxidised and released as CO_2. For the purpose of this assessment, the associated process emissions have been estimated using annual calcined coke consumption and assumptions regarding carbon content, net oxidation loss and carbon oxidation. Emissions from calcined coke oxidation loss are estimated at 3,267.00 tCO_2e/year and are reported as Scope 1 process emissions. The estimate should be reviewed using Project-specific material specifications and operating mass-balance data when available.

Graphite crucibles are used during the graphitisation process and may undergo progressive mass loss over repeated use. A proportion of this mass loss may be attributable to oxidation of the carbon contained in the crucibles, resulting in direct CO_2 emissions. The associated emissions have been estimated using crucible consumption and assumptions regarding average service life, mass loss, carbon content and the proportion of mass loss oxidised. Emissions from graphite crucible oxidation loss are estimated at 3,071.53 tCO_2e/year and are reported as Scope 1 process emissions. As the estimate conservatively assumes that all calculated mass loss is oxidised, it should be reviewed using Project-specific operating data following commissioning.

Based on the available activity data, the Project's total quantified operational GHG emissions are estimated at 517,813.94 tCO_2e/year, comprising 21,359.54 tCO_2e/year of Scope 1 emissions and 496,454.40 tCO_2e/year of Scope 2 emissions.

Purchased electricity accounts for approximately 95.9% of the quantified operational emissions and therefore remains the dominant source of operational GHG emissions. Thermal oxidation of pitch-derived bitumen fumes accounts for approximately 1.6%, LPG combustion for approximately 1.3%, calcined coke oxidation loss for approximately 0.6%, graphite crucible oxidation loss for approximately 0.6%, and tar treatment for approximately 0.04%.

The estimated GHG intensity is a design-stage indicator based on planned production capacity, estimated energy consumption, bitumen-fume generation rates, tar treatment quantities and assumed operating conditions. The estimate should be updated using actual production, fuel consumption, electricity consumption, material-treatment and process data following commissioning and during operation.

Potential emissions from emergency diesel generators, onsite mobile equipment and refrigerant leakage have not been included in the quantified total because sufficient activity data are not currently available. These sources should be assessed following completion of detailed design and commissioning and quantified where material.

TABLE 7-31 EMISSIONS BREAKDOWN BY SCOPE AND ACTIVITY DURING OPERATION

Emission Scopes	Quantified Emission Source	Emission /year (tCO_2e/year)

Scope 1	CO_2, CH_4 and N_2O emissions from LPG combustion during Project operation	6,739.12
	CO_2 emissions from thermal oxidation of pitch-derived bitumen fumes generated during pre-carbonisation and granulation	8,054.03
	CO_2, CH_4 and N_2O emissions from combustion of tar carried into the process with incoming needle coke and treated in the RTO	227.86
	CO_2 emissions from oxidation loss of calcined coke during high-temperature processing	3,267.00
	CO_2 emissions from oxidation loss of graphite crucibles during graphitisation	3,071.53
Total quantified Scope 1 emissions during operation		21,359.54
Scope 2	Purchased electricity consumed by production processes and supporting utility systems	496,454.40
Total quantified Scope 2 emissions during operation		496,454.40
Total quantified Scope 1 and Scope 2 emissions during operation		**517,813.94**
Scope 2*	Alternative purchased electricity consumed by production processes and supporting utility systems	**65,269.15**
Total quantified Scope 2 emissions during operation		**86,628.70**
Total quantified Scope 1 and Scope 2 emissions during operation		**86,628.70**

Note: Scope 2* represents an alternative electricity-supply scenario based on 90% green electricity, 2% photovoltaic electricity and 8% electricity supplied by the Moroccan national grid.

7.2.4.10 SIGNIFICANCE OF PROJECT GHG EMISSIONS AND NATIONAL CONTEXT

Morocco's NDC 3.0 identifies 2010 as the reference year, for which total national GHG emissions were reported as 76.28 $MtCO_2e$. The reference-year emissions were derived from Morocco's national GHG inventory presented in the NIR and the combined Fifth National Communication and First Biennial Transparency Report submitted to the UNFCCC in December 2024. NDC 3.0 uses a BAU scenario extending to 2035 as the reference scenario for setting the national mitigation target. However, as the projected national emissions under the 2035 BAU

scenario are not explicitly stated as a numerical total in the NDC text, no comparison has been made between the Project's emissions and the projected 2035 BAU emissions.

The Project's quantified construction-phase GHG emissions are estimated at approximately 3.10 $ktCO_2e$ over the 20-month construction period, equivalent to approximately 1.82 $ktCO_2e$/year when annualised. The Project's quantified operational emissions are estimated at approximately 517.81 $ktCO_2e$/year, comprising approximately 21.36 $ktCO_2e$/year of Scope 1 emissions from LPG combustion and approximately 496.45 $ktCO_2e$/year of Scope 2 emissions from purchased electricity.

For an indicative comparison of scale, the Project's annual quantified operational emissions are equivalent to approximately 0.68% of Morocco's total national GHG emissions in the 2010 reference year. This comparison is indicative only, as the Project's emissions represent an annual facility-level estimate at planned production capacity, whereas the national figure represents economy-wide emissions in the 2010 reference year. The comparison is intended solely to provide context regarding the scale of the Project's emissions and does not represent a like-for-like comparison or an allocation of Morocco's national carbon budget.

Under the national-grid electricity scenario, purchased electricity accounts for approximately 95.9% of the Project's quantified operational emissions and is therefore the dominant source in the Project's operational GHG profile. This reflects the electricity-intensive nature of artificial graphite anode material production, particularly the graphitisation process. The Project's future Scope 2 emissions will consequently be influenced by its electricity consumption, the carbon intensity of Morocco's electricity supply, and the extent to which the anticipated green-electricity and photovoltaic supply arrangements are implemented. As indicated by the alternative Scope 2 scenario, changes in the Project's electricity supply mix could substantially reduce its quantified operational GHG emissions.

The estimated operational emissions substantially exceed the annual GHG quantification threshold of 25,000 tCO_2e/year under IFC PS3. The Project should therefore quantify Scope 1 and Scope 2 emissions annually during operation using actual fuel, electricity, refrigerant, process and production data and appropriate, updated emission factors.

No avoided-emission credits have been applied. The reported results represent gross quantified Scope 1 and Scope 2 emissions and do not account for potential future reductions resulting from process optimisation, onsite renewable energy generation, credible lower-carbon electricity procurement or changes in the Moroccan grid emission factor.

Given the scale of the quantified operational emissions and the dominance of purchased electricity, the Project should prioritise technically and financially feasible measures to improve energy efficiency, reduce electricity consumption per tonne of product, and reduce the carbon intensity of its electricity supply. Measures to improve LPG combustion efficiency and manage other material Scope 1 emission sources should also be implemented where applicable.

7.2.4.11 MITIGATION OF GREENHOUSE GAS EMISSIONS

The carbon profile of the Project is characterised by the electricity-intensive nature of artificial graphite anode material production, particularly the graphitisation process, and by the use of LPG for selected thermal processes and supporting systems. The GHG mitigation approach therefore focuses on reducing gross Scope 1 and Scope 2 emissions through physical, operational and management measures throughout the Project lifecycle.

Priority should be given to avoiding and reducing energy consumption at source. Lower-carbon electricity procurement and onsite renewable energy should be considered in parallel but should not replace measures to improve the inherent energy efficiency of production and utility systems.

Proposed Construction Phase Mitigation Measures

To minimise temporary construction-phase GHG emissions, the Project should implement the following measures through the C-ESMP and applicable contractor-management procedures:

- The Construction Traffic Management Plan (CTMP) should promote consolidated deliveries, optimised transportation routes and coordinated delivery of major equipment, construction materials and prefabricated components to reduce unnecessary vehicle movements and kilometres travelled. Lower-emission transportation options should be considered for long-distance haulage where practicable, taking into account infrastructure availability, port access, supplier locations, technical feasibility and construction schedule requirements.
- Construction machinery and vehicles should be appropriately selected, sized, operated and maintained to improve fuel efficiency. Measures should include preventive maintenance, driver and operator training, efficient equipment scheduling, and enforcement of a no-idling policy.
- Temporary diesel generators should be avoided where reliable grid electricity is available. Where generators are required, they should be appropriately sized for anticipated demand and operated within an efficient load range.
- Electricity consumption in site offices, temporary facilities and worker accommodation should be reduced through energy-efficient lighting and equipment, appropriate operational controls and energy-saving awareness among construction personnel.
- Locally available construction materials and suppliers should be considered where technically, commercially and environmentally appropriate and where they meet the Project’s quality and E&S requirements.
- Energy-efficiency, fuel-management and no-idling requirements should be incorporated into contractor procedures, personnel training, site inspections and contractor performance monitoring.
- Actual fuel and electricity consumption during construction should be recorded and reviewed to support the verification and updating of the construction-phase GHG inventory.

Operation Phase Mitigation Measures

During operation, priority should be given to measures addressing purchased electricity because it represents approximately 95.9% of the currently quantified operational emissions. The following measures should be incorporated into detailed design, commissioning and operational management where technically and financially feasible:

- The design and operation of graphitisation furnaces, transformers, power-supply systems and other major electricity-consuming equipment should be optimised to reduce electricity consumption per tonne of finished product.
- Graphitisation operating parameters should be optimised, including batch loading, heating profiles, furnace insulation, heat retention, production scheduling and cooling arrangements.

- Energy-efficient motors, variable-frequency drives and automated controls should be used for grinding, mixing, conveying, screening, weighing, pneumatic transport, demagnetizing, packaging and other electrically powered production systems.
- Auxiliary systems, including compressed air, nitrogen generation, circulating water, ventilation, dust collection and wastewater treatment, should be optimised through efficient equipment selection, pressure and flow control, leak detection and repair, pump and fan optimisation, and preventive maintenance.
- The efficiency of LPG-consuming equipment should be optimised through appropriate equipment selection, burner maintenance, air-to-fuel ratio control, combustion monitoring, insulation and preventive maintenance. The specific LPG-consuming processes and equipment should be confirmed during detailed design and commissioning.
- Opportunities to recover and reuse waste heat from furnaces, thermal-treatment equipment and other high-temperature systems should be evaluated where technically and financially feasible.
- Energy sub-metering should be installed for major production areas and utility systems, including graphitisation, pre-carbonisation, carbonisation, compressed air, nitrogen generation, circulating water, wastewater treatment, dust collection and ventilation systems. The applicability of sub-metering to each area should be confirmed based on the final equipment configuration and energy supply arrangements.
- Metered energy-consumption data should be reviewed routinely to identify abnormal consumption, equipment-performance deterioration and opportunities for corrective action and continuous improvement.
- The Project should evaluate credible lower-carbon electricity options, including supplier-specific low-carbon electricity arrangements, renewable electricity procurement and power purchase agreements, subject to availability, technical and commercial feasibility, traceability, and applicable GHG accounting requirements.
- The technical and commercial feasibility of onsite renewable energy generation, including rooftop solar photovoltaic systems, should be assessed for suitable buildings and other available areas. Onsite renewable electricity should be prioritised for self-consumption.
- An operational energy and GHG management programme should be established. The programme should define responsibilities, monitoring parameters, performance indicators, reporting frequency, performance-review arrangements, corrective actions and continuous-improvement measures.
- Preventive maintenance should be implemented for major energy-consuming equipment, including graphitisation furnaces, transformers, motors, pumps, fans, compressed-air systems, nitrogen-generation systems, LPG-consuming equipment and environmental-control systems, to maintain operational efficiency and avoid unnecessary energy consumption.
- Material Scope 1 and Scope 2 emissions should be quantified and reported annually using actual fuel and electricity consumption, relevant process and refrigerant data, actual production data, and updated emission factors.
- Potential Scope 1 sources not quantified in the current assessment, including refrigerant leakage, emergency generator operation, fuel consumption by onsite mobile equipment, and potential emissions associated with the treatment or oxidation of process-derived

gases or residues, should be reviewed following commissioning and incorporated into the operational GHG inventory where material.

- Energy and GHG performance indicators should include, as applicable, total electricity consumption, total LPG consumption, electricity consumption per tonne of finished product, LPG consumption per tonne of finished product, Scope 1 emissions, Scope 2 emissions, and GHG emissions per tonne of finished product.
- GHG and energy-performance targets should be established using representative operating data following production stabilisation. Performance against these targets should be reviewed periodically, and corrective or improvement measures should be implemented where significant deviations or feasible improvement opportunities are identified.

7.3 SOCIAL IMPACTS AND MITIGATION MEASURES

This section assesses the social impacts of the Project and proposes mitigation measures commensurate with the impacts identified. As the majority of associated facilities for the Project are located within the IAZ in proximity to the Project site and relatively far away from the closest residential areas, no significant additional social impacts are expected from this component. However, the temporary underground transmission line that will be built partially outside the IAZ is expected to lead to additional occupational health and safety risks as well as potential land use, livelihood and H&S impacts for communities, which are assessed in this Social Impact Assessment (SIA).

7.3.1 COMMUNITY COHESION AND SOCIAL STRUCTURE

7.3.1.1 OVERVIEW

The impact on community cohesion and social structure is based mainly on the assessments of impacts that population influx would bring, accompanied by marketization, commodification as the local society might go through increasing integration of local life and resources into market-oriented operations and transformation into goods or services for exchange, as well as ethnic tensions to the local society. Construction and operation phases are expected to lead to different scales of labour influx, which may bring tensions over the employment opportunities and natural resources between the local citizens and in-migrants. Besides, given the in-migrant population would be male dominated, the potential increase in GBV and changes to local gender relations and gender structure should also be considered. It is worth noting that marketization of the local community would also bring unexpected results to the previous social stratification and classification, which may change the social structure and impact community cohesion.

7.3.1.2 IMPACTS FROM LABOUR INFLUX DURING CONSTRUCTION AND OPERATION

Potential Impacts

The presence of the Project workforce, as well as the influx of Project-associated labour – such as people seeking opportunities in small businesses, suppliers, and other Project-related services – are likely to incur impacts on the socio-economic conditions of the Project AoI. These impacts could manifest in the following ways:

- Changes to community composition. Communities may become more heterogeneous in terms of dominant socio-economic groups, prevailing cultural customs, gender ratio, age structure, religious beliefs, linguistic diversity, economic practices, etc.
- There may be potential inter-group and intra-group disputes and conflicts arising among local residents and in-migrant workers, stemming from the allocation of limited working opportunities. Within the communities, employment and related economic opportunities may not be evenly distributed, triggering potential welfare imbalances and income inequality. This change might be more detrimental for the groups who suffer economic vulnerability by augmenting gaps in existing social stratification.
- Labour influx, if not managed properly, can lead to increased occurrence and practice of social vices. Increased criminality, conflict, and violence may also present additional social challenges for both local communities and the Project.

- Tensions could arise between the Project and local resident regarding the potential competing usage of infrastructure and services, particularly around water, electricity, waste processing, housing availability, and road traffic/access. Impacts on utilities and local resources as assessed in ***Section 7***.
- Differences in culture, religion, languages, and customs may result in misunderstanding and conflict between incoming workers and the local community. This may be applicable to a certain degree for economic migrants from elsewhere in Morocco, but will be especially salient for foreign (mainly Chinese) workers, who will likely possess major differences in all of the aforementioned facets.
- The Project could also negatively affect gender relations between workers and local communities and increase gender-based violence (GBV) risks, considering incoming workers, large predominately male workforce, remote locations, etc. The presence of a male-dominated construction workforce of the Project may bring range of unacceptable and/or illegal behaviour by some workers from outside the area, such as theft, physical assault, drug abuse or GBV. A more detailed assessment of impacts on gender relations – including GBV risks – is assessed in ***Section 6.4 of HRIA***.
- An influx of labour can also lead to changes in the local economic conditions in the affected communities, which can include increased opportunities for small businesses, demand for rental accommodation, increased marketization, and price inflation, etc. The impact on local employment and economy is assessed in further detail in ***Section 7.3.5***.

Due to the different nature of the Project's manpower plans during the construction and operation phases, this impact will be assessed separately for these two phases.

Construction Phase

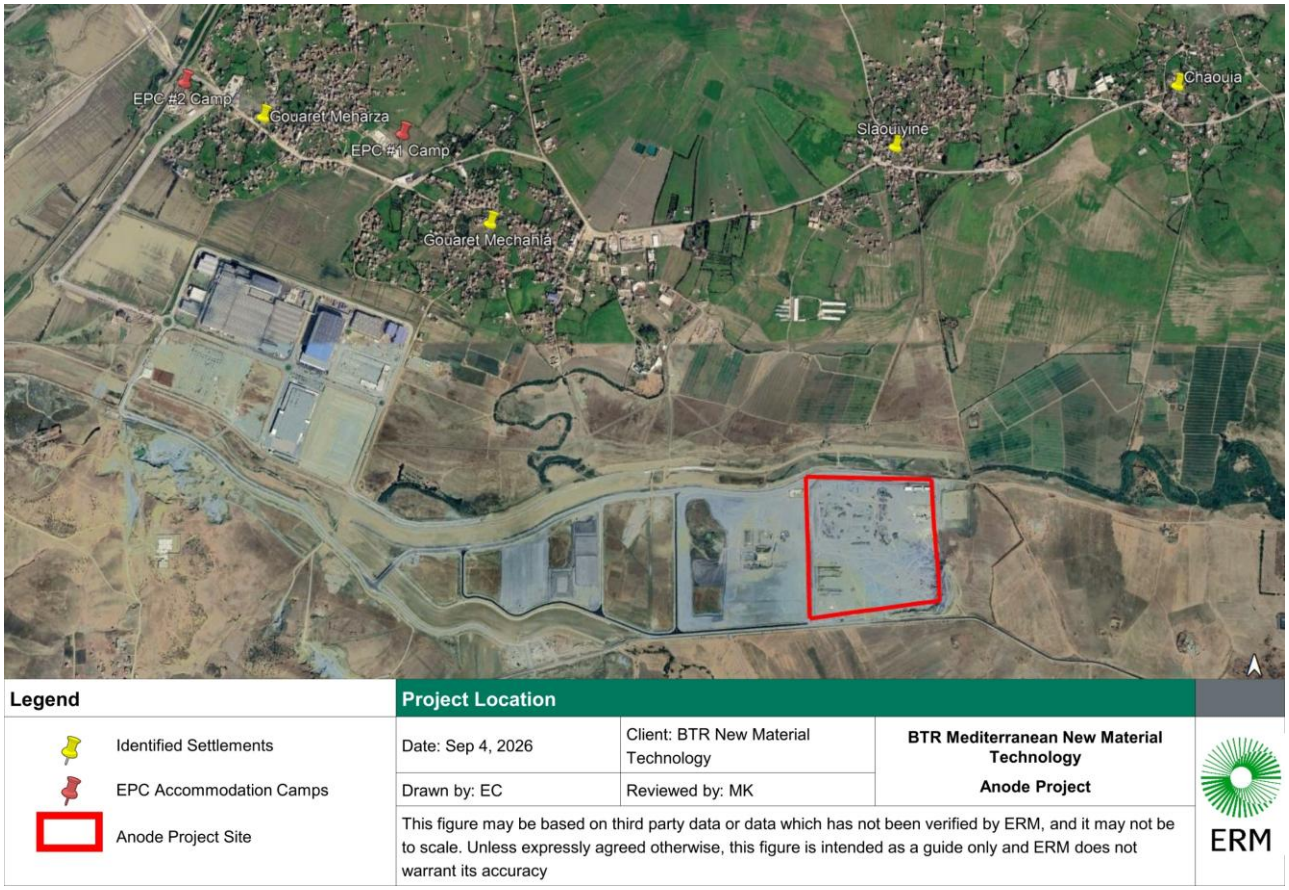
The Project's workforce during the construction phase is split into employees employed directly by the Project, or employed and managed by its two EPC contractors. Based on the information provided by the Project Company's Human Resources Department at the time of the baseline site visit, the Project's direct workforce during this phase stands at approximately 94 people, among which 84% are Chinese while 16% are Moroccan, and with women making up 23%. The two Project EPCs have a combined workforce of 768, with 83% being Chinese and 17% being Moroccan, while female workers are expected to make up around 4% of the total EPC workforce. This workforce number is reportedly the peak number expected for the entire construction period, and is expected to last until October 2026, when the number of workers present will start to decrease, until the construction activities are complete. Afterwards, around 70 workers of at least one of the EPCs will remain on-site until the end of equipment installation and commissioning, which is projected to finish by December 2026.

In total, the Project's workforce during the construction period (from the time of the baseline site visit to the end of construction activities, including EPC workforce, security contractor and direct workforce) is expected to be around 865 people at its peak, among which 717, or 83%, will be Chinese. Female employees are expected to make up around 6% of the total workforce. Based on the above manpower figures, the profile of the Project's construction phase workforce is vast majority Chinese and overwhelmingly male.

Chinese EPC workers are housed in purpose-built containerised accommodation camps, with the first contractor's camp located between Gouaret Meharza and Gouaret Mechahla, and the second contractor's camp located to the northwest of the industrial park, which can be seen in

Figure 7-17. A minority of Moroccan workers rent accommodation in Gouaret Meharza or Gouaret Mechahla, while the majority are drawn from the local settlements and live at home. This camp-based arrangement limits co-residence between in-migrant workers and local communities. The impact footprint of the Project's direct employees is mitigated by the fact that they reside in Tangier city.

FIGURE 7-17 LOCATION OF EPC ACCOMMODATION CAMPS



Source: Interviews with management of both Project EPC contractors

According to these figures, on the basis of a maximum influx estimate — assuming that all direct and EPC workers are sourced from outside the Area of Influence, and using the 2024 Census population of Laaouama Commune (19,187) — the maximum ratio of direct Project-related labour influx to the total population of the local communes would be at most approximately 4.5%. However, as the immediate social AoI only covers 4/9 villages in Laaouama Commune[106], the ratio between the Project construction phase workforce and the AoI population is likely to be considerably higher. As a result, it could be said that the Project's construction workforce will represent a notable temporary migrant population influx for the AoI communities.

This estimate does not take into account potential in-migration influx that would be indirectly associated with the Project. However, it must be noted that any population influx will likely be in line with the general population trend in at least one of the two affected communes. Between 2014 and 2024, Laaouama Commune more than doubled its population, featuring a very high population growth that cannot be explained by natural growth alone. Given the

[106] According to the Commune Action Plans (2017–2022) of Laaouama Commune

presence of Chinese and Moroccan workers employed by other companies in the IAZ in Gouaret Meharza and Gouaret Mechahla villages, as noted in community engagement meetings, it is likely that the construction of the industrial park has already been introducing large numbers of labour influx to the Project AoI for reasons not solely related to the Project.

During the baseline site visit, it was observed that some AoI communities – namely Gouaret Meharza and Gouaret Mechahla – have already undergone significant transformations due to labour influx. These two communities now feature many buildings that are rented out to incoming workers (mostly Chinese but also some Moroccan), with Chinese advertising banners visible on some buildings. Chinese restaurants and shops also line the main road in these two villages, as exemplified by ***Figure*** 5-10.

Nearby communities have experienced varying levels of socio-economic change associated with industrial development and population movements.

Considering the locations of the accommodation camps, which are on the edges of the villages, as well as the fact that both accommodation camps offer free meals to workers housed there, it can be deducted that the frequency and intensity of interactions between the Project EPC workers and local communities will have been far less than those generated by incoming workers from other companies, who reside in rental accommodation in these villages.

During stakeholder engagement activities, some community members reported that differences in cultural backgrounds and daily living practices (such as working schedules, social interactions and clothing customs) had occasionally resulted in misunderstandings between foreign workers and local communities. In addition, stakeholders noted the presence of informal transactional relationships, which may increase public health risks, including the potential transmission of communicable diseases. Concerns were also raised regarding housing availability, increases in living costs, waste management issues and road conditions associated with increased traffic. No concerns were raised about the scarcity of water, electricity, or fuel availability. However, most of these issues were raised against Chinese people residing in rented houses in the villages, which are unlikely to be directly related to the Project's workforce. The Project's Moroccan workforce, due to its relatively small number, is unlikely to have been a major impact on these points of conflict. Therefore, compared to the general degree of socio-economic shifts caused by labour influx generated by the industrial park, it can be said that the magnitude of the Project's contribution to these changes are relatively **Small**.

At the same time, the changing socio-economic conditions in the Project AoI pose additional future challenges to the local population, whose livelihoods have largely been based on agricultural and herding activities until the industrial park establishment. In combination with the changes to their land use and livelihood conditions, the local population may face large changes to their livelihood activities for which they may not be well-prepared. Some local residents have now transitioned from land-based livelihoods towards service activities, which in the future face volatility according to the industrial park's construction status and business conditions. This change might also be more detrimental for the groups who suffer economic vulnerability by augmenting gaps in existing social stratification. This impact may thus bring changes to the existing social order and potential tension to the local society.

In general, the poverty and vulnerability baseline of Laaouama Commune is better situated than the national average, though not as well-off as Tangier-Assilah Prefecture, with rates of poverty, multidimensional poverty vulnerability, and illiteracy between the Prefecture average

and the national average. Considering socio-economic vulnerability of the local communities and the recent volatility in livelihood activities, the receptor vulnerability of the Project's impacts is assessed as **Medium**.

Ultimately, the significance of the Project's impact on community cohesion and social structure is assessed as **Minor** for the construction phase.

Operation Phase

The Project's impacts during the operation phase will be largely from those during the construction phase, as around 77-90% of the Project's workforce will be Moroccan. According to Project plans, the 77% local employment ratio will be gradually increased to 90% during the operation phase, though this assessment will use the workforce numbers provided by the Project for the early operation phase. Among the 1,111 total Project workers, only 258 will come from China, representing a 64% reduction compared to the construction phase. Most of the Chinese employees will reside in Project-provided accommodation sites, whose locations have not been finalized. With the assumption that these accommodation sites will feature similar distances to AoI communities as the EPC accommodation camps during the construction phase, the degree of impact on local communities from Chinese workers will be similar in nature to that of the construction phase, though proportionally smaller due to lower numbers. The Project's main impacts will thus stem from domestic migratory labour and associated influx.

While current Project plans have not specified how many Moroccan employees will be recruited from local areas, it is likely that the skill barriers for many roles at the Project will become an obstacle for local residents, as seen through the construction phase shortage of skilled labour in the local area. A significant proportion of the operation phase workforce is thus expected to be domestic migrants. Although conflicts stemming from culture, religion, and national customs – though still possible – may take place less to a lesser degree than with Chinese workers, the arrival of a significant number of Moroccan workers from elsewhere in the country may create widening economic gaps in the AoI communities. Domestic economic migrants serving the workers living in AoI settlements may also create competition for local merchants. With the community's very recent transition from a predominantly land-based economy in mind, it is not unlikely that frictions may arise with Moroccan in-migrant workers and opportunity seekers. Overall, the employment of a predominantly Moroccan workforce would likely reduce the significance of some of the influx-associated impacts experienced during construction phase, but the additional expected in-migration of Moroccan workers from other parts of the country still presents a risk. As a result, the impact magnitude is assessed to remain as **Small**.

As the local population will continue to face similar baseline socio-economic conditions and future volatility in livelihood compared to the construction phase, the receptor vulnerability is also assessed as **Medium** for the operation phase. The overall impact significance during the operation phase is thus also considered **Minor**.

Embedded Control

BTR (corporate head-company) has established a corporate Human Rights Policy and Code of Business Conduct applicable to its controlled subsidiaries, including BTR Anode, which:

- require compliance with applicable local laws and respect for local customs, cultural practices and religious beliefs; and
- prohibit violence, threats, harassment, abuse and other inappropriate conduct.

BTR Anode has developed a Contractor Safety Management Agreement that establishes behavioural and operational requirements for contractor personnel, including:

- use of designated vehicle routes within the Project Site, with speed limits of 15 km/h on main internal roads and 5 km/h in areas where workers congregate;
- prohibition of alcohol use while working, fighting, smoking in unauthorised areas and unauthorised entry into non-construction areas;
- management of wastewater, air emissions, solid waste, noise, dust, vibration and other pollution generated by contractor activities;
- application of financial penalties for non-compliance.

The Project's EPC contractors currently accommodate all of its Chinese workforce in purpose-built containerised accommodation camps located on the edge of AoI villages.

The accommodation camps will provide meals and commuting transportation free-of-charge for EPC workers, limiting the vectors of contact between the workers and local communities.

Significance of Impact

Impact		**Community Cohesion and Social Structure**				
Impact Nature		**Negative**		Positive		Neutral
IMPACT CHARACTERISTICS	**Type**	**Direct**		Indirect		Induced
		Direct Negative Impact on community dynamics				
	Extent	Site	**Local**	Regional	National	International
	Scale	**Small**		Medium		Large
	SPATIAL EFFECTS	**Low**		Medium		High
	Relatively small-scale impacts compared to the overall degree of changes to the community resulting from non-Project-specific matters.					
	Duration	Temporary	**Short-term** (Construction Phase)	Medium-term	**Long-term** (Operation Phase)	Permanent
	Frequency	Continuous for the approximately 20-month construction period, as well as during the operation phase.				
	TEMPORAL EFFECTS	Negligible	**Low** (Construction Phase)	Medium	**High** (Operation Phase)	
	Even though the two EPCs may have slightly different construction period durations, their periods of work are nevertheless both under 24 months and are thus considered short-term.					
IMPACT MAGNITUDE		Negligible	**Small**	Medium	Large	
		The Project's impacts from workers and labour influx from both phases are unlikely to account for a significant portion of the socio-economic changes taking place in the AoI.				
RECEPTOR VULNERABILITY		Low	**Medium**	High		
		High degree of socio-economic volatility in recent years, though the level of deprivation is moderate.				

IMPACT SIGNIFICANCE	Negligible	**Minor**	Moderate	Major

Additional Mitigation Measure

- Implement the Project **Grievance Redress Mechanism (GRM)** of the Project, as detailed in the Project SEP. Collect local residents' concerns over the Project's impact on social dynamics and provide timely feedback.
- Implement the Project's **Stakeholder Engagement Plan (SEP)**. Monitor the accessibility and effectiveness of local grievance mechanisms.
- Where applicable, collaborate with SATT and local authorities in supporting local community events targeted at strengthening community cohesion.
- Strategies regarding the local employment and recruitment are an important basis in sustaining the community cohesion and unity, with generally a high level of employment expectations across the AoI communities. These strategies shall aim to not only satisfy the investment condition of having a 90% Moroccan workforce in the operation phase (after a gradual process), but to also directly encourage employment in the Project AoI, as opposed to relying on hiring from elsewhere in Morocco. The Project shall thus develop and implement a **Local Hiring Plan**, in order to effectively implement local recruitment strategies. As the Project had already reached peak construction phase workforce by the time of ERM's site visit, this plan will apply mainly to the operation phase. The Local Hiring Plan shall include the following elements:
    - The Project shall incorporate the priority employment into the existing HR procedure:
        - Create awareness among AoI residents and relevant agencies related to employment around the qualification criteria and procedures for job application.
        - Provide advance notice of job openings to local communities via multi-format communication (e.g., commune offices notices, community meetings, local radio/bulletins, disseminating information at the weekly village markets, and village-level social media groups), specifying key details including job responsibilities, qualification requirements, application deadlines, and submission channels to ensure full transparency for local residents. These notices should be available in Arabic and French.
        - Provide timely updates on potentially suitable employment opportunities, which may be of interest to local community. Potential job opportunities may include construction workers, electricians, drivers during construction, security personnel, and personnel for cleaning work. The exact number of job opportunities open for local residents will be determined during operation phase planning. Considering the AoI population's past predominantly land-based livelihoods, the Project shall clearly communicate training and support programs that could encourage and help the AoI residents' transition into working at the Project.
- Provide pre-employment vocational training to help local community members meet the technical qualifications required for the positions available, e.g., basic construction skills, construction safety.
    - Guarantee a local employment target specific to the Project AoI and the two impacted communes, including the percentages of local workers in skill, semi-skilled and unskilled positions.

  - Systematically collect feedback from key stakeholders on the recruitment process (including local residents, job applicants, commune and caidat authorities, and hired employees) through diversified channels and conduct regular reviews of feedback data to identify pain points. Formulate and implement targeted improvement measures, with progress updated to stakeholders to drive continuous optimisation of the local recruitment mechanism.
- Consult with local government – especially the National Agency for the Promotion of Employment (ANAPEC) - to discuss the possibility to develop direct localized recruitment channel of the Project's recruitment, ensuring transparent access to job opening for local populations and demands and requirements of local population will be met.
- Collaborate with the National Agency for the Promotion of Employment (ANAPEC) to explore the possibility of jointly developing professional skills training programs for local communities, leveraging existing resources and staff arrangements.
- Implement the mitigation measures in ***Section 7.3.5.2*** to alleviate the impacts of uneven distribution of employment opportunities to the local cohesion and social structure.
- Incorporate gender-inclusive training schemes aimed specifically at supporting women and other vulnerable groups to access employment opportunities.

- Considering changes to the socio-economic composition of the AoI communities and the challenges posed by the influx of foreign workers, the Project shall develop a **Worker Influx Management Plan** to effectively manage and mitigate the impacts caused by influx workers. This plan shall include the following components:
- As part of the Project-level workforce management strategy, the Project company shall prepare, implement, and enforce a comprehensive **Worker Code of Conduct (CoC)** for all personnel, including the EPC contractor and any subcontractors. The Worker CoC shall be available in Arabic, French, and Chinese and provided during worker induction training, and shall explicitly include:
- Strict prohibition of violence, threats, humiliation, discrimination, sexual harassment, exploitation, abuse, illicit activities, and substance abuse during both working and rest hours, applicable to interactions among workers and between workers and local communities.
- Specific provisions for direct and contracted workers living in accommodations in or near local communities, outlining expectations for their conduct.
- Requirement for all workers to adhere to the Project's environmental and social management plans.
- Mandate to treat all workers and local residents with respect, irrespective of race, ethnicity (including Moroccan or Chinese origin), nationality, language, religion, gender, age, disability, or social status.
- Disciplinary procedures for non-compliance, ensuring sanctions comply with Morocco law and relevant collective agreements, and explicitly prohibit wage deductions unless expressly permitted under such national regulations or agreements.

- The Project's existing Contractor Safety Management Agreement shall be reviewed to ensure alignment with the Project CoC, including requiring any CoC developed by the EPC contractors to also align with the Project's CoC.
- The Project shall develop procedures and pathways through which conflicts between locals and influx workers can be effectively and justly managed. These procedures shall set out action plans for controlling and avoiding conflicts such as those stemming from conduct of foreign workers, cultural conflicts, misunderstandings, crime, or hostility from local residents. These procedures are intended to supplement and not replace the GRM or legal processes.
- During the operation phase, develop and implement **collaborative programs or cultural activities** in partnership with the Project Company, the SATT, local government authorities, and relevant civil society organisations if any to enhance mutual cross-cultural understanding, including diverse working and living habits as well as religious practices and holidays.
- The core of this initiative will be a series of structured cultural exchanges, joint training sessions, and community events especially designed to bridge cultural divides.
- For instance, programs could include cross-cultural communication workshops, shared celebration of significant national and religious holidays, basic languages in Arabic, Chinese, and French.
- Implement mitigation measures to prevent and address **Gender-Based Violence (GBV)** as specified in the Human Rights Impact Assessment (HRIA) in ***Appendix B.***
- Implement the mitigation measures in ***Section 7.3.4 Public Infrastructure and Services*** to manage the Project's impacts on the competing use of infrastructure and services.
- Provide on-boarding and periodic training for all employees on cultural sensitivity and cross-community interactions.

Residual Impact

After applying the appropriate mitigation measures, residual impacts during both phases will be **Negligible**.

7.3.2 COMMUNITY HEALTH, SAFETY AND SECURITY

7.3.2.1 OVERVIEW

The Regulatory EIA did not consider the impacts that construction and operation activities of the Project might bring to the local community health, safety and security. Nevertheless, the Project is expected to introduce workers from outside the AoI into the area during both the construction and operation phases. Besides, the remaining construction activities at the Project Site and the operation of the anode material manufacturing processes can also elicit environmental impacts to the AoI. Thus, this section assessed the impacts from environmental emissions, and communicable diseases and sexually transmitted diseases. The impacts from the presence of security personnel and risk of Gender-Based Violence and Sexual Exploitation, Abuse, and Harassment are assessed in ***Appendix B Human Rights Impact Assessment***, while impacts from road safety are assessed in ***Section 9.5 Traffic Accident***.

7.3.2.2 IMPACTS FROM ENVIRONMENTAL EMISSIONS DURING CONSTRUCTION AND OPERATION

Potential Impacts

Environmental emissions, such as air emissions, noise, and contamination from hazardous materials, can incur negative health impacts on members of the local communities. During ERM's engagement with AoI community members in August 2026, some residents voiced concerns that the Project's emissions may be harmful to their well-being, especially to elderly residents.

Construction Phase

The Project construction was in the final stages as of August 2026 (overall progress at approximately 80%), with site levelling and early works substantially complete and the remaining scope limited to civil and structural finishing, building completion and equipment installation. The remaining construction works comprise civil and structural finishing, installation and commissioning of manufacturing and environmental control equipment, and the associated movement of mobile plant, and are expected to last approximately four months. The remaining exposure period for construction-related health effects on surrounding communities is therefore relatively short.

Noise disturbance could incur negative impacts on community wellbeing, as sustained exposure can provoke stress, sleep disruption and annoyance among nearby residents. As detailed in ***Section 7.2.2***, the noise assessment concluded that the predicted daytime noise levels at residential receptors in Slaouiyine and Gouaret Mechahla villages fall below the applicable threshold for a significant short-term construction noise impact, and that the overall noise impact during this phase would be Negligible. On this basis, noise from the remaining works is not expected to cause notable health effects in the AoI communities.

Dust and gas emissions from materials handling, finishing works and vehicle movements are capable of aggravating respiratory conditions, particularly among sensitive groups such as children and the elderly. According to the regulatory EIA, the Project's environmental impacts on air quality is expected to be Minor. Therefore, the Project's impacts on air are unlikely to incur impacts on the health of AoI receptors.

Hazardous waste generated by the Project may cause detriment to community health through potential environmental contamination, if the hazardous materials are poorly managed. However, as identified in ***Table*** 7-23, the construction phase is not expected to generate hazardous waste and is not likely to generate negative health impacts through this medium.

Construction of the temporary transmission line may also create community health and safety risks associated with increased vehicle movements as well as the presence of construction equipment and open work areas. These activities could increase the risk of dust emissions, noise disturbances, and unauthorized access to construction sites. However, the significance of these impacts is expected to be minor as construction activities will be temporary and there are very few residential receptors in the vicinity. The nearest residential structures are expected to be located at least 200 m from the works, reducing the likelihood of direct community exposure to construction-related hazards.

Considering the limited provision of healthcare resources in the AoI settlements, the receptor vulnerability to environmental health impacts is assessed to be **Medium**. Vulnerable groups

such as elderly may also be more susceptible to adverse environmental impacts and associated health effects that could be caused by the Project. However, given the minimal environmental emissions expected during this phase, the magnitude and significance of the potential health impacts from environmental emissions are both assessed to be **Negligible**.

Operation Phase

Operation introduces a continuous rather than temporary emissions profile, and the operation processes will produce the following air emissions:

- Particulate matter from material handling, drying, crushing and graphitisation;
- VOCs from granulation;
- Benzo[a]pyrene from granulation, pre-carbonisation and carbonisation;
- HCl and NOx from laboratory activities;
- NOx and SO_2 from LPG combustion; and
- NH_3 and H_2S from the water treatment facilities.

The potential harmful impacts to the health and safety of AoI residents include increased risks to respiratory, cardiovascular illnesses, and cancer. Emissions are abated at source by filters, electrostatic precipitators, alkali scrubbers, thermal oxidisers and a Regenerative Thermal Oxidiser before discharge to stack.

According to air modelling results detailed in ***Section 7.2.1***, the magnitudes of the Project's impact on the levels of PM_{10}, $PM_{2.5}$, NO_2, SO_2, BaP, H_2S, NH_3 and TVOC will be Negligible in all AoI settlements. As a result, it is likely that the Project's incremental contribution to airborne health risk in the AoI is expected to be minimal.

Operational noise will arise from outdoor fixed plant, principally cooling towers and the desulphurisation system, with other production equipment enclosed within workshops. Although this noise would be continuous over the life of the facility, the assessment in ***Section 7.2.2*** concluded on a conservative basis that the level of noise impacts from the Project will be Negligible for the closest AoI settlements. It is thus unlikely for the Project's noise emissions to cause a negative impact on community health and safety.

The operational waste stream includes hazardous materials capable of harming health on exposure, namely waste oil, coking tar, wastewater treatment sludge, spent activated carbon and contaminated packaging. The Project's hazardous waste area will be fitted with containment pallets, diversion ditches and a sump, and hazardous waste removal will be conducted by qualified disposal companies. Considering these embedded measures in place and the overall Minor significance of the Project's waste impacts in ***Section 7.2.3***, the overall impact from waste exposure and contamination on the wellbeing of AoI communities is expected to be minimal, and would likely occur only in the event of containment failure or improper off-site handling, which falls under unplanned events (see ***Section 9.4***) rather than routine operation.

During operation phase, the receptor vulnerability is expected to remain as **Medium**, since no major changes to the baseline health conditions in the AoI settlements are expected. Due to the relatively minimal environmental emissions impacts, the overall impact magnitude and significance of environmental health impacts on AoI communities remain **Negligible**, despite the longer duration of the impacts during this phase.

Embedded Control

Relevant embedded measures are presented in the following sections:

- Air emissions: ***Section 7.2.1;***
- Noise emissions: ***Section 7.2.2***; and
- Waste: ***Section 7.2.3***.

Significance of Impact

Impact		**Impacts from environmental emissions during construction and operation**				
Impact Nature		**Negative**		Positive		Neutral
IMPACT CHARACTERISTICS	**Type**	**Direct**		Indirect		Induced
		Direct negative impact on the health and safety of local communities.				
	Extent	Site	**Local**	Regional	National	International
	Scale	**Small**		Medium		Large
	SPATIAL EFFECTS	**Low**		Medium		High
	Spatial effect is assessed as Low, as predicted changes to ambient conditions are confined to the Project Site and its immediate vicinity.					
	Duration	Temporary	**Short-term** (Construction Phase)	Medium-term	**Long-term** (Operation Phase)	Permanent
	Frequency	Continuous				
	TEMPORAL EFFECTS	Negligible	**Low** (Construction phase)	**Medium** (Operation phase)		High
	Temporal effect of the construction phase is Low while the operation phase is Medium, due to the latter's long-term nature.					
IMPACT MAGNITUDE		**Negligible**	Small	Medium		Large
		Negligible for the construction phase due to minimal expected impacts on the environment in AoI receptors.				
RECEPTOR VULNERABILITY		Low	**Medium**	High		
		Medium receptor vulnerability considering the limited local healthcare facilities.				
IMPACT SIGNIFICANCE		**Negligible**	Minor	Moderate		Major

Additional Mitigation Measure

While impact significance is assessed as Negligible, it is noted that communities consistently raised concerns regarding environmental practices in the IAZ. To help address these concerns, BTR Anode should implement the following measures:

- The Project shall ensure the implementation of the mitigation and monitoring measures set out in ***Section 7.2***, including the quarterly stack emission monitoring programme, and shall verify that environmental monitoring records comply with applicable regulatory requirements.
- Considering community concerns regarding the Project's health impacts, the Project shall disclose air emission and noise monitoring results, as well as the Emergency Response Plan (ERP), to AoI communities in an accessible and culturally appropriate manner (in Arabic

and French), in order to facilitate transparency and increase understanding among community members.

- The Project shall disclose its wastewater management plans, including its zero industrial wastewater discharge system, to AoI communities in an accessible and culturally appropriate manner (in Arabic and French), in order to improve understanding among community members and mitigate community concerns about the Project's pollution of groundwater.
- Implement the Grievance Redress Mechanism (GRM) for local communities to report health and safety issues in relation to the Project, and monitor and evaluate the effectiveness of the GRM.
- Coordinate with the SATT to ensure response to all environmental health-related concerns that may only relate partially to the Project.

Residual Impact

After applying the appropriate mitigation measures, residual impacts during both phases will likely remain **Negligible**.

7.3.2.3 COMMUNICABLE DISEASES AND SEXUALLY TRANSMITTED DISEASES (STDS) DURING CONSTRUCTION AND OPERATION

Potential Impacts

Considering the ratio between the Project's total labour force during construction and operation phases and the local population, as well as the ratio between men and women in the labour force, the Project can be seen as bringing in a notable influx of male-dominated workforce into the AoI during both phases. The influx of workers will increase interactions between project personnel and local residents, particularly in residential areas and communal markets.

The convergence of a transient workforce with local communities can pose several health risks. Diseases associated with immigration, such as tuberculosis (TB) or influenza, could proliferate due to overcrowding in communal accommodation camps, especially considering TB has been cited as the most common health concern by nearby residents. Additionally, STDs, including HIV/AIDS, pose a concern given the predominantly male migrant workforce with disposable income. While any instances of high-risk exposure may be contingent, any outbreaks of communicable diseases and STDs have the potential to spread to larger areas.

The nearby settlements do not generally possess easy access to healthcare resources. The only substantial healthcare facility is a public health centre located in Gouaret Mechahla (as seen in ***Figure*** 5-14) which, according to community members, suffered from a lack of medication stock and insufficient staff during the summer vacation. There are reportedly no specialist pharmacies available in the AoI villages. All of the impacted communities can only access more formal medical care in Tangier city, which houses multiple clinics and general hospitals.

According to the latest national health data from 2023, the STD rate in Tangier Assilah Prefecture is lower than the national average for both men and women. No STI outbreaks were or are currently reported in the Prefecture. Tuberculosis was the most common communicable disease in the Prefecture, though at 437 cases in 2023, it is not considered to be a prevalent illness. This data indicates that there aren't major communicable disease and STD concerns in

the general Project region, although with the caveat that the data is not AoI or commune specific, and do not account for the post-2023 labour influx to the Project AoI.

Considering the lack of accessibility to health services, the local infrastructure for the timely monitoring, prevention, and reporting of outbreaks is likely to be relatively weak. Subsequently, in case of any outbreaks, the community and local authorities may have limited means to adequately respond. In addition, vulnerable groups, particularly women and girls, youth, economically vulnerable households, and persons with disabilities, may face a heightened risk of exposure to communicable diseases and sexually transmitted diseases associated with worker influx due to potential barriers in accessing healthcare, health information, and support services. These groups may also be less able to avoid or respond effectively to adverse health outcomes, potentially exacerbating existing vulnerabilities within the community. Therefore, the overall receptor vulnerability of the AoI settlements is assessed to be **Medium** for both phases.

Most of the workforce influx during construction will be Chinese while most will be Moroccan during operation, as discussed in ***Section 3.7.4***, which also details their number, gender makeup, and accommodation situation.

Since most of the Chinese EPC workers during the construction phase reside in centralized accommodation camps near the perimeters of two AoI communities, there is a reasonable potential for interactions to occur between EPC workers and members of AoI communities, increasing the risk of communicable disease transmission or STD exposure. This risk of exposure is mitigated by the fact that as opposed to Chinese workers engaged by other companies that reside in rented houses directly in the AoI settlements, the Project's EPC workers will be more distantly located to local receptors and have fewer opportunities to interact with them, by virtue of living in centralized-control accommodation camps.

During the **operation phase**, the Moroccan in-migrant workforce and the Project-associated labour influx are likely to reside in rented accommodation in the AoI settlements. Due to a lack of language and cultural barrier, they are likely to have significantly more interactions with members of the local communities in their daily lives. The Chinese workers during this phase will live in Project-arranged dormitories, though their specific locations have not been determined. Should these dormitories take the form of rented buildings in AoI settlements, there may still be a heightened likelihood with interactions with the communities, compared to accommodating workers further away from the settlements.

Community members reported the presence of informal transactional relationships in areas experiencing workforce influx. Such interactions may increase potential exposure to sexually transmitted infections, particularly where language barriers, limited health awareness and differences in access to health services are present. Due to the language and cultural barriers between non-local workers and local individuals, as well as the accommodation arrangements of non-local workers and future local operation phase workers, it is likely that the transmission of STDs through informal transactional relationships may be a more relevant concern during the operation phase.

Considering the transient nature, living situation, and likely vectors of contact of the workforce during the two phases, as well as the longer length of the operation period, the impact magnitude is assessed as **Small** for the construction phase and **Medium** for the operation

phase. Consequently, the overall significance of workforce-induced health impacts is deemed to be **Minor** for the construction phase and **Moderate** for the operation phase.

Embedded Control

- During the construction phase, Chinese EPC workers will be housed in purpose-built centralized accommodation camps on the peripheries of the AoI villages, with meals cooked by a catering chef and commuting via a company van.
- During the operation phase, Chinese workers will be housed in Project-organised dormitories. However, their locations have not been confirmed.
- Each Project EPC maintains a medical point on the Project site during the construction phase, with the capacity to distribute basic medical supplies such as masks.

Significance of Impact

Impact		**Communicable diseases and sexually transmitted diseases (STDs) during construction and operation**				
Impact Nature		**Negative**	Positive	Neutral		
IMPACT CHARACTERIST	**Type**	**Direct**	Indirect	Induced		
		Direct impact from the presence of Project workforce and interactions with communities				
	Extent	Site	**Local**	Regional	National	International
	Scale	Small	**Medium**	Large		
	SPATIAL EFFECTS	Low	**Medium**	High		
	Can bring impacts to the health status of the affected population, but limited local impacts in the case of communicable disease outbreak					
	Duration	Temporary	**Short-term** (Construction Phase)	Medium-term	**Long-term** (Operational Phase)	Permanent
		While construction and installation are expected to be finished in the next year (second half of 2026), the operational phase will continue on a long-term basis				
	Frequency	Occasional and contingent				
	TEMPORAL EFFECTS	Negligible	**Low** (Construction Phase)	**Medium** (Operation Phase)	High	
	Relatively long-term for operation phase and short term for construction phase, although the occurrence of impacts is not expected to be frequent					
IMPACT MAGNITUDE		Negligible	**Small** (Construction Phase)	**Medium** (Operation Phase)	Large	
		Medium spatial and low temporal effects				
RECEPTOR VULNERABILITY		Low	**Medium**	High		
		Limited healthcare facilities available in the AoI but no prevalence of communicable diseases except for influenzas				
IMPACT SIGNIFICANCE		Negligible	**Minor** (Construction Phase)	**Moderate** (Operation Phase)	Major	

Additional Mitigation Measures

- All workers should be screened for infectious disease (including tuberculosis, HIV/AIDS) as part of pre-employment medical examinations, including contractors and subcontractors. Those with active infectious diseases affecting their ability to complete work will not be employed on the Project.
- The Project shall give preferential consideration to locations away from the centres of AoI settlements while considering possible sites for the operation phase worker dormitories, in order to reduce the potential interfaces of interactions.
- During the operation phase, the Project Company shall maintain an onsite emergency room equipped with essential medical supplies.
- If workers require diagnostics or treatment for infectious diseases, transport them directly to hospitals in Tangier to prevent contact with community areas such as residential zones, markets, or river corridors, and ensure adequate quarantine and treatment facilities are used.
- Develop and implement training and awareness programs for communicable and non-communicable diseases commonly associated with immigration or common in the Project area, including sexually transmitted diseases; train all workers (including contractors) during induction in the language they are most proficient in, e.g. Arabic and Chinese.
- As part of the Project Company's **Worker Code of Conduct**, as first proposed in ***Section 7.3.1.2***, develop and implement policies that enforces zero tolerance for substance abuse, unsafe sexual behaviour, and discrimination; train all workers (including contractors) during induction in at least Arabic and Chinese.
- Provide quarterly hygiene training on handwashing and sanitation practices, supplemented by multilingual educational materials on disease prevention.
- Regularly test water and food at worker accommodation for biological contaminants (e.g., giardia, helminths), with quarterly sampling at accommodation and site canteens as well as water sources.
- Require worker accommodation, including EPC accommodation camps, to comply fully with Workers' Accommodation: Processes and Standards (IFC and EBRD 2009), ensuring minimum spacing of 4 m² per person, adequate ventilation, and sanitary facilities. Conduct periodic checkups for all workers, including contracted workers, and monitor any potential disease outbreaks. Immediately inform Laaouama Commune/Caidat health authorities upon detecting suspected disease outbreaks (e.g., Tuberculosis (TB), STDs) and coordinate response efforts.
- Implement the mitigation measures for managing the Project's impacts on local healthcare facilities in ***Section 7.3.4.4***.
- Partner with regional and local health providers on STD and other communicable disease education, prevention, vaccination, and treatment programs when necessary.
- Implement a grievance mechanism to record and resolve community health complaints (e.g., disease exposure, worker misconduct) via hotline and local liaisons.

Residual Impact

After applying the appropriate mitigation measures, residual impacts are considered to be **Negligible** during construction phase and **Minor** during operation phase.

7.3.3 OCCUPATIONAL HEALTH AND SAFETY

7.3.3.1 OVERVIEW

While the Regulatory EIA has assessed impacts on employee health and safety during the construction and operational phases of the Project, this SIA provides a broader consideration of occupational health and safety (OHS) issues relevant to the Project workforce. This section focuses on potential occupational hazards associated with Project activities, including for the associated facilities such as the temporary and permanent transmission line, as well as the adequacy of proposed management measures, and alignment with applicable international good practice. Other workforce-related topics relevant to the Project are addressed separately in the Human Rights Impact Assessment (HRIA), including non-discrimination and equal opportunity, child labour, forced labour, management of contracted workers, and supply chain workers. Together, the SIA and HRIA provide a comprehensive assessment of workforce risks and impacts associated with the Project.

7.3.3.2 LABOUR CONDITIONS AND WELFARE DURING CONSTRUCTION AND OPERATION

Potential Impacts

Without appropriate safeguards, a project may potentially contribute, knowingly or unknowingly, to a violation of workers' rights, in particular the rights outlined by the core ILO Conventions. This includes workers directly employed by BTR Anode, as well as third-party workers engaged by contractors and subcontractors. The main OHS risks for construction phase include:

- Exposure to dust, noise and vibration from site preparation, earthworks, excavation and construction activities.
- Slips, trips and falls on uneven ground, excavations, temporary work areas and access routes.
- Falls from height during steel erection, roofing, cladding, scaffolding works and equipment installation.
- Struck-by incidents involving moving vehicles, heavy equipment, cranes and lifting operations.
- Caught-in or caught-between incidents involving construction machinery, excavation works and materials handling equipment.
- Collapse of partially completed structures, scaffolding or temporary works.
- Exposure to welding fumes, cutting fumes, paints, coatings and other hazardous substances used during construction.
- Eye injuries from welding, grinding, cutting and flying debris.
- Electrical shock, arc flash and electrocution during installation and commissioning of electrical systems, substations and equipment.
- Fire and explosion risks associated with hot works, fuel storage and temporary electrical installations.

- Confined space hazards associated with tanks, pits, ducts and utility infrastructure.
- Fatigue due to long working hours, shift work, inadequate rest periods or harsh climatic conditions.
- Heat stress and dehydration associated with outdoor working conditions.
- Specific risks of associated temporary underground transmission line include:
  - Excavation and trench collapse causing serious injury or fatalities.
  - Strikes on existing underground utilities (electricity, gas, water, telecoms).
  - Accidents involving heavy machinery, vehicles, and moving equipment.
  - Electrical shocks, burns, or arc flash during cable installation and commissioning.
  - Manual handling and ergonomic injuries from lifting and installing heavy materials.

The main OHS risks for operation phase include:

- Exposure to potentially hazardous substances contained in raw materials, intermediate products and wastes.
- Fire and explosion risks associated with flammable materials and electrical systems.
- Injuries from machinery, automated equipment, forklifts, and vehicle movements.
- Exposure to elevated temperatures from furnaces, thermal processing equipment and hot surfaces.
- Electrical hazards during operation and maintenance of production equipment.
- Confined space hazards during inspection and maintenance of tanks, sumps, ducts and treatment facilities.
- Falls from height during inspection and monitoring of stacks, elevated equipment and utility systems.
- Exposure to dust, fumes, noise, heat, and other physical workplace hazards.

Employees of local contractors and those in the supply chain may not have international standard training in occupational health and safety, covering issues such as use of personal protective equipment.

In addition, construction and operational activities will involve high-risk activities with the potential for accidents that may result in injuries and potential fatalities as well as lost man-hours. Workers may be exposed to a number of construction injuries and fatalities risks, if not aware of the consequences.

The impact is considered as negative and direct. Considering the workforce size and make-up as well as nature of the Project, the overall impact magnitude is regarded as **Medium**. A review of the baseline OHS conditions identified in ***Section 5.2.11*** indicates OHS conditions in Morocco remain an area of concern, including in terms of enforcement of existing regulations. Based on site conditions observed during the baseline visit, the receptor vulnerability is considered as **Medium**. Therefore, the overall impact significance is assessed as **Moderate**.

Embedded Control

- BTR Anode has developed and implemented a Contractor Safety Management Agreement, requiring contractors to verify workers' qualifications and licences and to provide appropriate PPE and safety training.

- According to the EPC management interviews, the EPC contractors have appointed full-time safety personnel, including safety officers responsible for supervising subcontractor teams and specific work areas.
- According to the EPC management interviews, the EPC contractors provide site induction and ongoing safety training, supported by documented induction and safety materials.
- According to the EPC management interviews, the EPC contractors provide helmets, safety vests and other required PPE and supervise compliance with PPE requirements.
- According to the EPC management interviews, the EPC contractors have established an on-site medical clinic and referral arrangements with a local hospital.
- BTR Anode has developed a Project-specific Emergency Response Plan, which defines the responsibilities and procedures for responding to emergencies. The Plan also specifies the necessary emergency resources and requires periodic drills to test response arrangements.

Significance of Impact

Impact		**Occupational Health and Safety during construction and operation phases**				
Impact Nature		**Negative**	Positive	Neutral		
IMPACT CHARACTERISTICS	**Type**	**Direct**	Indirect	Induced		
		Direct impact from Project construction and operation				
	Extent	**Site**	Local	Regional	National	International
	Scale	Small	**Medium**	Large		
	SPATIAL EFFECTS	Low	**Medium**	High		
	Site impacts and relatively large workforce, including direct workers and contracted workers, who may be impacted.					
	Duration	Temporary	**Short-term**	Medium-term	**Long-term**	Permanent
	Frequency	Continuous				
	TEMPORAL EFFECTS	Negligible	**Low** (construction phase)	**Medium** (operation phase)	High	
	Temporal effects may be lower during construction phase and operation phase, although some OHS impacts may persist beyond the immediate construction phase duration (e.g. lifetime injury).					
IMPACT MAGNITUDE		Negligible	Small	**Medium**	Large	
		The impact magnitude is considered as **Medium** based on the spatial effect and temporal effect assessment				
RECEPTOR VULNERABILITY		Low	**Medium**	High		
		Assessed as medium considering the limited capacity that workers have to resort to internal procedures.				
IMPACT SIGNIFICANCE		Negligible	Minor	**Moderate**	Major	

Additional Mitigation Measure

- Formalize the **Worker Grievance Mechanism**, including:

- Develop procedures to prevent and respond to cases of workplace harassment, including a specific policy for sexual exploitation and abuse (SEA), and sexual harassment (SH).
- Establish multiple communication channels that allow workers to anonymously raise complaints.
- Ensure the grievance mechanism is available to contracted workers or require contractors to have their own procedure.
- Organise training and awareness raising with direct and contracted workers on the worker grievance mechanism as well as company policies regarding non-discrimination, working conditions, etc.

- An Occupational Health and Safety Management Plan (OHSMP) should be developed and should present detailed measures to ensure the occupational health and safety of direct and contracted workers as well as to provide working conditions that meet established safety and hygiene standards. The OHSMP should cover all OHS risks identified in this SIA and include measures such as, but not limited to:
  - Prepare Standard Operating Procedures (SOPs) for each type of construction and operation phase activity;
  - Conduct regular health and safety training, briefings and toolbox talk (in Arabic and Chinese) before the implementation of construction and operation phase activities;
  - Establish medical and emergency response facility on site with qualified personnel;
  - Establish resting areas, first aid kit stations, water refill stations and bathrooms across the site;
  - Provide transportation to workers within the site for key commutes (e.g. transport to workstation at the beginning of shifts), as well as safe walking paths for pedestrians;
  - Develop indoor canteen for all site workers;
  - Translate all key signage, particularly H&S related, to Arabic;
  - Conduct regular third-party H&S audits on site to identify any H&S non-compliances;
  - Provide Personal Protective Equipment (PPE) to all workers and conduct awareness raising sessions with worker and managers regarding the importance of PPE;
  - Fence the construction site to limit wildlife access;
  - Ensure activities are supervised by trained personnel;
  - Develop traffic management measures within the site boundaries and for key access points, including speed limits, road quality and marking standards, safety signage, etc.;
  - Require height and stockpile locations to be in line with good international industry practices;
  - Provide guidelines on safe storage of equipment and materials to avoid loose items creating tripping hazards and other safety risks;
  - Document all work-related accidents, illnesses and incidents; and
  - Develop workers' accommodations in line with the requirements outlined in IFC EBRD Workers' Accommodation Management Guidelines.

- Establish an onsite medical team managed during the operation phase; ensure 24/7 access for all workers.
- Engage with TMU to understand OHS provisions for temporary transmission line construction and, where possible, share targeted measures to manage OHS risks specific to the construction of this associated facility.
- Where possible, monitor OHS conditions in the temporary line construction site.

Residual Impact

After applying the appropriate mitigation measures, residual impacts during the construction and operation phases are assessed to be **Minor**.

7.3.4 PUBLIC INFRASTRUCTURE AND SERVICES

7.3.4.1 OVERVIEW

Since the regulatory EIA does not include an impact assessment related to public infrastructure and services, the Project's impact on this aspect will be evaluated. This section will investigate the following:

- Pressure on local roads during construction and operation;
- Pressure on utilities and local resources during construction and operation; and
- Pressure on local healthcare facilities during construction and operation.

7.3.4.2 PRESSURE ON ROADS DURING CONSTRUCTION AND OPERATION PHASE

Potential Impact

The Project area is accessed from Tangier via Provincial Road P4608, which provides the principal regional road approach to Phase I of the Cité Mohammed VI Tangier Tech Industrial Acceleration Zone and the Project Site, and the A5 Highway.

Project materials during both construction and operation phase will be transported by road from Tangier Med Port to the Project site using the A5 highway which covers the majority of the 49-km distance. The frequency and specific timing will be determined through delivery plans based on cargo arrivals at the port. Separately, worker transport during both construction and operation phases will be provided using 21-seat shuttle buses, with the number of buses adjusted according to actual passenger demand. Detailed information is not available on the number or frequency of transport vehicles during either construction or operation phases.

Tangier Med Port is the largest container port in Africa with 161 million tons of products shipped through the port every year.[107] Considering the Port's current scale of operations, the Project is not expected to lead to a significant increase in traffic and road pressure in the Port surroundings. Similarly, the A5 highway is a national level road that connects Tangier Med Port to other major cities in Morocco such as Rabat and Kenitra. It already carries a significant portion of traffic associated with industrial activities in the region and the Project-induced traffic is not expected to have significant impacts on it.

[107] Tangier Med Port Authority. Available at: https://www.tangermedport.com/fr/

The access point to the A5 highway is approximately 2.8 km away from the Industrial Acceleration Zone and Project vehicles are expected to drive through the Gouaret Meharza roundabout to reach it. This route does not directly cross residential areas and mainly passes by the entrance of Gouaret Meharza Village, therefore limiting direct disturbances; however, the 1.2 km road connecting Gouaret Meharza Village to provincial and national level roads is also the main road used by communities in the AoI, particularly in Gouaret area, to go to Tangier City and other destinations in the region and beyond.

While detailed routes for workers' transport are not known, they are also expected to use local roads in AoI villages. During construction phase, considering the accommodation camp of EPC and subcontractor workers are located in Gouaret Meharza, traffic is concentrated between that village and the Project site. During operation phase, as the Project has committed to hire a majority of Moroccan workers who will reside in their own homes, workers' transport is also likely to leverage local roads in AoI villages.

During both construction and operation phases, Project-related transportation activities, including the transportation of construction, materials, machinery and workers, will induce increased movement of materials, equipment, and workers may damage or obstruct local roads, utilities, and public spaces, raising the risk of traffic congestion and accidents. Based on information provided by BTR Anode, Project-related transportation activities are expected to last through the construction and operation phases, with the most significant impacts likely to materialize in Gouaret Meharza, the village closes to the Project Site.

The following potential impacts are expected:

- Deteriorate conditions of local roads from increased traffic volume, including roundabout in Gouaret Meharza, road connecting to A5 highway and the main local roads to nearby villages (e.g. Gouaret Mechahla, Slaouiyine, Chaouia). These roads were observed to be currently in fairly good conditions, with some construction works associated with the highspeed railway that connects Tangier to Rabat and crosses the area.
- Disturbance to local road users in AoI villages. Residents in AoI villages travel to Gouaret area for markets (e.g. weekly Souk) and other activities. Traffic induced by the Project may cause disturbances and cause increased risks of accidents (see ***Section 9.5***).

These impacts are direct negative impacts for the local community. The magnitude of the impact during the construction phase can be considered as **Small**, as effects will be highly localized within Gouaret Meharza. Impact magnitude during operation phase is assessed as **Medium** given the larger scale of the workforce presence and increased transportation of raw materials, which will lead to increased traffic and changes of transportation conditions for local communities.

The vulnerability of the receptors is assessed as **Medium** given local communities have limited alternative routes to avoid Project-induced traffic impacts. Although the current road conditions are adequate, considering the lack of information about operation phase transport levels and the potential for cumulative impacts with other companies in the Tangier Tech Industrial Acceleration Zone, it cannot be confirmed that the existing local transportation system would have sufficient capacity to handle the increased vehicle pressure. Therefore, the impact significance is considered as **Minor** for construction phase and **Moderate** for operation phase.

Embedded Control

No embedded controls have been identified.

Significance of Impact

Impact		**Impacts on roads during construction and operation**				
Impact Nature		**Negative**		Positive		Neutral
IMPACT CHARACTERISTICS	**Type**	**Direct**		Indirect		Induced
		Direct from the Project transportation activities				
	Extent	Site	**Local**	Regional	National	International
	Scale	**Small** (construction phase)		**Medium** （operation phase）		Large
	SPATIAL EFFECTS	**Low** (construction phase)		**Medium** (operation phase)		High
	Medium spatial effects due to potential evident changes brought to the local roads					
	Duration	Temporary	**Short-term** (construction phase)		**Long-term** (operation phase)	Permanent
	Frequency	Frequent during construction and operation activities				
	TEMPORAL EFFECTS	Negligible	**Low** (construction phase)		**Medium** (operation phase)	High
	Low temporal effects for the construction phase and **Medium** for operation phase					
IMPACT MAGNITUDE		Negligible	**Small** (construction phase)		**Medium** (operation phase)	Large
		Small impact magnitude during construction phase and **Medium** during operation phase, considering the spatial and temporal effects				
RECEPTOR VULNERABILITY		Low		**Medium**		High
		Existing concerns on local road and transportation				
IMPACT SIGNIFICANCE		Negligible	**Minor** (construction phase)		**Moderate** (operation phase)	Major

Additional Mitigation Measures

- Minimise amounts of material handling and avoid double handling to reduce transportation movements.
- Where possible, avoid congested routes, in particular those through surrounding villages.
- Regularly record the road conditions of main transportation routes through photos and videos.
- Repair any damage to local roads (wear and tear over the construction period) to their original state or better.
- Comply with speed and weight limit restrictions as per Moroccan regulations for different types of roads.
- Engage with Laaouama Caidat and Commune authorities to inform them about transport routes once determined for operation phase and discuss potential traffic impacts.
- Coordinate with SATT, Laaouama Caidat and Commune authorities to discuss road safety measures in Gouaret area and other AoI villages as relevant, such as speed bumps, cautionary signposts and speed limits signs.

- Communicate with local communities' representatives to inform of the evolution of construction/operation works and timings for large vehicle deliveries.

Residual Impact

After applying the appropriate mitigation measures, residual impacts on road during the construction phase are expected to be **Negligible**, and during operation phase, they would be **Minor**.

7.3.4.3 PRESSURE ON UTILITIES AND LOCAL RESOURCES DURING CONSTRUCTION AND OPERATION

Potential Impact

Construction Phase

Construction activities may strain communal resources especially for the water and electricity due to the direct demand from Project construction and operation, and activities from Project induced in-migration including direct workers, contracted workers and construction workers.

- **Electricity**: temporary power will be supplied from the existing substation southeast of the Industrial Acceleration Zone. The Project electricity consumption is estimated at 80 MWh per month, which represents a relatively small demand for the existing electricity grid. Thus, it is expected that no impacts will be brought to the local communities over the use of electricity. While electricity consumption generated by Project accommodation camps is not known at this stage, electricity access was reported to be high in AoI villages and communities did not raise any concerns about electricity consumption in relation to the Project or the Industrial Acceleration Zone.
- **Water:** approximately 4,500 m³ of water per month will be supplied through the existing water supply pipelines within the Industrial Acceleration Zone. Drinking water for construction workers will be provided through purchased bottled water, with an estimated consumption of approximately 12 m³ per month. As per information provided by SATT, the water source for the Industrial Acceleration Zone supply is a rainfed reservoir located near the Zone, which was built by the SATT for industrial development purposes. The Project's water consumption is therefore not expected to affect communities' water supply. The Agency for the Hydraulic Basin of Loukkos engaged by ERM through a digital meeting also did not report any concerns regarding water availability in the Project area. Furthermore, while water consumption generated by Project accommodation camps is not known at this stage, communities did not raise any concerns about water consumption in relation to the Project or the Industrial Acceleration Zone. Separately, the local EIA indicates that there are no groundwater aquifers, and the geological survey report also mentioned that no groundwater exists within 20~30 meters.
- **Waste:** While waste management services are available by TMU at the level of the Industrial Acceleration Zone and are therefore not expected to affected public waste management infrastructure, community stakeholders raised concerns about increased waste production in Laaouama Commune due to the influx of Chinese workers. The rapid development of villages near the IAZ, including hosting of Chinese workers for several projects in the Industrial Acceleration Zone has reportedly strained local waste management services. This could also be observed in various parts of AoI villages during ERM's site visit, with numerous overflowing waste containers and informal open waste

dumps in close proximity to residential areas. However, it should be noted that this impact is likely to be cumulative, reflecting the presence of workers engaged by several Chinese companies in the Industrial Acceleration Zone.

Thus, the main impact during the construction phase is expected to be direct negative effects on the Commune waste management system. Impact magnitude is assessed to be **Medium** considering the Project workforce during this phase is estimated at 717 non-local workers, most of which are housed in accommodation camps in Gouaret area. Changes from baseline conditions are observable and reported by local communities; however, impacts remain localized primarily to Gouaret area. The receptor sensitivity is considered as **Medium** since communal authorities appear to have limited resources to adapt to the change brought by the Industrial Acceleration Zone. In particular, economically vulnerable groups may have less financial resources and reduced capacity to cope with service disruptions or declining service quality. Reduced access to essential utilities could adversely affect their health, well-being, and overall resilience compared to the wider population.

The overall impact significance during the construction phase is **Moderate**.

Operation Phase

- **Electricity**: During the operation phase, the Project will be supplied from the planned SATT substation via a permanent overhead transmission line connected to the dedicated TMU substation within the Industrial Acceleration Zone. The Project electricity consumption is expected at 811.2 GWh per year and will originate from the national grid managed by ONEE. Electricity access was reported to be high in AoI villages and communities did not raise any concerns about electricity consumption in relation to the Project or the Industrial Acceleration Zone.
- **Water**: 726,427 m³/year of tap water will be supplied via the existing municipal water pipeline for both industrial and domestic use. The Project adopted a "zero-discharge of industrial wastewater plan", i.e. all industrial and domestic wastewater will be treated in an on-site wastewater treatment facility and reused in the production process. For the same reasons listed under construction phase above, the Project is not expected to affect communities' access to water.
- **Waste**: Similarly to construction phase, the Project's on-site waste generation is expected to be managed within the Industrial Acceleration Zone and will not affect public waste management services.

During operation phase, the size of the Chinese workforce (direct and contracted) will decrease to up to 258 workers, with the majority of employees expected to be local Moroccans who will reside in their own homes near the Project site. Any pressure on the electricity network, water supply or waste management system from Project accommodation camps is therefore expected to be limited compared to construction phase. However, the prospect of employment opportunities may also attract job seekers from other parts of Morocco, which could contribute to increasing the population in AoI villages.

Overall, despite the smaller proportion of Chinese workers hosted in accommodation camps, considering the longer duration of operation phase, higher electricity and water consumption, and the risk of influx of Moroccan labourers, the impact magnitude on local utilities and resources is assessed to remain **Medium**. The receptor sensitivity is considered as **Medium**,

following the same rationale as construction phase. Therefore, the overall impact significance during the operation phase is **Moderate**.

Embedded Control

- The Project design includes a circulating-water station and onsite wastewater treatment facilities to enable the reuse of treated process wastewater and reduce make-up water demand during operation.

Significance of Impact

Impact		**Pressure on utilities and local resources during construction and operation**				
Impact Nature		**Negative**		Positive		Neutral
IMPACT CHARACTERISTICS	**Type**	**Direct** (due to the Project activities)		**Indirect** (due to the Project induced population's consumption)		Induced
		Both direct and indirect impact from Project construction and operation				
	Extent	Site	**Local**	Regional	National	International
	Scale	Small		**Medium**		Large
	SPATIAL EFFECTS	Low		**Medium**		High
	The spatial impact is considered as **Medium** since the impact can result in evident change in people's everyday life.					
	Duration	Temporary	**Short-term** (construction phase)	Medium-term	**Long-term** (operation phase)	Permanent
	Frequency	Continuous				
	TEMPORAL EFFECTS	Negligible	**Low** (construction phase)	**Medium** (operation phase)		High
	The temporal impact of the construction is **Low** while the temporal effect of the operation phase is **Medium**.					
IMPACT MAGNITUDE		Negligible	Small	**Medium**		Large
		The impact magnitude of operation and construction phases are **Medium**, considering more extensive Chinese workforce requiring local accommodation during construction phase and longer duration of impacts as well as risk of local workers' influx during operation phase.				
RECEPTOR VULNERABILITY		Low		**Medium**		High
		Receptor vulnerability is considered as **Medium**.				
IMPACT SIGNIFICANCE		Negligible		Minor	**Moderate**	Major

Additional Mitigation Measures

- Improve the Project's information disclosure related to the use of the local resources. Consult with Caidat and Commune representatives regarding potential impacts on the local utilities and resources.
- Finalize and implement the GRM to collect grievances, including any concerns related to Project's impacts on local water resources, waste management and electricity, and provide timely feedback.

- Implement continuous monitoring throughout the construction and operational phases to detect and respond to any damage, overuse, or service disruptions caused by Project activities.
- Monitor the wastewater recycling used as circulating cooling water.
- Disclose data on water and electricity consumption as well as recycling to local communities in a culturally appropriate manner in Arabic during regular stakeholder engagement activities, as prescribed in the SEP.
- Monitor potential competition between industrial and residential water needs and maintain vigilance on impacts to local water supply. During periods of scarcity, communicate and cooperate closely with government authorities to prioritise safeguarding residents' water security.
- Ensure all waste generated by the Project and its workforce is collected and managed through licensed waste service providers and approved disposal or treatment facilities.
- Provide adequate waste collection containers and waste storage areas at the Project site, worker accommodation facilities, and other Project-related premises, and ensure regular collection to prevent overflow.
- Implement measures to reduce waste generation, including reuse and recycling programs and procurement practices that minimise packaging waste.
- Prohibit open dumping and open burning of waste by Project personnel, contractors, and subcontractors.
- Conduct regular inspections of Project facilities and worker accommodation areas to ensure proper waste management practices are maintained.
- Provide waste management training and awareness programs for workers, including requirements for waste segregation and responsible disposal.
- Engage with the SATT as well as Caidat and Commune authorities to coordinate waste collection arrangements and monitor any increased pressure on local waste management services attributable to the Project.

Residual Impact

After applying the appropriate mitigation measures, residual impacts on utilities and local resources during will be reduced to **Minor**.

7.3.4.4 PRESSURE ON HEALTHCARE FACILITIES DURING CONSTRUCTION AND OPERATION

Potential Impact

The Project AoI has a limited availability of healthcare facilities. Laaouama Commune is served by a single communal health centre in Gouaret Mechahla, which provides routine consultations and basic healthcare services but lacks emergency and specialist care. Residents reported medicine shortages, reduced service availability during summer periods, and the need to travel to Tangier for specialist treatment, emergency care, or hospitalization. Healthcare accessibility remains a challenge for villages outside Gouaret Mechahla, where residents often rely on travelling to the commune centre to access essential health services. As a result of the existing challenges surrounding the AoI's access to healthcare infrastructure, receptor vulnerability is considered **Medium** for this impact.

Construction Phase

During the construction phase, the large influx of Project workers (approximately 717 Chinese workers) will account for the most significant source of pressure on local healthcare facilities. According to the BTR HR, the Project Site is required by Moroccan regulations to have a workplace doctor visiting the site for regular medical visits at least six hours per month. The EPC Contractor has established medical facilities on site, and an ambulance is available in case of emergency (see Embedded Measures below).

However, considering Chinese EPC workers are hosted in accommodation camps located in Gouaret area, they will increase the number of people in the AoI who will require ordinary access to healthcare facilities, proportionally increasing the pressure on nearby health centres and hospitals. As it is assumed that any site medical emergencies would be sent to the nearest hospital, there may also be an increase in occupational health related health issues that arise from the nature of construction work, resulting in increased pressure on local occupational safety related resources. Additionally, healthcare resources relating to communicable diseases and STIs will come under increased pressure due to health risks associated with labour influx, which is further discussed in ***Section 7.3.2.3***. However, it is noted that while communities engaged during baseline surveys raised various concerns in relation to Chinese workers' presence, they did not mention any impacts on health care facilities. As a result of the above considerations, and taking into account the relatively short period of the construction phase, the impact magnitude during this phase is assessed to be **Small** and the impact significance to be **Minor.**

Operation Phase

The operation phase will feature a total workforce of approximately 1,111 workers, including approximately 258 Chinese workers. While detailed accommodation arrangements are not known at this stage, most Chinese employees would likely be lodged close to the Project Site and Project AoI. Although the scale of Chinese workers' influx will be reduced compared to construction phase, there may be an influx of Moroccan workers seeking job opportunities. The added pressure on local occupational health related healthcare resources will likely continue to be relatively elevated, as operational hazards will replace construction hazards as a major source of possible occupational health related incidents that may require medical attention. Healthcare resources relating to communicable diseases and STIs will similarly continue to face increased pressures. The pressure on medication supplies at local pharmacies will likely be mitigated by supply chain adaptations over the course of the operation period. Considering the longer timeframe of the operation phase and the risk of Moroccan workers' influx, the impact magnitude during this phase is assessed to be **Medium** while the impact significance is **Moderate.**

Embedded Controls

- During construction, one EPC contractor's Emergency Response Plan provides for a dedicated onsite ambulance, a qualified nurse on daily duty, and onsite first-aid equipment and medical supplies.

Significance of Impact

Impact		Pressure on healthcare facilities during construction and operation				
Impact Nature		**Negative**		Positive		Neutral
IMPACT CHARACTERISTICS	**Type**	**Direct** (due to the Project activities)		**Indirect** (due to the Project induced population's consumption)		Induced
		Both direct and indirect impact from Project construction and operation				
	Extent	Site	**Local**	Regional	National	International
	Scale	Small		**Medium**		Large
	SPATIAL EFFECTS	Low		**Medium**		High
	The spatial impact is considered as medium since the impact can result in evident effects on local health centres, but is unlikely to cause regional scale impacts on provincial or regional health facilities.					
	Duration	Temporary	**Short-term** (construction phase)	Medium-term	**Long-term** (operation phase)	Permanent
	Frequency	Occasional				
	TEMPORAL EFFECTS	Negligible	**Low** (construction phase)	**Medium** (operation phase)		High
	The temporal impact of the construction is **Low** while the temporal effect of the operation phase is **Medium**.					
IMPACT MAGNITUDE		Negligible	**Small** (construction phase)	**Medium** (operation phase)		Large
		Considering the medium level of spatial and temporal effects, the impact magnitude of operation phase is **Medium**, while the impact magnitude of construction phase is **Small**.				
RECEPTOR VULNERABILITY		Low		**Medium**		High
		Receptor vulnerability is considered as **Medium** since the villagers in the AoI already expressed difficulty in accessing healthcare.				
IMPACT SIGNIFICANCE		Negligible	**Minor** (construction phase)	**Moderate** (operation phase)		Major

Additional Mitigation Measures

- Establish procedures for workers' access of healthcare, in case of injury/health issues outside working hours;
- Equip the Project Site or accommodation site with a medical room during the operation phase. The medical room shall provide basic healthcare services to Project Company employees, allowing more basic health problems to be resolved without needing to visit a health centre.
- In the event that a Chinese worker seeks healthcare at a local healthcare facility (e.g. for services not available in the on-site health facility), they should have the possibility to request support from Company translators (Chinese to Arabic and/or French) to be present during the visit, in order to safeguard the worker's ability to adequately and effectively access healthcare. This support must be available to all Chinese workers free of charge.
- Implement measures set out in other sections of this SIA to minimise avoidable instances of adverse health impacts – and the subsequent healthcare services required – for hazards

resulting from communicable diseases and STIs, GBV and SEAH, occupational hazards/ working condition risks, and unplanned events/ emergencies.

- Establish channels of communication with local health authorities, including adequately communicating with the local health authorities about the Project's grievance mechanism.

Residual Impact

After applying the appropriate mitigation measures, residual impacts on local healthcare facilities during the construction phase and the operation phase will be **Negligible** for construction phase, and **Minor** for operation phase.

7.3.5 EMPLOYMENT AND LOCAL ECONOMY

7.3.5.1 OVERVIEW

The regulatory EIA identified positive impacts associated with job creation and local economic opportunities. However, it did not assess in detail the potential adverse impacts of the Project on local economic conditions. Therefore, this section supplements the regulatory EIA by assessing the potential for increased demand associated with workforce influx during construction and operation to contribute to local price hikes.

7.3.5.2 PRICE HIKES DURING CONSTRUCTION AND OPERATION

Potential Impacts

As of August 2026, approximately 865 workers were engaged in the construction phase, of whom 83% were expatriate workers from China. During the operation phase, the Project Company plans to employ approximately 1,111 workers, of whom 23% are expected to be expatriate workers from China. Some Moroccan workers may also be recruited from outside the Project area. This influx of labour may lead to increased demand for life necessities, such as food, housing, and basic goods, potentially driving up local prices.

During the site visit, it was identified that the Project workforce accommodation and broader influx of Chinese workers associated with the Industrial Acceleration Zone development had already generated demand in the local housing and land rental markets. At the Project level, one employer-managed camp was established on leased land between Gouaret Meharza and Gouaret Mechahla. Some Moroccan workers who had initially stayed in the camp subsequently moved to rented housing in the Gouaret area, while more than 20 Moroccan workers employed by another EPC contractor were reported to be living in rented accommodation in Gouaret Mechahla. BTR Management also reported that rents in these villages were higher than in Tangier City. These findings indicate that increased workforce-related demand for housing and associated pressure on rental prices have already been observed in AoI communities. Continued demand from non-local workers during the remainder of construction and the operation phase may place further upward pressure on local rents, particularly if the supply of suitable accommodation does not increase accordingly.

However, as specified in ***Section 7.3.1.2***, considering the majority of construction phase workers are hosted in Project accommodation camps as well as the fact that both accommodation camps offer free meals to workers housed there, it can be deducted that the demand for housing and daily goods generated by the Project and its EPC workers is limited compared to incoming workers from other companies, who reside in rental accommodation in these same villages.

Considering these dynamics and taking into account that the observed increase in rental demand remains localised, affects a limited proportion of the housing market and is short-term, the impact magnitude is assessed as **Small** during construction. During operation, the magnitude is assessed as **Medium**, as the influx of Moroccan in-migrant workers who may not be housed in Project accommodation camps could lead to greater demand in the housing and local goods market in the long-term. Receptor vulnerability is assessed as **Medium**, as low-income renters and households with unstable incomes may have limited capacity to absorb higher living costs, while retaining some ability to adapt. Considering the above factors, the impact significance is assessed as **Minor** during construction and **Moderate** during operation.

Embedded Control

- The Project already engages Moroccan contractors for certain support services, including transport and catering, while EPC contractors also use locally sourced transport services.

Significance of Impact

Impact		**Price hikes during construction and operation**				
Impact Nature		**Negative**		Positive		Neutral
IMPACT CHARACTERISTICS	**Type**	**Direct**		Indirect		**Induced**
		Direct impact from Project and contractor accommodation procurement. Induced impact from non-local workers using local housing and services.				
	Extent	Site	**Local**	Regional	National	International
	Scale	**Small**		Medium		Large
	SPATIAL EFFECTS	**Low**		**Medium**		High
	The spatial impact is considered as medium since the impact can result in evident change in people's everyday life.					
	Duration	Temporary	**Short-term** (construction phase)	Medium-term	**Long-term** (operation phase)	Permanent
	Frequency	Continuous				
	TEMPORAL EFFECTS	Negligible	**Low** (construction phase)	**Medium** (operation phase)		High
	The temporal impact of the construction is **Low** while the temporal effect of the operation phase is **Medium**.					
IMPACT MAGNITUDE		Negligible	**Small** (construction phase)	**Medium** (operation phase)		Large
		Considering the small spatial and medium temporal effects during construction and the medium spatial and temporal effects during operation, the impact magnitude is assessed as **Small** for the construction phase and **Medium** for the operation phase.				
RECEPTOR VULNERABILITY		Low		**Medium**		High
		Receptor vulnerability is considered Medium, given the existing levels of poverty, limited and unstable employment opportunities, rising living costs and reduced availability of land-based livelihood options.				
IMPACT SIGNIFICANCE		Negligible	**Minor** (construction phase)	**Moderate** (operation phase)		Major

Additional Mitigation Measure

- Conduct biannual monitoring on the prices of local accommodation, food, and other life necessities to meet both the Project and local community demand. Monitoring methods can be through local publicly available data on prices provided by the local government, engagement with local communities in a culturally appropriate manner (e.g., survey at the local market) and tracking the records of Project's GRM.
- If significant price hikes and unavailability of certain life necessities incurring from the Project activities are identified in the local communities, targeted mitigation measures should be implemented by BTR Anode including renting accommodation for employees, particularly for migrant workers, in other areas, diversifying procurement strategy etc.
- Additionally, if low-income households and other vulnerable groups are adversely affected by significant price increases or shortages of essential goods resulting from Project activities (for example, as evidenced through grievances submitted via the Project's GRM), BTR Anode should consider cooperating with the local government to propose, initiate and support targeted assistance programs for them.
- Priority employment for the local community can also be beneficial to mitigate the impacts of labour influx and competing job markets, as described in mitigation measures in ***Section 7.3.1.2***. An area-based assessment should be conducted to identify employment and procurement opportunities.
- Considering the overall economic conditions of the local communities, including the changes to livelihoods after the IAZ land acquisition process, as well as impacts from the influx of foreign workers, the Project should consider developing community development and investment programs to support the livelihoods and customary practices of local residents, especially farmers and livestock grazers in the AoI communities.
-

Residual Impact

After the implementation of the above mitigation measures, the residual impact of the price hikes is **Negligible** during construction phase and **Minor** during operation phase.

7.3.6 LAND USE AND LIVELIHOOD

7.3.6.1 OVERVIEW

This section examines the Project's potential to incur certain impacts on the land use of communities in the Project AoI. The main Project Site is located on land acquired from the state by the SATT, as described in ***Section 3.7.1***, and land acquisition impacts associated with it have been scoped out, as explained in ***Section 4***. However, the Project will also use a transmission line connecting to a substation to the southeast of the Project, whose location is outside of the IAZ area. Although this usage will take place on a temporary basis, there may be impacts on the land use and livelihood of nearby residents whose land was acquired for the transmission line in a process separate from the SATT's acquisition of IAZ land.

7.3.6.2 LAND ACQUISITION AND LOSS OF LIVELIHOOD FROM THE TEMPORARY PROJECT POWER CONNECTION (TEMPORARY TRANSMISSION LINE)

Potential Impacts

As described in ***Section 3.7.1***, the Project Site is located within the IAZ, whose land was expropriated by the Moroccan state starting in 2015 through the regional office of the

government entity *Direction des Domaines Privés de l'État* (Direction of the State Private Domains), and subsequently acquired by the IAZ in 2019. The Project received authorization for its establishment in 2024 and was not part of the land expropriation Process. As a result of the above considerations, the Project Site's impacts on local land use and livelihoods were excluded from the scope of this supplementary ESIA.

However, the Project will use a temporary transmission line that will be built by TMU and will connect to a existing substation that has recently been constructed for the neighbouring BTR Cathode Project, around 2.3 km southeast of the Project Site.[108] According to the BTR Anode Project management and the infrastructure service provider of the IAZ, the TMU, the Project's electricity use will be temporarily supplied by the transmission line pending the completion of the Project's permanent power infrastructure, which is located inside the IAZ. It is expected that this temporary power connection will be used from its completion in October 2026 until the development of the Project's permanent power infrastructure, for which the timeline is not confirmed at this stage. The temporary transmission line falls outside of the IAZ's land area and was not part of the SATT's earlier acquisition of land from the Moroccan State.

The land that will be occupied by the temporary transmission line is rural and agricultural land. According to satellite imagery, no structures are located within the temporary transmission line Right of Way and no physical displacement is therefore expected as a result of this component. The closest permanent structures in the vicinity of the temporary transmission line are located approximately 200 to 500 meters away.

Construction Phase

The Project's impacts on local land use primarily consist of the loss of agricultural land associated with land acquired for the construction of the transmission line. The most common crops reported to be grown in the area, such as cereals, fruits and vegetables, are typically planted between November and spring, and harvested between July and August. As the construction of the temporary transmission line is expected to take place in September and October 2026, it would take place while there are no standing crops in agricultural fields and would not disrupt farming activities. Impact magnitude is therefore assessed as **Negligible** during this phase.

Operation Phase

During the temporary transmission line operations, based on typical practice in Morocco and considering the underground nature of the infrastructure, it is expected that agricultural activities will be restricted within the Right of Way. While the size of the Right of Way corridor is not confirmed at this stage, based on common international practice, it is expected to be 3-5 meter wide.[109] Based on Satellite Imagery review and considering the linear nature of the infrastructure, the footprint of the Right of Way is expected to be small compared to the size of agricultural land in the area, and the impact magnitude for this phase is therefore assessed as **Minor**.

[108] As the substation is built for permanent use by the BTR Cathode Project and will only be used on a temporary basis by the Anode Project, its potential impacts on land use and livelihoods are assessed in the BTR Cathode ESIA.
[109] Easement Ready. Available at: https://easementready.com/library/utility/electric/distribution/underground

For both phases, receptor vulnerability is assessed to be **Medium** considering communities' historical dependency on land-based livelihoods such as agriculture and the limited availability of alternative land or other livelihood options. It is noted that the likelihood of land users being affected is low considering community members engaged in social baseline surveys reported that households typically farm and raise livestock on their own land, which they own. The temporary transmission line is therefore expected to primarily affected landowners.

Embedded Control

No embedded controls have been identified.

Significance of Impact

Impact		**Land acquisition and loss of livelihoods from the temporary transmission line**				
Impact Nature		**Negative**	Positive	Neutral		
IMPACT CHARACTERISTICS	**Type**	**Direct**	Indirect	Induced		
		Direct impact from land acquisition for the temporary transmission line, which is considered as an associated facility of the Project.				
	Extent	Site	**Local**	Regional	National	International
	Scale	**Small**	Medium	Large		
	SPATIAL EFFECTS	**Low**	Medium	High		
	The spatial impact is considered as **Low** considering the small size of the transmission line.					
	Duration	Temporary	**Short-term**	Medium-term	Long-term	Permanent
	Frequency	Continuous during construction and operation phase				
	TEMPORAL EFFECTS	Negligible	**Low**	Medium	High	
	The temporal impact is **Low** as the transmission line will only be used on a temporary basis before the Project's permanent transmission line is built within the IAZ.					
IMPACT MAGNITUDE		**Negligible** (construction phase)	**Small** (operation phase)	Medium	Large	
		Considering the **Small** spatial and temporal effects, the impact magnitude is assessed as Small.				
RECEPTOR VULNERABILITY		Low	**Medium**	High		
		Receptor vulnerability is considered **Medium**, given the existing levels of poverty, limited and unstable employment opportunities, and reduced availability of land-based livelihood options.				
IMPACT SIGNIFICANCE		**Negligible** (construction phase)	**Minor** (operation phase)	Moderate	Major	

Additional Mitigation Measure

- The Project shall communicate actively with the TMU to gather documentation to confirm that:
  - All of the landowners and land users affected by the transmission line have been identified, including any informal land users. This should be evidenced by land plot mapping and ownership documentation;
- All identified landowners have been compensated for the loss of land and crops, which should be evidenced by signed contracts. Should any land users be affected by the

temporary transmission line, including informal users, they should also be eligible for compensation for any loss of crops experienced due to the transmission line, either by TMU or through the agreement with the corresponding landowner. Compensation should be paid before the commencement of the relevant civil works or the land used by the facility. This should be evidenced through meeting notes of communications with landowners/users, as well as signed contracts;

  - The operation of the temporary transmission line will not extend beyond six months, and will therefore not affect more than one planting season. The temporary transmission line will be decommissioned and land will be rehabilitated for agricultural use once the permanent transmission line is completed; and
  - The transmission line corridor does not affect any irrigation channels or cause any temporary access blocks.
  - Should the above points not be confirmed, any potential additional impacts on livelihoods should be assessed and BTR Anode should discuss potential additional compensation entitlements with TMU/SATT commensurate with the impact experienced by these landowners/users.

- Disclose the Project's information and its GRM to all affected land owners and users. Any grievances raised in relation to the land acquisition process should be discussed and resolved jointly with SATT and/or TMU.
- BTR may consider working with farmers and livestock grazers in the community to support customary practices as part of community development and investment.

While land acquisition and livelihood impacts of the main Project site have been scoped out, as detailed in ***Section 4***, it is noted that local communities' ongoing concerns regarding the compensation process may pose reputational risks to the IAZ, which could also affect BTR's operations. Therefore, BTR should initiate discussions with SATT and relevant government authorities to identify opportunities for BTR to contribute to livelihood restoration efforts and programs in the AoI. While BTR occupies a portion of the industrial park land, the footprint of the Project represents only a small fraction of the overall industrial park area. Accordingly, any responsibility assumed by BTR should be proportionate to its contribution to the impacts and should not extend beyond what is reasonably attributable to the Project.

It is also noted that, once operational, the Project is expected to generate significant employment opportunities, which could provide an important pathway for local residents to transition to alternative livelihoods. In this regard, BTR should work closely with local government authorities to develop and implement measures that support workforce preparation, skills training, and equitable access to employment opportunities, as specified in ***Section 7.3.1***. By taking proactive steps in these areas, BTR can help create the conditions and foundation for the sustained improvement of local livelihoods over the long term.

Going beyond direct impact mitigation, considering the overall economic conditions of the local communities, the Project may consider developing community development and investment programs to support the livelihoods and customary practices of local residents, especially farmers and livestock grazers in the AoI communities. Community development programs may also aim to support livelihood activities traditionally or predominantly practiced by women, in order to enhance the socio-economic conditions of women in the AoI. The Project may partner with specialized NGOs to identify suitable activities, which may include sewing, handicrafts, small scale trade, and informal services, and provide meaningful investment and capacity

building for these livelihood activities. Livelihood development programs for women should be designed with input from women in the Project AoI, and should not replace the hiring plans for local women.

A detailed account of the land acquisition process of the Project land has not been provided by SATT or relevant government bodies. Considering the overall importance of the land acquisition process to the local communities, as well as reputational risks to the Project that may arise due to contentions surrounding the land acquisition process – even if the Project's own impacts are negligible – it is recommended that the Project continues to work with the SATT and relevant government bodies to gather more information on the acquisition of the Project land. The Project should consider keeping a clear register of the land use history and past land property rights prior to their acquisition, including the owners and any authorized/unauthorized users of the land, the previous land use categories (both regulatory and actual use), the process and compensation of the acquisition of the land, and any conflicts or disputes that arose from the land acquisition process, including any resolved or ongoing legal issues.

Residual Impact

After the implementation of the above mitigation measures, the residual impact is **Negligible** during construction and operation phases.

7.3.7 PROJECT GENDER ANALYSIS

7.3.7.1 CORPORATE-LEVEL ANALYSIS

According to BTR's 2025 Sustainability Report, BTR employed 6,843 male and 1,299 female employees at the end of 2025. Women accounted for 15.95% of the workforce, 12.9% of new hires (222 of 1,720), and 19.44% of management positions (76 of 391). Women also held 5.00% of seats on the board committees.

BTR's Human Rights Policy applies to all wholly owned and controlled subsidiaries. It prohibits discrimination in recruitment, training, promotion, remuneration and benefits on grounds including gender, marital status and pregnancy status. The 2025 Sustainability Report states that BTR applies equal pay for equal work and does not set pay bands by gender. BTR's Human Resources Management System includes a Female Employee Protection Policy, which:

- Prohibits refusing to hire, dismissing or reducing the wages of women on the grounds of marriage, pregnancy, childbirth or breastfeeding;
- Provides maternity, prenatal check-up, nursing and paternity leave;
- Restricts women from particularly heavy physical labour.

BTR's Code of Business Conduct explicitly prohibits sexual harassment. It also provides confidential reporting channels and protects reporters from retaliation. The Human Resources Management System also prohibits sexual harassment and sexual abuse of employees. The 2025 Sustainability Report states that all employees received anti-discrimination and anti-harassment training, and that no discrimination or harassment incidents were identified in 2025. These provisions are framed around the workplace. The reviewed corporate policy documents do not explicitly address gender-based violence or sexual exploitation, abuse and harassment involving contractor workers or community members.

7.3.7.2 PROJECT-LEVEL ANALYSIS

The Project, BTR Morocco Anode, is one of two BTR companies in the IAZ along with BTR Morocco Cathode, with whom it shares the BTR corporate policies and requirements, along with certain overlaps in community impacts. The Project workforce is drawn from three groups: employees directly engaged by BTR Anode, workers engaged by the two EPC contractors through labour subcontractors, and contracted support and security personnel.

TABLE 7-32 GENDER OF PROJECT DIRECT EMPLOYEES

Phase	Total	Male	Female
Construction	~90-100	77%	23%
Operation	~1,000-1,100	Not yet determined	Not yet determined

TABLE 7-33 GENDER OF PROJECT CONTRACTED EMPLOYEES

Phase	Employer	Total	Male	Female
Construction	EPC Package One	~300	~97%	~3%
	EPC Package Two	~450-500		
	Cleaning, kitchen and other support staff	Small number (not quantified)	0	All
	Security personnel	<5	<5	0
Operation	Contracted workers	~60-70	Not provided	Not provided
	Security personnel	~5-10	Not provided	Not provided

During the construction phase, women made up 23% of BTR Anode's direct workforce. The majority of female BTR employees during this phase are Chinese, though there are some Moroccan female employees. By contrast, the EPC workforce is overwhelmingly male: almost all female EPC personnel are in management or support roles, with only three to four women working on site. All contracted cleaning, kitchen and support staff are Moroccan women, while all contracted security personnel are Moroccan men. This indicates occupational segregation by gender within the Project workforce. The gender makeup of the operation-phase workforce, both direct and contracted, has not yet been determined.

Based on the baseline overview of gender topics in ***Section 5.2***, four key areas are identified where gender-specific risks associated with the Project should be managed and equality of opportunity and women's socioeconomic empowerment promoted:

- Elevate human capital;
- Expand and enable economic opportunities;
- End gender-based violence; and
- Advance women's participation in decision-making.

The measures addressing each area have been incorporated into the SIA and ESMP and are summarised below. Considering the nature of the Project's potential impacts as well as the

existing conditions of women in AoI communities and the Project workforce, the mitigation measures included in the present ESIA and ESMP are considered commensurate with the Project's gender-specific impacts. Consequently, a standalone Gender Action Plan is not deemed necessary to address the Project's gender-related topics.

Elevate Human Capital

According to ***Section 5.2.7***, women in the AoI communes have markedly higher illiteracy and lower lower-secondary attainment than men, despite near-universal primary enrolment. Illiteracy among women is 27.9% in Laaouama and 39.4% in Sebt Azzinate, compared with 17.5% and 25.0% among men. FGD participants reported that transport costs, family expectations and early marriage or engagement contribute to girls dropping out of school. These gaps may limit women's eligibility for semi-skilled and skilled roles during operation.

To address this, the Local Hiring Plan set out in ***Section 7.3.1.2*** shall include:

- Pre-employment vocational training for local community members;
- The exploration of joint skills-training programmes with ANAPEC; and
- Gender-inclusive training schemes specifically aimed at supporting women and other vulnerable groups to access employment opportunities.

Expand and Enable Economic Opportunities

The operation phase will create ~1,000-1,100 direct jobs, with the share of Moroccan workers expected to rise gradually from 77% to 90%. This makes it the Project's principal opportunity for local employment. Additionally, the presence of workers in the AoI communities and any local procurement that takes place could bring indirect economic and employment opportunities for women, especially in sectors such as restaurants, shops, and other small businesses. According to ***Section 5.2.9***, women's labour force participation is only 12.9% in Laaouama and 8.9% in Sebt Azzinate. Their access to employment is reportedly constrained by:

- Limited capital and informal recruitment practices;
- Family expectations;
- Transport and safety concerns; and
- Harassment and reputational pressure.

AoI communities explicitly requested targeted employment opportunities for women. While the construction phase is largely male-dominated in terms of employment, the operation phase is expected to feature jobs of very different natures and present an opportunity to provide targeted opportunities for local women. These opportunities are especially relevant in the context of pre-existing disruptions to traditional land-based livelihoods, as many residents, families, and women are interested in non-agricultural livelihood activities.

The Project shall effectively implement the Local Hiring Plan, which requires advance notice of job openings through accessible local channels in Arabic and French, transparent qualification criteria, and the gender-inclusive training schemes described above. In addition, ***Section 7.3.5.2*** recommends that the Project develop community development programmes supporting livelihoods predominantly practised by women in the AoI, such as sewing, handicrafts, small-scale trade and informal services. These programmes should be designed

with input from AoI women, may be delivered in partnership with specialised NGOs, and should not replace the hiring of local women.

End Gender-Based Violence

The construction workforce is predominantly male and mostly consisted of foreign workers and Moroccan workers from outside of the AoI, while further labour influx is expected during operation. This may increase GBV and sexual exploitation, abuse and harassment (SEAH) risks for women in the AoI, and may change local gender relations. A largely-male worker influx is also often associated with heightened risks of sexually transmitted diseases for women and girls, which is especially relevant considering the reported instances of informal transactional relationships involving local sex worker, local workers and non-local workers. Based on community stakeholder comments, these risks are reportedly compounded by:

- Existing occurrence of domestic violence and harassment in AoI villages;
- The lack of street lighting, which raises safety concerns for women at night;
- The absence of a dedicated GBV support/response facility in the AoI; and
- Limited awareness of the national support mechanisms.

Some arrangements are in place during both phases to mitigate risks for women and girls. Existing BTR corporate policies prohibit sexual harassment, discrimination, and abuse. At the Project level, the Chinese EPC workers are housed in purpose-built accommodation camps on the edges of AoI villages, with meals and transportation provided by the EPC contractors, which limits contact with local communities. One EPC contractor indicated that female employees have separate rooms from men in accommodation camps. An accommodation camp will also be established for the operation-phase.

The Project shall implement proposed measures designed to further mitigate the potential impacts of gender-based violence, which include:

- Worker Code of Conduct: develop a CoC in Arabic, French and Chinese, applicable to all direct, EPC and subcontracted personnel. It shall prohibits sexual harassment, exploitation, abuse and prostitution both among workers and between workers and local communities, during working and rest hours. The existing Contractor Safety Management Agreement will be aligned with it.
- Worker Grievance Mechanism: develop a formalised mechanism that includes procedures and a specific policy on SEA and sexual harassment, multiple anonymous channels, and coverage of contracted workers.
- The Project HRIA (Appendix B) establishes additional GBV prevention and response measures.
- Locate operation-phase worker dormitories away from AoI community settlement centres.

Advance Women's Participation in Decision-Making

Community stakeholders identified barriers to women's access to Project information, training and employment. They called for targeted engagement, equal opportunities and safe channels for women to raise concerns. The Project does not currently have specific practices to promote women participation and leadership, and should ensure that it implements the following measures:

- Implement the SEP to provide for targeted, culturally appropriate engagement with women throughout the construction and operation phases.
- Implement the GRM to include special provisions for women and the special policies for reporting SEA and sexual harassment. Ensure that women within the workforce and AoI communities are aware of these special measures and how to access them.
- When designing community development and investment programs, especially those concerning women's employment and livelihood, ensure they're designed and implemented with women's direct input. This may include identifying and working with government agencies/programs or NGOs specializing in women's development.

8. CUMULATIVE IMPACT ANALYSIS

8.1 INTRODUCTION

Cumulative impacts are generally considered as those, which are additive or interactive in nature that arise as a result of an impact from the Project interacting with an impact from another activity to create an intensified impact.

The IFC World Bank Group defines a cumulative impact as the:

"*…result from the incremental impact, on areas or resources used or directly impacted by the project, from other existing, planned or reasonably defined developments at the time the risks and impacts identification process is conducted. Cumulative impacts are limited to those impacts generally recognised as important on the basis of scientific concerns and/or concerns from Affected Communities*".[110]

IFC PS 1 requires that an environmental assessment should also address cumulative impacts. The objective of the Cumulative Impact Assessment (CIA) is to identify those environmental, social or health aspects that may not on their own constitute a significant impact but when combined with impacts from past, present, or reasonably foreseeable future Project activities or other projects/activities may result in a larger and more significance impact.

In order to gain an understanding of the Project's overall contribution to impacts, a CIA is required to be undertaken. Whilst total cumulative impacts due to multiple projects within a given area should require the participation of many parties and is best led by local governments or regional planners, client needs to determine the degree to which it is contributing to these overall cumulative impacts on Valued Environmental and Social Components (VEC), which are also referred to as E&S sensitive receptors in other parts of this Supplemental Assessment. In this regard, the objectives of the CIA are to:

- Use the outcomes of the Supplemental Assessments to determine spatial and temporal boundaries, identify sensitive receptors and all development and external natural and social stressors affecting them;
- Recognise and identify how the Project, along with other existing and future projects may contribute to cumulative impacts on the predicted future condition of the identified sensitive receptors; and
- Develop measures to ensure these are avoided and/or minimised to the greatest extent possible.

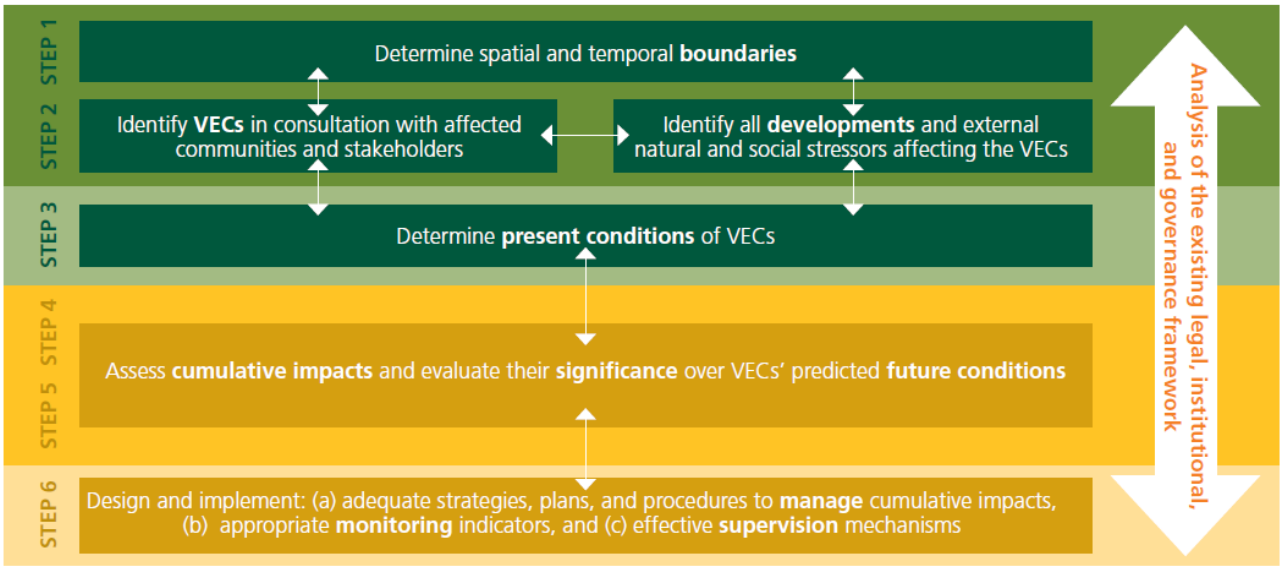
8.1.1 METHODOLOGY AND APPROACH

To achieve these objectives and gain an understanding of the complexities of cumulative impacts, this Section has been undertaken largely following the methodology in the IFC's "Good Practice Handbook: Cumulative Impact Assessment and Management Guidance for the Private Sector in Emerging Markets" (2013).[111] The handbook recommends a six-step approach for CIA, as presented in ***Figure*** 8-1. The iterative six-step process focuses on scoping/screening (Steps 1 and 2), VEC baseline determination (Step 3), assessment of the contribution of the development under evaluation to the predicted cumulative impacts (Step

[110] IFC World Bank Group Performance Standard 1 (IFC PS 1), 1 January 2012
[111] Available at: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/787161468178468723

4), evaluation of the significance of predicted cumulative impacts to the viability or sustainability of the affected VECs (Step 5), and design and implementation of mitigation measures to manage the development's contribution to the cumulative impacts and risks (Step 6). As a first step, projects were screened based on their spatial and temporal boundaries, and common receptors. This screening step identified projects to be included in the CIA.

FIGURE 8-1 THE SIX STEPS FOR THE CUMULATIVE IMPACT ASSESSMENT



8.1.2 CIA SCOPING

8.1.2.1 SPATIAL AND TEMPORAL BOUNDARIES

The methodology used in the setting of spatial and temporal boundaries is largely qualitative and is based upon the general "rules of thumb" suggested in Box 7 of the IFC Handbook. The following factors have been established within the methodology:

- **Spatial boundaries:** The spatial boundaries consider the specific AoI defined for this Project and/or whether other projects' AoI overlaps with this Project's AoI; and
- **Temporal boundaries:** The temporal boundaries concern the development status of the Project and other projects under consideration, i.e. whether they are in planning, construction or operational phases.

8.1.2.2 VALUED ENVIRONMENTAL AND SOCIAL COMPONENTS (VEC)

For the purpose of this assessment, VECs are defined as sensitive receptors that may be subject to cumulative impacts or interactions resulting from concurrent or overlapping project activities, regardless of direct spatial overlap. These receptors are identified based on their potential exposure to combined effects from multiple developments operating within the same temporal or functional context.

ERM has identified the following common sensitive receptors:

Environmental/Biodiversity Sensitive Receptors:

- Ambient air quality
- Noise

- Freshwater aquatic habitat.

Social Sensitive Receptors:

- Villages/Douars of Gouaret Mcharza, Gouaret Mechahla, Slaouiyine and Chaouia; Communes of Laaouama and Sebt Azzinate; and
- Wider Caidat and Prefecture area.

8.1.2.3 DEVELOPMENTS AFFECTING VECS

The developments presented in this CIA were identified through site visit and stakeholder interviews conducted in August 2026, with additional insights gathered through high-level desktop research by ERM. The projects taken into the CIA are either:

- Approved and/or under construction; or
- Will likely be approved and exist in parallel with this Project.

Based on the desktop research, site visit and stakeholder interviews, the following developments were considered relevant to the cumulative impact assessment.

BTR Cathode project

BTR Cathode project is currently under construction and expected to commence operation in 2026 and is designed to produce 25,000 tonnes per year of cathode materials, The anticipated production processes include raw material preparation, weighing and mixing, wet milling or slurry preparation, filtration, drying, calcination, crushing, sieving, blending, magnetic separation, and packaging. Potential air emissions include particulate matter containing nickel, cobalt, manganese. Noise is expected to be generated by production equipment and associated utility facilities.

Hailiang New Material project

Hailiang New Material project is currently under construction and is designed to manufacture copper and copper alloy products, including copper tubes, brass rods, and lithium-battery copper foil. The anticipated production processes may include copper and copper alloy melting, alloying, casting, extrusion, rolling, drawing, annealing, machining, pickling, and surface cleaning. Potential air emissions include particulate matter containing copper, acid mist, oil mist, VOCs, and NO_X. Noise is expected to be generated by the operation of production equipment and associated utility facilities.

Tangier Med Utilities (TMU)

Tangier Med Utilities (TMU) serves as the utility and environmental infrastructure provider for IAZ. Its activities include potable water supply, wastewater collection and treatment, electricity distribution, industrial waste management and environmental utility services. The facility is already operational, and no expansion plans have been identified.

Aptiv

Aptiv is a leading global supplier of automotive electrical and electronic systems. Its Moroccan operations primarily manufacture automotive wiring harnesses, cable assemblies and electrical distribution systems for international vehicle manufacturers. Aptiv announced a new manufacturing facility in Tangier Tech as part of its continued expansion in Morocco in 2025.

Sentury Tire Morocco

Sentury Tire Morocco is a tyre manufacturing facility located in Mohammed VI Tangier Tech City. The project produces passenger car and light truck radial tyres through processes

including rubber mixing, tyre building and vulcanization. The facility has a planned production capacity of approximately 6 million tyres per year and commenced pre-commercial production in October 2024. As of 2026, the plant is operational.

8.1.2.4 SCREENING PROCESS

Projects were reviewed and 'screened' based on their spatial and temporal boundaries, and common receptors (***Section 8.1.2.2***). This screening step identified projects to be included in the CIA. This is carried out by using available information, including: project nature, location, and timeline. However, as most projects have limited information, the screening process is supplemented with expert knowledge.

Projects that are in vicinity of, and may have spatial or temporal overlap with this Project, will be assessed based on the below questions:

- For projects that may have spatial overlaps: are the two projects close enough to each other that the AoIs are likely to receive impacts from both of the projects?
- For projects that may have temporal overlaps: do the timelines of key activities (i.e. construction and operation) overlap?
- Common Receptors/Resources: what receptors or resources may be affected cumulatively by both projects (temporal or spatial overlap)?

ERM considered the following constraints and assumptions in delineating the AoI and establishing buffer zones for each project, including a 10 km buffer for Sentury Tire Morocco, Aptiv, Hailiang, and BTR Cathode to account for potential air quality impacts.

The screening of projects with potential cumulative impacts is summarised in ***Table*** 8-1.

TABLE 8-1 SCREENING OF PROJECTS WITH POTENTIAL CUMULATIVE IMPACTS

No.	Project	Details of Project	Spatial Overlap	Distance to the Project[112]	Designated AoI (radius)	Temporal Overlap	Common Receptors	Included or Rejected
1	BTR Cathode project	A cathode materials manufacturing facility	Yes - Overlap of the Project AoI	3 km	10 km	Yes, the project is currently under construction and expected to commence operation in 2026	Yes	Included
2	Hailiang New Material project	A copper and copper alloy products manufacturing facility	Yes - Overlap of the Project AoI	Next to the Project	10 km	Yes, the project is currently under construction and expected to commence operation in 2026	Yes	Included
3	Tangier Med Utilities (TMU)	the utility and environmental infrastructure provider for IAZ.	/	Unavailable at this stage	/	No – the project is in operation and no expansion activities	/	Rejected as it is a utility operator rather than an independent impact source.
4	Aptiv	An automotive electrical and electronic systems facility	Yes - Overlap of the Project AoI	2.5 km	10 km	No - Aptiv is in operation	Yes	Rejected as the project is in operation. The impact was captured by the baseline survey
5	Sentury Tire Morocco	a tyre manufacturing facility	Yes - Overlap of the Project AoI	2.5 km	10 km	No - the project is in operation	Yes	Rejected as the project is in operation. The impact was

[112] Approximate aerial distance measured by ERM through spatial mapping.

								captured by the baseline survey

8.1.3 DETERMINING PRESENT CONDITIONS OF VECS

The present conditions of the VECs identified are described in the respective baseline sections of this ESIA – refer to the relevant sections for these descriptions.

The current understanding of baseline conditions has been used to identify and assess the potential cumulative impacts presented below.

8.1.4 ASSESSMENT OF THE SIGNIFICANCE OF CUMULATIVE IMPACTS

This Section brings together the findings of the screened-in projects from ***Section 8.1.2.4*** and considers whether there is likely to be a significant contribution to overall cumulative impact caused by the BTR Anode Project.

8.1.4.1 CUMULATIVE IMPACTS RELATED TO AMBIENT AIR

As the construction periods of these projects are expected to overlap, the cumulative impact assessment will consider both the construction impacts and the combined impacts during the operational phase.

During the construction phase, the cumulative impacts to the ambient air that would result from a combination of the proposed Project include:

- Construction equipment and transportation vehicles powered by diesel emit pollutants such as nitrogen oxides (NO_x), particulate matter (PM), sulphur dioxide (SO_2) and CO. These pollutants can lead to adverse health impacts and affect amenity and ecology.
- Earthworks such as ground levelling, soil excavation and transportation will generate construction dust.

The construction activities will be temporary and limited in duration, and the nearest identified sensitive receptor is located more than 500 m from the projects' boundaries.

In addition, all three projects are currently under construction, the cumulative impacts on ambient air quality have been captured by the baseline monitoring programme. Based on the monitoring results, the cumulative influence of the ongoing construction activities is currently limited. Therefore, significant cumulative air quality impacts are not anticipated during the construction phase.

Accordingly, at the Project level, no additional measures are proposed.

During the operation phase, the cumulative impacts to the ambient air that would result from a combination of the proposed Project include:

- Potential air emissions from BTR Cathode project include particulate matter containing nickel, cobalt, manganese.
- Potential air emissions from Hailiang New Material project include particulate matter containing copper, acid mist, oil mist, VOCs, and NO_X.

Quantitative information was available for the BTR Cathode Project, while details of Hailiang New Material project are not available at the time of report. A quantitative cumulative impact assessment was therefore undertaken for pollutants common to the proposed Project and the BTR Cathode Project, including PM_{10} and $PM_{2.5}$. The cumulative predicted environmental concentration was calculated by combining the background concentration with the modelled process contributions from the proposed Project and the BTR Cathode Project at corresponding receptor locations.

The quantitative results are presented in Table 8-2. The maximum cumulative concentrations of PM_{10} were predicted to be 3.12 µg/m³ (24-hour average) and 0.37 µg/m³ (annual average). The maximum cumulative concentrations of $PM_{2.5}$ were predicted to be 1.37 µg/m³ (24-hour average). Therefore, the air dispersion modelling results indicate that the cumulative contribution of the Project and BTR Cathode to ambient pollutant concentrations is Small.

Accordingly, at the Project level, no additional measures are proposed.

TABLE 8-2 MODELLING RESULTS

Receptor	Baseline Concentration (µg/m³) [a]	AAQS (µg/m³)	Project PC (µg/m³) [b]	Cathode PC (µg/m³) [c]	Cumulative PC (µg/m³) [d]	Cumulative PC/AAQS (%)	Cumulative PEC (µg/m³) [e]	Cumulative PEC/AAQS (%)	Receptor Sensitivity	Impact Magnitude	Impact Significance
24-hour Average PM_{10} Results (Air Quality Impact to Human Health)											
ASR1	55.55	50	1.96E+00	7.31E-01	2.69E+00	5.38	58.24	116.48	Medium	Small	Minor
ASR2	55.55	50	1.17E+00	3.25E-01	1.50E+00	2.99	57.05	114.09	Medium	Small	Minor
ASR3	55.55	50	1.28E-01	1.93E-01	3.21E-01	0.64	55.87	111.74	Medium	Small	Minor
ASR4	55.55	50	4.09E-01	3.47E-01	7.56E-01	1.51	56.31	112.61	Medium	Small	Minor
ASR5	55.55	50	1.05E+00	2.07E+00	3.12E+00	6.24	58.67	117.34	Medium	Small	Minor
ASR6	55.55	50	1.15E+00	1.62E+00	2.77E+00	5.54	58.32	116.64	Medium	Small	Minor
ASR7	55.55	50	1.86E+00	4.15E-01	2.28E+00	4.55	57.83	115.65	Medium	Small	Minor
ASR8	55.55	50	1.41E+00	2.55E-01	1.67E+00	3.33	57.22	114.43	Medium	Small	Minor
Annual Average PM_{10} Results (Air Quality Impact to Human Health)											
ASR1	27.775	40	3.41E-01	2.98E-02	3.71E-01	0.93	28.15	70.36	Medium	Negligible	Negligible
ASR2	27.775	40	3.50E-02	1.30E-02	4.80E-02	0.12	27.82	69.56	Medium	Negligible	Negligible

Receptor	Baseline Concentration (µg/m³) [a]	AAQS (µg/m³)	Project PC (µg/m³) [b]	Cathode PC (µg/m³) [c]	Cumulative PC (µg/m³) [d]	Cumulative PC/AAQS (%)	Cumulative PEC (µg/m³) [e]	Cumulative PEC/AAQS (%)	Receptor Sensitivity	Impact Magnitude	Impact Significance
ASR3	27.775	40	5.64E-03	4.56E-03	1.02E-02	0.03	27.79	69.46	Medium	Negligible	Negligible
ASR4	27.775	40	2.69E-02	2.02E-02	4.71E-02	0.12	27.82	69.56	Medium	Negligible	Negligible
ASR5	27.775	40	3.16E-02	3.22E-01	3.54E-01	0.88	28.13	70.32	Medium	Negligible	Negligible
ASR6	27.775	40	5.17E-02	2.62E-01	3.14E-01	0.78	28.09	70.22	Medium	Negligible	Negligible
ASR7	27.775	40	2.07E-01	4.19E-02	2.49E-01	0.62	28.02	70.06	Medium	Negligible	Negligible
ASR8	27.775	40	1.10E-01	2.12E-02	1.31E-01	0.33	27.91	69.77	Medium	Negligible	Negligible
24-hour Average $PM_{2.5}$ Results (Air Quality Impact to Human Health)											
ASR1	55.55	45	1.24E+00	1.33E-01	1.37E+00	3.05	56.92	126.50	Medium	Negligible	Negligible
ASR2	55.55	45	8.73E-01	3.38E-02	9.07E-01	2.02	56.46	125.46	Medium	Negligible	Negligible
ASR3	55.55	45	1.05E-01	3.56E-02	1.41E-01	0.31	55.69	123.76	Medium	Negligible	Negligible
ASR4	55.55	45	2.91E-01	8.21E-02	3.73E-01	0.83	55.92	124.27	Medium	Negligible	Negligible
ASR5	55.55	45	5.13E-01	3.80E-01	8.93E-01	1.98	56.44	125.43	Medium	Negligible	Negligible
ASR6	55.55	45	6.65E-01	3.01E-01	9.66E-01	2.15	56.52	125.59	Medium	Negligible	Negligible

Receptor	Baseline Concentration (µg/m³) [a]	AAQS (µg/m³)	Project PC (µg/m³) [b]	Cathode PC (µg/m³) [c]	Cumulative PC (µg/m³) [d]	Cumulative PC/AAQS (%)	Cumulative PEC (µg/m³) [e]	Cumulative PEC/AAQS (%)	Receptor Sensitivity	Impact Magnitude	Impact Significance
ASR7	55.55	45	1.26E+00	7.45E-02	1.33E+00	2.97	56.88	126.41	Medium	Negligible	Negligible
ASR8	55.55	45	9.45E-01	5.53E-02	1.00E+00	2.22	56.55	125.67	Medium	Negligible	Negligible

Note:
(a) Degraded airsheds are assumed in the absence of baseline.
(b) The contribution of the emissions of the Project is taken as Project PC.
(c) The contribution of the emissions of BTR Cathode is taken as BTR Cathode PC.
(d) The contribution of the emissions of the Project and BTR Cathode is taken as Cumulative PC.
(e) The contribution of the emissions of the Project and BTR Cathode combined with baseline is taken as Cumulative PEC.

8.1.4.2 CUMULATIVE IMPACTS RELATED TO NOISE

As the construction periods of these projects are expected to overlap, the cumulative impact assessment will consider both the construction impacts and the combined impacts during the operational phase.

During the construction phase, the cumulative impacts to the acoustic environment that would result from a combination of the proposed Project and corresponding traffic volume include:

- Increased construction noise from the site construction and other project construction located within the same area.
- Increased heavy load traffic with increased noise level on the receptors alongside the road.

The construction activities will be temporary and limited in duration, and the nearest identified sensitive receptor is located more than 500 m from the projects' boundaries.

In addition, all three projects are currently under construction, the cumulative impacts on acoustic environment have been captured by the baseline monitoring programme. Based on the monitoring results, the cumulative influence of the ongoing construction activities is currently limited. Therefore, significant cumulative noise impacts are not anticipated during the construction phase.

Accordingly, at the Project level, no additional measures are proposed.

During the operation phase, the cumulative impacts to the acoustic environment that would result from a combination of the proposed Project and corresponding traffic volume include:

- Increased noise levels resulting from the concurrent operation of the proposed Project and other developments in the surrounding area; and
- Increased road traffic noise at sensitive receptors located along access roads.

As assessed in ***Section 7.2.2***, the operational noise contribution from the Project at nearby sensitive receptors is expected to be limited, with the PNL of 29.6 dB(A). Considering that the other surrounding developments are also primarily manufacturing facilities, with most production equipment expected to be housed within enclosed buildings, equipment noise would be effectively attenuated by the building structures. Therefore, the cumulative operational noise impact from the proposed Project and other surrounding developments is expected to be minor and unlikely to result in significant effects on nearby sensitive receptors.

Accordingly, at the Project level, no additional measures are proposed.

8.1.4.3 CUMULATIVE IMPACTS RELATED TO WATER USE

Morocco is among the most water-stressed countries globally, with per capita water availability around 600 m³/year, far below the 1,000 m³ threshold for water stress. The Project is located within the Loukkos Basin, which is generally regarded as one of the less water-constrained regions of Morocco. According to stakeholder interviews conducted during in August, no concerns related to water scarcity or water supply shortages were raised by nearby communities. However, recurring droughts, declining precipitation and increasing demand from municipal, agricultural and industrial users have resulted in increasing pressure on regional water resources.[113]

The BTR Anode Material Project is located within Mohammed VI Tangier Tech City, where water supply is provided through the regional utility network serving the industrial platform. In

[113] https://forumdelamerbizerte.com/tangier-will-also-have-its-seawater-desalination-station/

addition to the Project, other industrial developments within the industrial park, including Sentury Tire Morocco, Aptiv and other manufacturing tenants, will also require water for production processes and domestic consumption. Consequently, the combined water demand from these developments may place cumulative pressure on regional water resources and shared water supply infrastructure.

Therefore, BTR should implement good international industry practices to minimise its contribution to cumulative water demand, including:

- Maximizing water reuse and recycling within the production process;
- Installing water metering and monitoring systems to improve water use efficiency;
- Regularly inspecting equipment and pipelines to prevent water losses;
- Adopting water-efficient technologies wherever practicable; and
- Developing a contingency water supply plan to address potential supply interruptions.

8.1.4.4 CUMULATIVE IMPACTS RELATED TO COMMUNITY COHESION

Additional workers from outside the local area may be required by other companies in the IAZ and may incur cumulative impacts on the community along with the Project. The presence of influx workers residing in accommodation camps or rented houses in local communities may alter the local demographic profile, including the gender ratio, economic equality, sources of livelihood, and the diversity of religious faiths and cultural practices. Increased community concerns, such as differences in cultural backgrounds and daily living practices may also be associated with the influx of workers. As observed during baseline surveys, nearby villages have already undergone notable socio-economic transformation, including increased rental housing, the establishment of new businesses, greater cultural diversity, and changes in traditional livelihood patterns. However, the Project's incremental contribution to these cumulative impacts is expected to be limited. At least one of the identified companies in the IAZ will house non-local workers in rented accommodation in the AoI villages, based on information provided by BTR Cathode, and will thus introduce more vectors of contact with the community compared to the Project. In contrast, the Project's construction workforce is primarily accommodated in dedicated worker camps that provide meals and transportation, thereby reducing routine interaction with local communities. During operation, the Project is also expected to rely predominantly on Moroccan workers, further reducing the relative contribution of non-local workforce to cumulative social change.

Therefore, many of the social changes associated with labour influx cannot be attributed to the Project alone, but are the result of the combined influence of multiple industrial developments operating within the same area. The Project is expected to contribute incrementally to ongoing cumulative effects associated with labour influx, marketization, and increasing socio-economic diversity; however, its contribution is likely to remain relatively small in comparison with the broader industrial development of the IAZ and the activities of other existing identified companies. Consequently, the cumulative impact on community cohesion and social structure is assessed as Minor.

The Project should implement the mitigations outlined in ***Section 7.3.1.2*** in order to minimise its contribution on the impacts on the community cohesion of AoI settlements. The following additional measures should also be implemented to the extent possible:

- Working with SATT, promote coordination and communication between the companies in the IAZ in terms of managing worker influx and their impacts on community cohesion; and
- Coordinate the GRM implementation with SATT, as detailed in the Stakeholder Engagement Plan (SEP).

8.1.4.5 CUMULATIVE IMPACTS RELATED TO TRANSPORT AND TRAFFIC

The Project is located within the Cité Mohammed VI Tangier Tech Industrial Acceleration Zone, where other industrial facilities, including at least two Chinese-operated companies currently under construction. As a result, Project-related traffic will contribute to an existing and growing volume of industrial vehicle movements associated with the wider development of the IAZ. This includes the transport of construction materials, industrial equipment, raw materials, finished products, contractor vehicles, employee shuttle buses, and employee commuting traffic.

Given the close proximity of the identified companies in the IAZ, the transportation of construction materials, equipment, waste, and personnel are likely to rely on the same access roads and local transport corridors during the construction phase. The main cumulative effects are expected to occur along the shared transportation corridor linking Tangier Med Port, the A5 Highway, the Gouaret Meharza roundabout, and the internal road network serving the Industrial Acceleration Zone. The concurrent use of these shared routes may increase traffic volume, thereby elevating the risks of traffic congestion, road wear and tear, and potential road safety incidents. Higher levels of traffic through highway access roads and local roads in the AoI communities will increase the risk of accidents involving local residents and road users. The transportation of personnel from their accommodation (whether in centralized camps or in local homes for Moroccan employees) during the construction and operation phases in shuttle buses and private vehicles will likely account for a notable impact on local traffic and transportation safety on local roads in Gouaret Meharza and Gouaret Mechahla, and the Project’s contribution of the cumulative impact will be proportional to its share of the total number of workers residing in these settlements for all identified IAZ companies.

Given limited information about transport fluxes that may be generated by other identified companies in the IAZ, it can be conservatively assumed that the Project's incremental contribution to cumulative traffic impacts could be moderate. While the regional and national roads such as A5 Highway are already comparatively adapted to carry industrial and commercial traffic, cumulative effects on local roads serving Gouaret Meharza and adjacent communities could become more pronounced over time if industrial development continues to expand without corresponding upgrades to local transport infrastructure and traffic management measures.

The cumulative impact on transport and traffic is therefore assessed as Moderate, reflecting the shared use of local road infrastructure by multiple industrial operators, the potential for increased traffic safety risks, and the uncertainty associated with future industrial growth within the Tangier Tech Industrial Acceleration Zone. However, it is noted that the development of a Traffic Management Plan (TMP) and additional measures have already been listed in ***Section 9.5*** in order to mitigate the Project’s contributions to these impacts.

The following additional mitigation measures should be implemented where possible to address this impact:

- Coordinate traffic management with other industrial zone operators and the SATT to share information on major deliveries, construction schedules, abnormal-load transport, and peak traffic periods, thereby reducing cumulative congestion and road safety risks on shared access roads and at the Gouaret Meharza roundabout; and
- Monitor road conditions and traffic-related community grievances in collaboration with local authorities and identified IAZ companies, and contribute proportionately to the maintenance or repair of local roads where Project activities are determined to contribute materially to cumulative road deterioration or safety concerns.

8.1.4.6 CUMULATIVE IMPACTS RELATED TO COMMUNITY HEALTH, SAFETY AND SECURITY

Considering the presence of several companies under construction phase in the IAZ, community health and safety conditions are influenced not only by the Project, but also by the combined effects of emissions, workforce influx, industrial traffic, and worker-community interactions associated with multiple industrial operators. The Project may generate general community health and safety risks, such as construction-related hazards (e.g., noise, emission, etc.), exposure to communicable diseases, and GBV/SEAH due to the influx of transient workers.

With respect to environmental health, the Project's standalone assessment concluded that impacts from air emissions, noise, and hazardous waste management are expected to be negligible at surrounding settlements due to the implementation of emission control systems and the distance between the Project and community receptors. Contributions to cumulative impacts for these aspects would therefore be Negligible.

The combined presence of several industrial facilities and a sizeable migrant workforce may also increase cumulative community health and safety risks associated with communicable diseases and sexually transmitted diseases (STDs). Community consultations indicated existing concerns regarding the presence of foreign workers and sex work activities in nearby settlements. Although the Project's construction workforce is largely accommodated in dedicated camps that reduce community interaction, cumulative exposure pathways remain present through interactions between workers from multiple companies and local communities. During operation, continued labour influx associated with industrial zone expansion may further contribute to these risks. The Project's incremental contribution to cumulative community health and safety impacts is expected to be limited, considering workforce accommodation and transport arrangements reduce opportunities for worker-community interaction compared with other industrial developments whose workers reside within local settlements. As a result, the Project is not expected to be a primary driver of cumulative health and safety risks within the AoI.

The mitigation measures proposed in ***Section 7.2.3*** of the ESIA and ***Section 6.4*** of ***Human Rights Impact Assessment*** are therefore considered to be sufficient to manage the Project's contributions to this cumulative impact.

8.1.4.7 CUMULATIVE IMPACTS RELATED TO PUBLIC INFRASTRUCTURE AND SERVICES

The concurrent implementation of the BTR Anode, BTR Cathode and Hailiang Morocco projects may place cumulative pressure on shared infrastructure and public services, including utilities and healthcare facilities. Waste management is the principal cumulative concern, as workforce influx associated with IAZ developments has reportedly strained local collection services.

Overflowing waste containers and informal dumping observed in nearby villages indicate existing pressure on service capacity. The BTR Cathode construction workforce, including workers accommodated in camps and rented housing, may contribute to local service demand. Hailiang Morocco is expected to generate similar pressures due to its location within the same IAZ, although the extent cannot be estimated from the available information.

At the Project level, site waste is managed through licensed IAZ service providers, while onsite wastewater treatment and recycling reduce demand on local resources. However, a substantial non-local construction workforce is accommodated mainly in camps in the Gouaret area. Waste generated at these facilities may also add to local service pressure unless fully managed through dedicated collection arrangements. Therefore, BTR Anode's contribution to cumulative pressure is expected to be Minor.

BTR Anode should adopt the following additional measures where possible to manage its contribution to cumulative impacts:

- Coordinate with SATT and neighbouring projects to share information about waste management arrangements of different accommodation facilities and explore options to reduce cumulated pressure on the Commune waste collection system, e.g. use of third-party services or support to the Commune to enhance local collection/management capacity.

8.1.4.8 CUMULATIVE IMPACTS RELATED TO EMPLOYMENT AND LOCAL ECONOMY

The cumulative impact on employment and livelihoods in the wider community is anticipated to be generally positive, primarily through direct employment and increased demand for goods and services. The Regulatory EIA identifies employment creation as a key socioeconomic benefit of the BTR Anode Project, anticipating 996 direct jobs and additional indirect opportunities through the Project's supply chain and supporting services.

In addition to employment creation, during the Supplementary ESIA site visit, residents also reported that houses in Gouaret Meharza and Gouaret Mechahla are rented to Chinese and Moroccan workers, generating rental income for local households and demand for catering and other services. These positive impacts may be primarily associated with other identified companies in the IAZ, who house some of their workers in rented accommodation. The BTR Cathode and Hailiang Morocco projects are expected to create additional employment and local supply opportunities; however, the only currently available quantified data are the BTR Cathode preliminary Regulatory EIA estimate of approximately 504 operational jobs, while no verified workforce data are available for Hailiang Morocco.

The combined workforce influx also increases demand for housing and daily goods and may contribute to local price increases, particularly where incoming workers rent accommodation in nearby villages. BTR Anode's contribution during construction is expected to be limited, as most of its migrant EPC workforce is accommodated in Project camps with free meals and transport. The measures set out in ***Section 7.3.5.2*** are therefore considered sufficient to address the Project's minor contributions to this impact.

8.1.4.9 CUMULATIVE IMPACTS RELATED TO LAND USE AND LIVELIHOODS

As discussed in ***Section 7.3.6***, the Project site itself is located within the IAZ land, which was acquired four to nine years before BTR's involvement in the Project and it has therefore been scoped out as a Project impact. However, the temporary transmission line associated with the

Project will lead to additional land use impacts outside the IAZ. The overall Mohammed VI Tanger Tech development is planned to cover a total area of 2,167 ha, including a planned area of 947 ha for the IAZ. The first phase of the IAZ, which the Project is a part of, consisted of around 467 ha. The land acquisition process was initiated between 2015 and 2020, and was reportedly finished before the formal establishment of the IAZ in 2019, though available information has not indicated an authoritative date by which the acquisition process finished. Phase 2 land acquisition is still ongoing. Compared to the overall Mohammed VI Tanger Tech development, the temporary transmission line would have a very limited footprint, as it is anticipated to be approximately 2.5 km long with a Right of Way of 3 to 5 meters. This component's contribution to changes in land use and livelihoods in the AoI is therefore assessed to be Negligible, while measures proposed in ***Section 7.3.5.2*** recommend community investment programs that the Project could develop to support the livelihood of local community members.

8.1.4.10 CUMULATIVE IMPACTS RELATED TO HABITAT DEGRADATION THE DOWNSTREAM RIVER SYSTEM OF THE DRAINAGE CHANNEL

No significant cumulative terrestrial biodiversity impacts are anticipated because the projects are situated within a modified industrial and agricultural landscape and do not share extensive natural habitats or known receptors of high biodiversity value.

The only cumulative biodiversity pathway requiring further assessment is the industrial park drainage channel. The channel is relatively small and intermittent compared with the downstream river and wetland system. It has been designed engineeringly to manage stormwater and reduce flood risk within the industrial park. Flooding and merged wetland may occur after heavy rainfall, but these events are occasional and do not represent a regular seasonal inundation regime. Consequently, the channel has limited wetland, aquatic and riparian ecological function.

However, the channel remains hydrologically connected to downstream environments of higher ecological sensitivity. Combined sediment runoff, accidental spills, waste or contaminated stormwater from the Project and other industrial tenants could be transported downstream, particularly during heavy rainfall events. Management should therefore focus not only on the ecological condition of the channel itself, but also on preventing the channel from becoming a pathway for impacts on downstream wetlands.

Responsibility for maintaining the channel rests primarily with the industrial park authority, in coordination with tenants connected to the drainage network. The Project should participate in coordinated inspection, maintenance, pollution prevention, emergency response and stormwater management arrangements and should ensure that runoff from its own site complies with applicable discharge requirements. With effective park-wide coordination and implementation of the Project's existing water management measures, significant cumulative biodiversity impacts are not anticipated.

9. UNPLANNED EVENT IMPACT ASSESSMENT

This chapter outlines the methodologies employed to identify potential unplanned events, assess their potential consequences, and develop effective strategies for prevention, mitigation, and response. By analysing these scenarios and their associated risks, this chapter contributes to a comprehensive understanding of the Project's potential impact on the environment and stakeholders and provides a foundation for robust emergency preparedness and management plans.

9.1 ASSESSMENT APPROACH AND CRITERIA

Impacts resulting from unplanned events are defined as being a combination of the likelihood (or frequency) of incident occurrence and the consequences of the incident should it occur.

The approach for assessing the impact of the unplanned events is staged as follows and further described in this Chapter:

- Hazards identification;
- Likelihood assessment;
- Consequence assessment; and
- Risk mitigation measures.

The Project scope is first reviewed to identify the potential hazards to the environment due to any accidental events. Generally, the substances handled by the Project are studied if release of these substances to environment will give any adverse impact. The associated scenarios due to accidental events are then populated for further analysis.

For each of the scenarios, the assessment of likelihood and the extent of the consequence effect is then carried out. The assessment takes a qualitative approach based on professional judgement and experience from similar projects.

Definitions used in the assessment for likelihood is set out in ***Table*** 9-1 and consequence of unplanned events is outlined in ***Table*** 9-2.

TABLE 9-1 SIGNIFICANCE CRITERIA FOR UNPLANNED EVENTS – LIKELIHOOD

Likelihood	Explanation
Unlikely	The event is unlikely to occur but is known in similar projects.
Possible	The event is likely to occur once or more during project operation.
Likely	The event will occur more than twice per year, or is continuous or certain to occur during project operation.

TABLE 9-2 CONSEQUENCE OF UNPLANNED EVENTS

Strategy	Incidental	Minor	Moderate	Major
Physical Environment	Impacts such as localised or short-term effects or environmental media, meeting all environmental standards	Impacts such as widespread, short-term impacts to environmental media, meeting all environmental standards	Impacts such as widespread, long-term effects on environmental media, meeting all environmental standards	Impacts such as significant, widespread and persistent changes in environmental media OR Exceedance of environmental standards
Biological Environment	Impacts such as localised or short-term effects on habitat or species	Impacts such as localised, long-term degradation of sensitive habitat or widespread, short-term impacts to habitat or species	Impacts such as localised but irreversible habitat loss or widespread, long-term effects on habitat or species	Impacts such as significant, widespread and persistent changes in habitat or species
Social Environment	Slight, temporary, adverse impact on a few individuals	Temporary (<1 year), adverse impacts on community which are within international health standards	Adverse specific impacts on multiple individuals that can be restored in <1 year; Or one or more injuries, not lost-work injuries	Adverse long-term, multiple impacts at a community level, but restoration possible; Or one or more lost-work injuries to a member of the public including permanently disabling injuries

The potential impact of unplanned and non-routine event during construction and operation phases are assessed together, based on the methodology below.

TABLE 9-3 IMPACT SIGNIFICANCE OF UNPLANNED EVENTS

		Likelihood of Occurrence		
		Unlikely	Possible	Likely
Consequence	Incidental	Negligible	Negligible	Negligible
	Minor	Minor	Minor	Minor
	Moderate	Minor	Moderate	Moderate
	Major	Moderate	Major	Major

9.2 HAZARD IDENTIFICATION

The possible scenarios leading to release of the hazardous substances as unplanned events include:

- Fire and explosion
- Leakage and spill
- Traffic accident

The potential impacts of the abovementioned hazard include:

Ambient Air Quality

Fire and explosion events may release pollutants into the atmosphere, including PM, VOCs, and potentially hazardous gases. These emissions can degrade air quality, leading to respiratory and other health issues for both workers and nearby communities. Furthermore, the combustion of materials during fire incidents can contribute to the formation of smog and air pollutants that affect the overall air quality in the vicinity.

Soil and Surface Water Quality

Accidental spills and leaks may release chemicals (e.g., solvents, or petroleum). If not controlled in a proper and timely manner, it may cause soil contamination and further lead to imbalanced pH, altered soil texture, water-holding capacity reduction etc. The contaminants will ultimately penetrate soil and result in groundwater quality deterioration, imposing health risks to humans consuming groundwater. If the firefighting wastewater are not collected, it may penetrate the soil and result in degraded groundwater quality.

Labor and Working Conditions

Fire and explosion events pose immediate risks to workers on-site. Injuries, fatalities, and the destruction of infrastructure can disrupt the project's workforce and operations. The psychological impact on workers due to the potential hazards of fire and explosion incidents can also affect their overall well-being and productivity.

Community Health and Safety

Nearby communities may experience a range of negative health impacts due to fire and explosion events. Immediate risks include injuries, smoke inhalation, and exposure to hazardous materials. Long-term effects might include respiratory issues, stress, and mental health concerns. Evacuations and disruptions in daily life can also impact community well-being.

9.3 FIRE AND EXPLOSION

9.3.1 SOURCE OF IMPACT

LPG storage area: The Project will include two LPG storage tanks. The storage capacity has been designed to meet Project operational requirements.. Leakage from LPG storage tanks, pipelines, valves or loading/unloading operations may form flammable gas clouds. Ignition sources such as open flames, static electricity or electrical sparks may cause fire or explosion.

Diesel storage tank: Diesel fuel will be stored for emergency power generation purposes. Leakage from the diesel storage tank or associated piping may form combustible liquid pools. Ignition by open flames, hot surfaces or electrical faults may result in fire.

9.3.2 EMBEDDED CONTROLS

According to the Project's Feasibility Study Report (FSR), the fire protection measures include:

- All buildings and facilities are designed with adequate fire separation distances, and internal roads provide access for firefighting vehicles throughout the Project Site.
- A dedicated fire water supply system, including fire water pipelines and hydrants, will be installed throughout the Project Site. The design firewater demand is 35 L/s, comprising 20 L/s for outdoor firefighting and 15 L/s for indoor firefighting.
- Fire detection and alarm systems, emergency lighting, and portable firefighting equipment will be provided in key operational and utility areas.
- Firefighting water generated during emergency response will be contained within the on-site 1,700 m³ accident pond to prevent uncontrolled release to the environment. Following collection, the firefighting water will be treated in the integrated wastewater treatment facilities and reused or discharged only after meeting the applicable discharge standards.

9.3.3 SIGNIFICANCE OF IMPACTS

The impact magnitude is expected to be small through the implementation of the existing control and mitigation measures and the likelihood is low with the existing controls in place. Most receptors/resources, including local communities, workers are of medium sensitivity. The significance of impact from fire and explosion is considered to be **Minor.**

Impact		**Impact from fire and explosion**				
Impact Nature		**Negative**		Positive		Neutral
IMPACT CHARACTERISTI	**Type**	**Direct**		Indirect		Induced
		This impact is direct on air quality, livelihood, community health and safety.				
	Extent	Site	**Local**	Regional	National	International
	Scale	**Small**		Medium		Large
	SPATIAL EFFECTS	**Low**		Medium		High
	The spatial impact is expected to be localized and considered as Low.					

	Duration	Temporary	**Short-term**	Medium-term	Long-term	Permanent
	Frequency	Rare				
	TEMPORAL EFFECTS	Negligible	**Low**	Medium	High	
	Accidental event and can be resolved quickly. The temporal impact is considered as Low.					
	Likelihood	**Unlikely**		Possible	Likely	
CONSEQUENCE		Incidental	Minor	**Moderate**	Major	
		Considering the low level of spatial and temporal effects, the consequence is determined to be Minor.				
IMPACT SIGNIFICANCE		Negligible	**Minor**	Moderate	Major	

9.3.4 MITIGATION MEASURES

Planning for Fire and Explosion Emergency Response

- Ensure that all people working in the Project Site shall receive an induction training on fire safety and emergency response, this induction shall include, but not limited to:
  - Evacuation procedures from offices and other buildings in event of fire, assembly point procedures;
  - Actions in the event of site alarm and assembly procedures; and
  - Selection and operation of firefighting equipment.
- Ensure that the flammable substances (i.e. oil/diesel) will be controlled/distanced to ignition sources;
- Install signs to show flammable area and no smoking areas;
- Establish and follow electricity safety regulations, check and maintain machines periodically.

Response to Fire Emergencies

- Any person seeing a fire and explosion must first raise the alarm either verbally, blowing of whistle, alarm call point, cell phone or radio call, and immediately report to his supervisor or foreman, who will report to the personnel in the Emergency Contact List;
- If it is a small fire, the person(s) who spotted the fire may attempt to use a portable fire extinguisher to control the fire from spreading;
- If the fire is beyond control or lives are endangered, inform the fire police and emergency evacuation shall be activated. Immediately inform the fire police in case that the fire cannot be controlled internally. All persons and rescue victims to assembly points as soon as possible and provide necessary first aid, if needed;
- The person(s) in charge shall report their headcount and any missing personnel and their last known location immediately. Rescue team shall be informed and instructed to organise search and rescue of all reported missing personnel immediately.

9.3.5 RESIDUAL IMPACTS

With the implementation of the above existing embedded/in place measures, as well as the above additional mitigation and management measures, it is expected that the residual significance of fire and explosion impacts would be reduced to **Negligible**.

9.4 SPILLS AND LEAKS

9.4.1 SOURCE OF IMPACT

Spills and leaks may originate from various sources within the Project, each carrying the potential to cause soil, groundwater and surface water contamination.

- Wastewater treatment facilities: Leakage from wastewater treatment tanks, pipelines, pumps or associated equipment may occur due to corrosion, mechanical failure, ageing, poor maintenance or operational malfunction.
- LPG and diesel storage areas: Leakage may occur from storage tanks, valves, flanges, pipelines or loading/unloading operations due to corrosion, mechanical damage, equipment failure or human error.
- Hazardous waste storage area: Leakage of waste oils may occur from damaged containers, improper storage practices, overflowing containers or accidental spills during handling and transfer operations.

9.4.2 EMBEDDED CONTROLS

- Wastewater treatment facilities: Wastewater treatment facilities are equipped with collection trenches, impermeable epoxy-coated floors and an accident pond to contain and manage accidental leaks and spills.
- Diesel storage areas: diesel storage tanks are installed within dedicated containment bunds designed to prevent off-site migration of leaked materials.
- Hazardous waste storage area: The hazardous waste storage area is equipped with collection trenches and impermeable epoxy-coated floors to contain accidental releases of waste oils and other hazardous materials.

9.4.3 SIGNIFICANCE OF IMPACTS

The impact magnitude is expected to be Negligible through the implementation of the existing control and mitigation measures and the likelihood is low with the existing controls in place. Receptors/ resources, including local communities, workers are of medium sensitivity. The significance of impact is considered **Negligible**.

Impact		**Impact from spills and leaks**				
Impact Nature		**Negative**	Positive	Neutral		
IMPACT CHARACTERISTICS	**Type**	**Direct**	Indirect	Induced		
		This impact is direct on environment/community/occupational health and safety.				
	Extent	Site	**Local**	Regional	National	International
	Scale	**Small**	Medium	Large		
	SPATIAL EFFECTS	**Low**	Medium	High		
	The spatial impact is expected to be localized and considered as Low.					
	Duration	**Temporary**	Short-term	Medium-term	Long-term	Permanent
	Frequency	Rare				
	TEMPORAL EFFECTS	Negligible	**Low**	Medium	High	
	Accidental event and can be resolved quickly. The temporal impact is considered as Low.					

	Likelihood	Unlikely	**Possible**		Likely
CONSEQUENCE		**Incidental**	Minor	Moderate	Major
		Considering the low level of spatial and temporal effects, the impact magnitude is determined to be Negligible.			
IMPACT SIGNIFICANCE		**Negligible**	Minor	Moderate	Major

9.4.4 MITIGATION MEASURES

Planning for Spill/Leakage Emergency Response

- Provide chemical safety training to relevant employees in order to ensure they are competent in response to oil and chemical spill;
- For storing onsite:
  - Ensure that the products are properly stored on site (e.g., secondary containment, over filling alarm system) in designated areas (i.e., storage and workshop areas for construction materials, fuels and lubricants);
  - Ensure that the emergency response facilities and equipment for oil spill (i.e., spill kits, Safety Data Sheet ("SDS"), personal protective equipment ("PPE")) are available, adequate and functional at the Project Site;
  - Ensure good inspection for housekeeping conditions of chemical storage areas and integrity of chemical containers, and ensure maintenance procedures to minimise small leaks and spills.
  - If chemical spills and contaminated stormwater are effectively contained within the Project boundary, off-site surface water monitoring is not considered necessary.
  - In the event that spilled chemicals enter the stormwater drainage system and migrate beyond the Project boundary, upstream and downstream surface water quality monitoring shall be undertaken to assess potential impacts. Monitoring parameters may include pH, temperature, conductivity, dissolved oxygen (DO), biochemical oxygen demand (BOD_5), chemical oxygen demand (COD), total suspended solids (TSS), ammonia nitrogen, total nitrogen (TN), total phosphorus (TP), oil and grease, together with any spill-specific contaminants and parameters required by applicable regulatory requirements.
- For transporting of hazardous materials/wastes on public road:
  - Vehicles used for transporting hazardous materials shall be affixed with relevant hazardous pictograms on both side and the rear of the vehicle. Hazardous chemical/oil shall be packed and labelled properly;
  - Vehicles used for transporting chemical/oil shall be provided with oil spill kit, fire extinguishers, SDS of transported chemical/oil and suitable PPE as per SDS;
  - Hazardous materials that are likely to react with each other must not be transported in the same vehicle. The driver shall inspect and ensure safety before transport begins.

Response to Oil Spillage Emergencies

- If the oil spillage is within the site's capacity, the ERT shall:

- Evacuate irrelevant/ unauthorized people from the spill area;
- Isolate the source of the spill and ensure that spillage does not flow into the drainage system;
- Ensure that the contaminated areas are cleaned up as soon as possible by competent persons and using absorption materials (either sand or proper absorbent);
- Keep copies of hazardous substances inventory which are used onsite;
- Collect the absorption materials, contaminated material/waste and store in sealed containers and properly labelled, and handle in proper containers and treated and disposed as hazardous waste

- If the oil spillage is beyond the site's capacity, the ERT shall:
  - Liaise with all relevant external parties involved;
  - Contact the public emergency services such as Police to control the situation;
  - Arrange for immediate remediation of the affected areas, after spillage is brought under controls.

9.4.5 RESIDUAL IMPACTS

With the implementation of the above existing embedded/in place measures, as well as the above additional mitigation and management measures, it is expected that the residual significance of spills and leaks impacts would be reduced to **Negligible**.

9.5 TRAFFIC ACCIDENT

9.5.1 SOURCE OF IMPACT

Traffic and vehicle-related unplanned events may occur during both construction and operation due to the movement of heavy equipment, trucks, cranes, personnel transport vehicles, etc. Potential incident types include collisions, vehicle-pedestrian accidents, rollovers, struck-by incidents, and property damage.

9.5.2 EMBEDDED CONTROLS

Limited embedded and operational traffic management controls were identified in the reviewed Project documentation. A route survey was undertaken to assess the feasibility of transporting materials and oversized equipment between Tangier Med Port and the Project site. The survey identified multiple bridges, overhead clearance restrictions and other route constraints, including bridges of approximately 380 m, 225 m, 796 m, 460 m, 253 m, 120 m, 91 m, 60 m and 11 m in length, as well as multiple overhead clearance restrictions ranging from approximately 5.0 m to 7.0 m. The survey specified that abnormal load convoys would require police or gendarmerie escorts and that the route should be re-checked prior to transport movements. The requirement for police or gendarmerie escorts would typically apply to the transport of oversized or abnormal loads whose dimensions, weight, or manoeuvring requirements exceed standard road transport limits.

In addition, the Project EIA includes several traffic and road safety measures relevant to the construction and operational phases, use of designated vehicle routes within the Project Site, with speed limits of 15 km/h on main internal roads and 5 km/h in areas where workers congregate, installation of traffic signage, scheduling of transport during lower traffic periods,

compliance with vehicle load limits, driver awareness and safety measures, avoidance of peak traffic periods for freight transport, and, the provision of employee shuttle services to reduce workforce-related traffic.

Nevertheless, these measures are primarily operational and management controls rather than traffic impact mitigation measures embedded within the Project design. No evidence was identified of design-integrated traffic mitigation measures such as dedicated haul routes designed to avoid sensitive receptors, permanent traffic segregation arrangements, bypass infrastructure, or other traffic reduction measures incorporated into the Project layout or transport strategy.

9.5.3 SIGNIFICANCE OF IMPACTS

The Project site is accessible via Provincial Road P4608, which connects to the N16 national highway and A4 motorway, providing direct access between Tangier Med Port, Tangier City, and the Cité Mohammed VI Tangier Tech Industrial Acceleration Zone. Existing traffic conditions within the AoI are characterised by a network of regional roads, local roads, and village access routes serving surrounding communities. A logistics route survey undertaken for the Project confirmed that the road network is capable of accommodating the transport of construction materials and large industrial equipment, with no major physical constraints identified, although several bridges and overhead structures impose height restrictions ranging from approximately 5.0 m to 7.0 m according to the Project Road Survey. Construction traffic is expected to comprise heavy goods vehicles, equipment transport trailers, concrete trucks, worker buses, and light vehicles, while operational traffic is anticipated to be limited primarily to employee commuting vehicles and routine freight deliveries. Detailed forecasts for vehicle numbers have not yet been made available.

Project-related transportation activities during construction and operation may increase the likelihood of unplanned traffic incidents along the transport corridor between Tangier Med Port, the A5 Highway, the Gouaret Meharza roundabout, the Tangier Tech Industrial Acceleration Zone and surrounding villages. Although the regional road network is expected to have sufficient capacity to accommodate Project traffic, increased use of local roads by heavy goods vehicles, material deliveries and worker shuttle buses may increase interactions with community road users. In the event of driver error, vehicle malfunction, excessive speed, poor weather conditions or other unforeseen circumstances, there is potential for traffic accidents, temporary road blockages, disruption of community access, and localized damage to road infrastructure.

Considering the existing road infrastructure and the suitability of the identified transport routes for industrial traffic, the likelihood of traffic and on-site vehicle incidents is assessed as possible, particularly during the construction phase when heavy vehicle movements are present. The consequence of unplanned traffic incidents is assessed as moderate, considering the potential for injuries to Project workers, community members, and other road users, as well as property damage and temporary disruption to local traffic, and particularly the limited embedded control measures. Overall, the impact significance prior to additional mitigation is therefore assessed as **Moderate**.

TABLE 9-4 IMPACT ASSESSMENT OF TRAFFIC ACCIDENT

Impact		**Traffic Unplanned Events and Vehicle Incidents**				
Impact Nature		**Negative**	Positive	Neutral		
IMPACT CHARACTERISTICS	**Type**	**Direct**	Indirect	Induced		
		This impact is direct on Project workers and other road users				
	Extent	Site	**Local**	Regional	National	International
	Scale	**Small**	Medium	Large		
	SPATIAL EFFECTS	**Low**	Medium	High		
	The spatial impact is expected to be localized and considered as Low.					
	Duration	**Temporary**	Short-term	Medium-term	Long-term	Permanent
	Frequency	Rare but possible				
	TEMPORAL EFFECTS	Negligible	**Low**	Medium	High	
	Accidental events can be resolved quickly. The temporal impact is considered as Low.					
	Likelihood	Unlikely	**Possible**	Likely		
CONSEQUENCE		Incidental	Minor	**Moderate**	Major	
		Considering traffic frequency during both Project phases and the number of workers engaged in Project traffic, the impact consequence is determined to be Moderate.				
IMPACT SIGNIFICANCE		Negligible	Minor	**Moderate**	Major	

9.5.4 MITIGATION MEASURES

- The Project should develop and implement a *Traffic Management Plan* (TMP) proportionate to the scale of traffic generated by the Project. The TMP should include, at a minimum, the following measures:
  - Preventive Measures
    - Conduct mandatory pre-qualification screening for all subcontracted logistics providers (safety history, fatality record).
    - Define operation safety standards covering heavy vehicle movements, site access arrangements, speed limits, vehicle routing, incident response procedures, and driver requirements.
    - Schedule deliveries of large equipment and bulk materials outside peak commuting periods.
    - Define speed limits within the Project site and at site access roads.
    - Require vehicle operators to hold valid licences and receive defensive driving and road safety trainings; Conduct periodic road safety awareness campaigns for workers and drivers.
    - Install appropriate traffic signage, warning signs, speed restriction signs, and road markings at site entrances and other locations where Project traffic interacts with public roads.
    - Implement journey management procedures for long-distance transport and oversized loads.

- Require the reporting, investigation, and corrective action tracking of all traffic-related incidents and near misses.

- Traffic Emergency Response Measures
  - Ensure all drivers are trained in emergency response procedures, defensive driving, and accident reporting requirements before operating Project vehicles.
  - Equip Project vehicles with emergency kits, including first aid supplies, fire extinguishers, warning triangles, reflective vests, and emergency contact information.

9.5.5 RESIDUAL IMPACTS

With the implementation of the above existing embedded/in place measures, as well as the above additional mitigation and management measures, it is expected that the residual significance of traffic incidents would be reduced to **Minor**.

10. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

This Section presents a provisional Environmental and Social Management Plan ("ESMP") for the construction, operation, and decommissioning of the Project, with the purpose of specifying the framework, standards, and controls required to manage and monitor the environmental and social impacts. To achieve this, the ESMP compiles the potential adverse impacts from the planned and unplanned activities as identified in the Supplementary ESIA and outlines mitigation measures required to reduce the likely negative impacts on the physical and social environment.

The ESMP details roles and responsibilities that will be assumed by each relevant entity as leader and/or supporter. The Project Company will have responsibilities for the implementation of the measures outlined in the ESMP, but may delegate responsibility to its contractors and collaborators, where appropriate. In cases where other individuals or organisations have responsibility for mitigation measures, this is clearly indicated within the ESMP.

Capacity building and training requirements are also described within this Chapter, where these relate to specific skills required to deliver the ESMP action in question.

This ESMP applies to all the Project components and the temporary power supply infrastructure assessed in this Supplementary ESIA. The permanent power supply infrastructure will be managed through the Project ESMS once further information becomes available.

10.1 OBJECTIVES AND PRINCIPLES

The ESMP is essential for successfully implementing the Project's environmental and social performance throughout the life of the Project. Having this ESMP in place ensures a systematic approach to bringing environmental and social considerations into decision-making and day-to-day operations. It establishes a framework for tracking, evaluating and communicating environmental and social performance and helps ensure that environmental risks and liabilities are identified, minimised and managed.

It is, however, important to approach the ESMP as a living document, which will continue to develop during the construction phase to enable continuous improvement of the Project's social and environmental performance.

The core objectives of this ESMP are as follows:

- Ensuring compliance with regulatory authority stipulations and guidelines, which include local, national and international;
- Ensuring that there is sufficient allocation of resources on the Project budget so that the scale of the ESMP related activities is consistent with the significance of Project impacts;
- Verifying environmental and social performance through information on impacts as they occur;
- Periodically updating the ESMP as the Project activities progress;
- Responding to unforeseen events; and
- Providing feedback for continual improvement in environmental performance.

The ESMP was developed attending three major groups of general principles: Principles of Sustainable Development, Principles of Ethics and Quality, and Principles of Best Practice.

- Principles of Sustainable Development

- Protection of public health, welfare and safety – activities on site should be contained and will not impact on human health and well-being. The benefits of the project activities should be realized by the communities during all phases.
- Maintenance of ecological processes – natural resources should be conserved or improved and not decreased in value. The resources are managed in such a way that will provide for present and future needs.
- Avoidance, mitigation and management of pollution - existing or possible future contamination of surface, groundwater and soil and air pollution is avoided where possible and mitigated and managed within the standards set. Waste generated will be eliminated, reduced or minimised, reused or recycled and the residual finally disposed of, if no other option is available.
- Precautionary Principle – in the absence of scientific data confirming a complete evaluation of the risk a cautious approach will be adopted to protect human, animal or plant health, or to protect the environment.

- Principles of Ethics and Quality
  - Consistency with legal and planning context – through all phases of the development of the Project, activities will comply with local, national and international legal and regulatory requirements.
  - ESMP implementation and proactive management – the ESMP is implemented at the start of the activities and aims at continual improvement during all phases of the development.
  - Clear and easily understood reporting – the ESMP should be easily understood, clearly laid out, an accepted documentation style should be used, and all tables, figures and illustrations should be appropriate and necessary.
  - Cost effectiveness – ensure that there is a balance between the financial constraints of achieving a maximum return on investment and the reduction of present and future risks and liabilities.
- Principles of Best Practice
  - Continuous improvement – the Project Proponent should be committed to review and continually improve environmental management, with the objective of improving overall environmental and social performance.
  - Broad level of commitment – commitment is sought from all levels of management as well as the workforce in order for the development and implementation of the ESMP to be successful and effective.
  - Participative process – consultation will and has been undertaken with all Project Affected Persons (PAPs) to seek their input into the environmental and social management of the Project.

10.2 PLANNING

10.2.1 PLAN-DO-CHECK-ACT

The structure of this ESMP is set out according to the Plan, Do, Check, Act (PDCA) process. The PDCA is a well-known management tool that allows for a methodical and ongoing

approach to managing environmental and social risks. PDCA is part of international frameworks for quality and environmental management systems including ISO 14001.

Plan

- Define policies and objectives for environmental and social performance;
- Identify environmental and social impacts and risks of the operations;
- Develop mitigations and operational controls to address impacts and risks; and
- Develop a management plan to achieve these objectives.

Do

- Implement management plan; and
- Implement mitigations and operational controls.

Check

- Monitor performance against policies and objectives; and
- Check that mitigations and operational controls are effective.

Act

- Make corrections to plans, mitigations, or controls in response to performance monitoring or out of control events.

10.2.2 IMPACT ASSESSMENT, MITIGATION MEASURES AND PLANNING

10.2.2.1 IMPACT ASSESSMENT

The Project has utilised the impact assessment through the Supplementary ESIA process as a tool within the planning process to identify key impacts of the Project and associated mitigation and management measures for the construction and operational phases. The Project will continue to use the impact assessment process as a planning tool for any future development activities. The mitigation hierarchy applied in this Supplementary ESIA will also be applied to the ESMP.

10.2.2.2 ENVIRONMENTAL AND SOCIAL COMMITMENTS

Through the Project development and Supplementary ESIA process, mitigation measures have been identified to address environmental and social impacts associated with Project activities. The Project Company has made a commitment to implement these measures to ensure or improve its environmental and social performance.

The commitments take the following forms: **Avoidance, Minimization, Management, Monitoring, and Additionally**, with the specific actions intended to address a particular environmental or social issue.

Avoidance

During the planning phases, potential impacts to sensitive resources are identified. Where feasible, locations or processes can be changed during the planning or design phases to avoid impact to these areas.

Minimization

Minimization involves measures to reduce proposed impacts to a resource.

Management

Management commitments include development of plans and procedures for ensuring that measures to protect the environment take place and are of the desired standard of practice. Training is another commitment in this category.

Monitoring

Commitments to monitoring are primarily to ensure the above measures are working properly and delivering the desired (and anticipated) results.

Additionally

Additionally involves actions and contributions which are designed to provide a positive benefit.

10.2.2.3 SUPPORTING ENVIRONMENTAL AND SOCIAL MANAGEMENT PLANS

Following the completion of Supplementary ESIA studies, the ESMP will outline the supporting management plans that will be developed for each environmental and social topic. These plans will set out how the mitigation measures will be put into practice, monitored, and upheld.

As a contractual requirement, the contractors will be required to demonstrate compliance of their activities against the ESMP. This includes providing resources to ensure compliance of next tier contractors and a process for emergency stop-work orders in response to monitoring triggers. Contractors will be responsible for performing all work:

- In compliance with relevant national and international EHS legislation and regulations, and with other requirements to which the Project subscribes;
- In conformance with the Project ESMP, and related management plans for specific aspects; and
- In accordance with contractual technical and quality specifications.

The Project's ESMP and related documentation will be the main contractual documentation to which the contractor(s) will be bound. Contractors will be required to develop their own management plans which show how they will comply with these environmental and social requirements. In this way, the ESMP will be implemented and controlled using both the Project Company and the contractor management systems. The contractor management systems will therefore:

- Provide the framework that regulates their activities;
- Define responsibilities for expediting, mitigation and monitoring actions detailed in the ESMP; and
- Specify the mechanisms for inspecting and auditing to ensure that the agreed actions are implemented.

Contractors will be required to self-monitor against their plan and compliance with the plan will be routinely monitored by the Project Company directly, or by third parties. Contractors will be

required to submit regular reports of monitoring activities, and the Project will review these on a regular basis.

10.3 IMPLEMENTATION

The Project Company is committed to providing resources and establishing the systems and components essential to the implementation and control of the ESMP. These include appropriate human resources and specialist skills, training programmes, communication procedures, documentation control and a procedure for the management of change. The Project Company will support the process and have an ESG team with competent staff based on appropriate education, training and experience.

10.3.1 ROLES AND RESPONSIBILITIES

The Project Company is responsible for the management and supervision of all Project activities during the construction phase and will have principal responsibility for implementing this ESMP and the mitigation measures.

The successful implementation of the Environmental and Social Management Plan (ESMP) hinges upon the establishment and maintenance of clear roles and responsibilities within the company's institutional framework. These are essential for ensuring alignment also with the Stakeholder Engagement Plan (SEP).

The Project Company plans to engage the following internal and external roles to implement the ESMP in ***Table*** 10-1.

TABLE 10-1 ROLES AND RESPONSIBILITIES OF THE ESMP

Role	Responsibility
Internal Roles	
General Manager	• Ensure overall compliance with the ESMP. • Allocate sufficient resources for the implementation of the ESMP. • Communicate ESMP requirements to all Project stakeholders.

ESG Manager	• Develop and update the ESMP in line with Project developments and stakeholder feedback.
	• Monitor and report on ESMP progress to the company management.
	• Maintain a master list of social documents and regularly review and update documents as necessary.
	• Monitor the contractors and subcontractors to
	  ○ Comply with ESMP requirements relevant to their scope of work.
	  ○ Participate in training and capacity-building activities.

Project Construction and ESG Team	• Oversee the implementation of environmental aspects of the ESMP. • Maintain a master list of EHS documents and regularly review and update documents as necessary. • Manage biophysical and biodiversity monitoring, with external experts if needed.

	• Manage and monitor waste, pollutant emissions and pollution control, and biodiversity measures. • Implement health and safety protocols as outlined in the ESMP. • Develop the environmental monitoring and evaluation framework, with external experts if needed. • Manage safety inspections and audits. • Provide training and manage emergency preparedness.
Community Liaison Officer (CLO)	• Implement community engagement and information disclosure under the SEP. • Receive and record community grievances, coordinate responses and track resolution. • Monitor community concerns and report emerging issues to the GMO and ESG Manager. • Liaise with communities, local authorities and SATT on Project-related concerns and agreed actions. • Maintain engagement and grievance records for ESMP reporting.
Human Resources and Admin Team	• Oversee the implementation of social aspects of the ESMP and monitor social impacts. • Manage internal stakeholder engagement and grievance mechanisms. • Oversee and strictly prohibit any form of violation to the labour and working rights. • Develop and coordinate training programs with assistance of other management staff, maintain training records, and conduct regular monitoring and review of training effectiveness.
General Manager Office (GMO)	• Manage external stakeholder and grievance mechanisms. • Ensure social inclusion and community development initiative. • Address external community concerns and feedback in the context of the ESMP. • Being on-site to facilitate communication between the Project and the local communities. • Collect external community concerns and grievances in terms of the Project.
External Roles	
Contractors	• Comply with ESMP requirements relevant to their scope of work, including monitoring the performance of subcontractors to ensure compliance. • Develop and implement a comprehensive EHS training program for own personnel. • Participate in the Project Company's training and capacity-building activities. • Report on their ESMP-related activities and progress. • Support the Project Company's ESMP Coordinator for monitoring work.
SATT	• Coordinate environmental and social matters involving shared infrastructure and other IAZ operators.

	• Liaise with the Project on traffic, utilities, waste services, drainage and emergency-response interfaces. • Support information sharing and monitoring of cumulative impacts and pressures on local services. • Coordinate stakeholder engagement and responses to concerns involving IAZ-wide activities. • Coordinate with the Project and/or TMU in addressing power connection and related land-use grievances.
External Consultants and Experts	• Provide technical expertise for specialist ESMP components. • Assist in the development of monitoring and evaluation frameworks.
Government and Regulatory Bodies	• Provide oversight and ensure legal compliance of the ESMP. • Offer guidance on regulatory requirements and updates.

The organisational structure of the Project Company will be maintained throughout the construction and operational phases, whilst being reviewed on a regular basis to adapt the structure as necessary.

10.3.2 TRAINING AND AWARENESS

10.3.2.1 TRAINING AND COMPETENCY DEVELOPMENT

The Project Company acknowledges the crucial role of training and awareness in achieving successful environmental and social management during the Project. Therefore, comprehensive training programs will be implemented for all personnel whose work may have a significant impact on the environment or social conditions, regardless of their function or level within the organisation. This commitment applies not only to the Project Company personnel but also to all subcontractors engaged in the Project.

10.3.2.2 TRAINING FOCUS

Employee training will focus on the following key areas:

- **Environmental and Social Impact Awareness:** Employees will be trained to identify and understand potential environmental and social impacts that could arise from their activities, including specific attention to social impacts.
- **Legal and Regulatory Compliance:** Training will cover all relevant legal requirements pertaining to environmental and social performance, ensuring employees are aware of their obligations and responsibilities for compliance.
- **ESIA and ESMP Implementation:** Employees will be equipped with the knowledge and skills necessary to adhere to the requirements outlined in the Supplementary ESIA and ESMP, effectively mitigating potential impacts.
- **Activity-Specific Training:** Specialist training will be provided on essential practices such as waste management, documentation systems, and effective community engagement strategies.
- **Roles and Responsibilities:** Employees will be clearly informed of their individual roles and responsibilities in achieving environmental and social conformance, including change management procedures and emergency response protocols.

10.3.2.3 TRAINING MANAGEMENT AND DELIVERY

Project Company Personnel

The ESG Manager will be responsible for the overall coordination of training programs, maintaining employee training records, and conducting regular monitoring and review of training effectiveness. This includes periodic competency verification through observation and discussion with employees.

For personnel responsible for conducting site inspections, training will be delivered by leveraging external resources when necessary. The ESG Manager will coordinate this training prior to facility commissioning. Competency assessments will be conducted upon completion of training, and competent personnel will be eligible to train others.

Contractor Training Programs

Each contractor will be required to develop and implement a comprehensive E&S training program for their personnel, addressing site-specific awareness needs and identifying additional training requirements to maintain competency levels.

The Project Company will approve and audit these programs to ensure adequacy, thoroughness of delivery, and effective verification of competency among all contractor personnel.

Overall, the Project Company is committed to ensuring that all personnel involved in the Project possess the necessary knowledge, skills, and awareness to fulfil their environmental and social responsibilities effectively. Comprehensive training and competency development programs will be central to achieving this goal.

10.3.3 COMMUNICATION

The Project Company will establish and maintain a structured communication and grievance management protocol to ensure effective interaction with regulatory authorities, communities, and other stakeholders. The key elements of this approach are as follows:

- Formal Communication Procedures:
  - The Project Company will adhere to formal procedures for communications with regulatory authorities and communities.
  - The ESG Manager will be responsible for communicating E&S issues to and from regulatory bodies as required.
  - Information from these communications will be relayed by the ESG Manager to contractors to ensure informed operations.
- Regular Meetings and Transparency:
  - Regular meetings will be organised between the Project Company, regulatory agencies, and community representatives.
  - These meetings will focus on reviewing E&S performance, addressing areas of concern, and discussing emerging issues.
  - All dealings will be conducted transparently, providing stakeholders with access to essential personnel and information.
- External Grievance Management Procedure:

- The External Grievance Redress Mechanism will be implemented, allowing community members to voice concerns, whether they have damage/injury claims, complaints, or suggestions regarding the Project's implementation.
- The External Grievance Redress Mechanism will receive grievances related to construction and operation impacts (e.g., air emissions or noise impact during operation) and damages from project activities.
- Grievances can be submitted verbally or in writing.
- Upon receipt, grievances will be logged, evaluated, and resolved appropriately by the project team.
- If a complaint or claim is deemed valid, necessary steps will be taken to rectify the issue or agree on compensation.
- The resolution process will be communicated and recorded, ensuring stakeholder awareness.
- In case of unresolved disputes, an arbitration procedure may be initiated, possibly involving a third-party mediator like a government official.
- The grievance mechanism is detailed in the Stakeholder Engagement Plan (SEP).

10.3.4 DOCUMENTATION

10.3.4.1 DOCUMENT CONTROL

The Project Company will implement a formal procedure for controlling all E&S documentation, which includes management plans, associated procedures, checklists, forms, and reports. These records will be meticulously maintained onsite and backed up at multiple offsite locations, including secure cloud storage facilities, ensuring their availability in both hard and soft copy formats throughout the Project's lifespan.

Additionally, the document control procedure will outline the methods for official communication of document deliverables, both in hardcopy and electronically. This will encompass requirements for electronic filing, posting, and the assignment of document tracking and control numbers, including revision codes.

The ESG Manager will be tasked with maintaining a master list of all relevant E&S documents and ensuring this list is disseminated to appropriate parties. They will also be responsible for notifying affected parties about any changes or revisions to the documents, issuing updated copies, and confirming that the information is properly communicated within the organisation.

Furthermore, contractors associated with the Project will be obliged to establish and describe their systems for maintaining and controlling EHS documentation within their respective EHS plans, ensuring a cohesive and comprehensive approach to EHS documentation management across all entities involved in the Project.

10.3.4.2 OPERATIONAL CONTROL PROCEDURES

The Project Company will implement operational controls for Project activities in pre-construction, construction, and operation phases which will pose significant environmental or socioeconomic risks. These controls should specify procedures, roles, and best practices for impact mitigation. These controls, detailed in the ESMP, will be regularly monitored for

compliance and effectiveness, and reviewed to incorporate or reference strategies for avoiding and minimizing impacts.

10.3.5 MANAGEMENT OF CHANGE

The Project Company will adopt a formal change management procedure applicable to all Project activities, anticipating both unplanned and adaptive changes throughout the project lifecycle:

- The procedure aims to assess impacts on personnel health and safety, the environment, the project site, and equipment before implementing changes.
- Key aspects of the procedure include:
  - Ensuring changes have sound technical, safety, environmental, and commercial justifications.
  - Competent personnel reviewing changes and documenting impacts, including in operating procedures and drawings.
  - Identifying and assessing hazards from changes, ensuring no adverse effects on health, safety, or environmental management.
  - Communicating changes to personnel, providing necessary training for effective implementation.
  - Assigning responsibility for each change to an appropriate company representative.
- The ESMP will be updated to reflect new information, considering environmental, social, engineering feasibility, and cost factors for any alternatives.

10.3.6 MONITORING AND CORRECTIVE ACTIONS DURING THE PROJECT EXECUTION

The Project Company will implement a comprehensive system for managing E&S performance, divided into five key areas:

- Introduction

The process encompasses inspections, monitoring, and audits to verify the correct implementation of systems and the effectiveness of mitigation measures, along with corrective actions for out-of-control situations and performance improvement.

- Inspection

Regular EHS inspections, both internal and external, will occur weekly and at least once every six months, with findings reported to the Project Company management.

- Monitoring

Monitoring by internal and/or external auditors ensures compliance with applicable regulations and evaluates the effectiveness of operational controls. The monitoring shall encompass:

  - Implementation of the ESMP and evaluation of its effectiveness against applicable regulatory requirements and international standards;
  - Development and implementation of all the Management Plan and evaluation of its effectiveness against their respective objectives;
  - Environmental monitoring plan required by national guidelines; and

- Any changes in Project activities, environmental and social impacts, identification of long-term effects, and cumulative environmental effects that may incur the development and implementation of new control mitigation measures.

- Auditing

Audits, beyond routine inspections and monitoring, will ensure regulatory compliance, covering contractor self-reporting and assessing the E&S documentation completeness, conformance with monitoring requirements, and efficacy in addressing non-conformances.

- Corrective Action

The Project Company will implement a formal procedure for tracking and addressing non-compliance and corrective actions, coordinated between the Project Company and its contractors, managed by the ESMP Coordinator.

10.4 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Table 10-2 presents the Environmental and Social Management Plan ("ESMP") for the Project, detailing various mitigation measures along with responsible entities, implementation timelines, and monitoring indicators. The monitoring indicators proposed in the ESMP only capture the measurable indicators, and do not necessarily include all the practices as some will be detailed in the respective E&S management plans.

The Project Company holds the overall responsibility for implementing these measures during the Project lifecycle. All contractors and subcontractors are required to adhere to the policies and plans outlined in the ESMP. Certain measures will be developed and implemented as part of the following management plans:

- Environmental and Social Management System (ESMS) Framework
- Stakeholder Engagement Plan (SEP)
- Local Hiring Plan
- Worker Influx Management Plan
- Occupational Health and Safety Management Plan (OHSMP)
- Emergency Response Plan (ERP)
- Traffic Management Plan (TMP), covering construction and operation phases
- Worker Management Plan
- Contractor Management Plan
- Security Management Plan
- Worker's Code of Conduct
- Workers' Grievance Mechanism (WGM)

The Project's design, construction, and operation will align with national regulations and international standards from lending institutions, including AIIB ESS and IFC EHS Guidelines.

TABLE 10-2 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

S/N	Impact	Project Phase		Impact Significance		Mitigation Measures/ Enhancement	Action Source	Monitoring Indicators	Monitoring Frequency	Responsibility Party
		C	O	Pre-Mitigation	Post-Mitigation					
Environmental										
E1	Ambient air impact from project operation		√	Negligible	Negligible	• The emission monitoring plan will be implemented (see ***Table 7-15***). A suitably trained person with knowledge of air quality monitoring will manage the stack emission monitoring performance and findings.	Section 7.2.1.3	Monitoring reports	Quarterly	ESG Team
E2	Noise impact from project operation	√	√	Negligible	Negligible	• Regular maintenance of equipment such as lubricating moving parts, tightening loose parts and replacing worn out components; • Provide employees with training and instructions to properly operate the machines. • Place noise sources (fixed plant items) as far as possible from the project boundary, especially east boundary to maximize the distances to NSRs. • Conduct regular noise monitoring throughout the remaining construction phase to verify the effectiveness of mitigation measures and ensure compliance with the applicable noise criteria.	Section 7.2.2.4	Internal inspection records; Training records; Monitoring records	Continuous onsite enforcement	ESG Team
E3	Impact from Waste Generation, Collection, Transport and Disposal in Construction Phase	√		Minor	Negligible	• Oversee the contractors' waste-management practices by regular inspection; • Containers for construction waste shall be intact and prevent scattering of waste; • Deliver awareness and management training to all personnel involved in waste management; Conduct ongoing housekeeping training for staff on litter prevention and proper waste handling.	Section 7.2.3.3	Training and inspection records	Continuous onsite enforcement	ESG Team
E4	Impact from Waste Generation, Collection, Transport and Disposal in Operation Phase		√	Minor	Negligible	• The available volume of ditches and the sump should be at least 110 percent of the largest storage container, or 25 percent of the total storage capacity (whichever is greater) in the hazardous waste storage area. • Mark waste containers clearly with appropriate warning labels that accurately describe their contents and safety precautions. Ensure labels are waterproof, securely attached, and written in Chinese and Arabic for the workforce. • Hazardous waste will be collected and disposed of by qualified companies. The qualification and capacity of disposal company should be verified before contracting. • Sludge from the water/wastewater treatment facility should be collected regularly. This can be done manually using shovels and buckets or directly pumped out by a third party. Workers must be equipped with appropriate personal protective equipment (PPE), including gloves, masks, boots, and protective clothing, to minimise exposure to sludge during the collection process. • Implement sludge dewatering techniques to reduce moisture content and thereby minimise the potential risk of leachate generation.	Section 7.2.3.3	Waste Management Log Contracts with licensed waste disposal vendor Training and inspection records	Continuous onsite enforcement	ESG Team

						• Store the sludge in the closed containers to prevent the odour issues. • Operating specifications for the RTO shall be developed to specify combustion temperature and residence time, ensuring that the hazardous properties of coking tar are eliminated. • Introduce coking tar into the RTO only after the optimum temperature is reached in the RTO. • Deliver awareness and management training to all personnel involved in waste management.				
E5	GHG emission	√	√	N/A	N/A	The measures below are proposed during the construction phase to reduce expected emissions: • Consolidate deliveries, optimise transport routes and consider lower-emission transport options where practicable. • Select, operate and maintain construction vehicles and machinery for fuel efficiency, supported by operator training and no-idling controls. • Prioritise grid electricity and use appropriately sized, efficiently operated generators only where necessary. • Apply energy-efficient equipment and operational controls in temporary construction facilities and accommodation. • Consider local materials and suppliers that meet Project technical, quality and E&S requirements. • Include energy-efficiency, fuel-management and no-idling requirements in contractor procedures, training, inspections and monitoring. • Record and review construction fuel and electricity consumption and update the GHG inventory accordingly. Additional mitigation measures are proposed during the operation phase: • Optimise major production and power-supply equipment to reduce electricity consumption per tonne of products. • Optimise graphitisation loading, heating, insulation, scheduling and cooling parameters. • Use energy-efficient motors, variable-frequency drives and automated controls. • Optimise compressed air, nitrogen, water, ventilation, dust-control and wastewater-treatment systems. • Optimise LPG-consuming equipment and confirm applicable equipment during detailed design and commissioning. • Assess technical and financial feasible waste-heat recovery opportunities. • Install sub-metering for major production areas and utility systems where applicable. • Review metered energy data regularly and address abnormal consumption or performance deterioration. • Evaluate traceable and feasible lower-carbon electricity procurement options. • Assess onsite renewable-energy opportunities and prioritise self-consumption. • Implement an operational energy and GHG management programme.	Section 7.2.4.11	Internal inspection records; GHG accounting data	Continuous onsite enforcement	ESG Team

						• Maintain major energy-consuming equipment through preventive maintenance. • Quantify and report material Scope 1 and Scope 2 emissions annually. • Review additional Scope 1 sources after commissioning and include material sources in the GHG inventory. • Monitor total and production-normalized energy consumption and GHG emissions. • Set and periodically review energy and GHG targets after production stabilizes.				
Social										
S1	Impacts on Community Cohesion from Labour Influx during Construction and Operation	√	√	Minor	Negligible	• Implement the Project **Grievance Redress Mechanism (GRM)** of the Project, as detailed in the Project SEP. Collect local residents' concerns over the Project's impact on social dynamics and provide timely feedback. • Implement the Project's **Stakeholder Engagement Plan (SEP)**. Monitor the accessibility and effectiveness of local grievance mechanisms. • Where applicable, collaborate with SATT and local authorities in supporting local community events targeted at strengthening community cohesion. • Strategies regarding the local employment and recruitment are an important basis in sustaining the community cohesion and unity, with generally a high level of employment expectations across the AoI communities. These strategies shall aim to not only satisfy the investment condition of having a 90% Moroccan workforce in the operation phase (after a gradual process), but to also directly encourage employment in the Project AoI, as opposed to relying on hiring from elsewhere in Morocco. The Project shall thus develop and implement a **Local Hiring Plan**, in order to effectively implement local recruitment strategies. As the Project had already reached peak construction phase workforce by the time of ERM's site visit, this plan will apply mainly to the operation phase. The Local Hiring Plan shall include the following elements: ◦ The Project shall incorporate the priority employment into the existing HR procedure: – Create awareness among AoI residents and relevant agencies related to employment around the qualification criteria and procedures for job application. – Provide advance notice of job openings to local communities via multi-format communication (e.g., commune offices notices, community meetings, local radio/bulletins, disseminating information at the weekly village markets, and village-level social media groups), specifying key details including job responsibilities, qualification requirements, application deadlines, and submission channels to ensure full transparency for local residents. These notices should be available in Arabic and French. – Provide timely updates on potentially suitable employment opportunities, which may be of interest to local community. Potential job opportunities may include construction workers, electricians, drivers during construction, security personnel, and personnel for cleaning work. The exact number of job opportunities open for local residents will be determined during operation phase planning. Considering the AoI population's past predominantly land-	Section 7.3.1.2	• Grievance records • Grievance resolution percentage (%) • Records and Numbers of Stakeholder Engagements • Plan and Records of Local employment and recruitment • Worker Code of Conduct • Records of training for workers • Records of cultural activities	• Monthly monitoring of grievance records and stakeholder engagement	• CLO • GMO • HR and Admin Team • ESG Manager • Project Construction and ESG Team

based livelihoods, the Project shall clearly communicate training and support programs that could encourage and help the AoI residents' transition into working at the Project.

- Provide pre-employment vocational training to help local community members meet the technical qualifications required for the positions available, e.g., basic construction skills, construction safety.
- Guarantee a local employment target specific to the Project AoI and the two impacted communes, including the percentages of local workers in skill, semi-skilled and unskilled positions.
- Systematically collect feedback from key stakeholders on the recruitment process (including local residents, job applicants, commune and caidat authorities, and hired employees) through diversified channels and conduct regular reviews of feedback data to identify pain points. Formulate and implement targeted improvement measures, with progress updated to stakeholders to drive continuous optimisation of the local recruitment mechanism.

- Consult with local government – especially the National Agency for the Promotion of Employment (ANAPEC) - to discuss the possibility to develop direct localized recruitment channel of the Project's recruitment, ensuring transparent access to job opening for local populations and demands and requirements of local population will be met.
- Collaborate with the National Agency for the Promotion of Employment (ANAPEC) to explore the possibility of jointly developing professional skills training programs for local communities, leveraging existing resources and staff arrangements.
- Implement the mitigation measures in ***Section 7.3.5.2*** to alleviate the impacts of uneven distribution of employment opportunities to the local cohesion and social structure.
- Incorporate gender-inclusive training schemes aimed specifically at supporting women and other vulnerable groups to access employment opportunities.

- As part of the Project-level workforce management strategy, the Project company shall prepare, implement, and enforce a comprehensive **Worker Code of Conduct (CoC)** for all personnel, including the EPC contractor and any subcontractors. The Worker CoC shall be available in Arabic, French, and Chinese and provided during worker induction training, and shall explicitly include:
  - Strict prohibition of violence, threats, humiliation, discrimination, sexual harassment, exploitation, abuse, illicit activities, and substance abuse during both working and rest hours, applicable to interactions among workers and between workers and local communities.
  - Specific provisions for direct and contracted workers living in accommodations in or near local communities, outlining expectations for their conduct.
  - Requirement for all workers to adhere to the Project's environmental and social management plans.

						◦ Mandate to treat all workers and local residents with respect, irrespective of race, ethnicity (including Moroccan or Chinese origin), nationality, language, religion, gender, age, disability, or social status. ◦ Disciplinary procedures for non-compliance, ensuring sanctions comply with Morocco law and relevant collective agreements, and explicitly prohibit wage deductions unless expressly permitted under such national regulations or agreements. • The Project's existing Contractor Safety Management Agreement shall be reviewed to ensure alignment with the Project CoC, including requiring any CoC developed by the EPC contractors to also align with the Project's CoC. • The Project shall develop procedures and pathways through which conflicts between locals and influx workers can be effectively and justly managed. These procedures shall set out action plans for controlling and avoiding conflicts such as those stemming from conduct of foreign workers, cultural conflicts, misunderstandings, crime, or hostility from local residents. These procedures are intended to supplement and not replace the GRM or legal processes. • During the operation phase, develop and implement **collaborative programs or cultural activities** in partnership with the Project Company, the SATT, local government authorities, and relevant civil society organisations if any to enhance mutual cross-cultural understanding, including diverse working and living habits as well as religious practices and holidays. • The core of this initiative will be a series of structured cultural exchanges, joint training sessions, and community events especially designed to bridge cultural divides. • For instance, programs could include cross-cultural communication workshops, shared celebration of significant national and religious holidays, basic languages in Arabic, Chinese, and French. • Implement mitigation measures to prevent and address **Gender-Based Violence (GBV)** as specified in the Human Rights Impact Assessment (HRIA) in ***Appendix B.*** • Implement the mitigation measures in ***Section 7.3.4*** to manage the Project's impacts on the competing use of infrastructure and services. • Provide on-boarding and periodic training for all employees on cultural sensitivity and cross-community interactions.				
S2	Impacts on Community Health and Safety from Environmental Emissions during Construction and Operation	√	√	Negligible	Negligible	While impact significance is assessed as Negligible, it is noted that communities consistently raised concerns regarding environmental practices in the IAZ. To address help address these concerns, BTR Anode should implement the following measures: • The Project shall ensure the implementation of the mitigation and monitoring measures set out in ***Section 7.2***, including the quarterly stack emission monitoring programme, and shall verify that environmental monitoring records comply with applicable regulatory requirements. • Considering community concerns regarding the Project's health impacts, the Project shall disclose air emission and noise monitoring results, as well as the Emergency Response Plan (ERP), to AoI communities in an accessible and culturally appropriate	Section 7.3.2.2	• Stack emission, air quality and noise monitoring reports • Records of disclosure of monitoring results and the ERP in Arabic	• Quarterly for stack emission monitoring • In accordance with ***Section 7.2*** for other environmental monitoring	• CLO • ESG Manager • Project Construction and ESG Team

						manner (in Arabic and French), in order to facilitate transparency and increase understanding among community members. • Implement the Grievance Redress Mechanism (GRM) for local communities to report health and safety issues in relation to the Project, and monitor and evaluate the effectiveness of the GRM. • Coordinate with the SATT to ensure response to all environmental health-related concerns that may only relate partially to the Project.		• Community Grievance Register including coordination with SATT	• Monthly monitoring of grievance records and stakeholder engagement	
S3	Communicable Diseases and Sexually Transmitted Diseases (STDs) during Construction	√		Minor	Negligible	• All workers should be screened for infectious disease (including tuberculosis, HIV/AIDS) as part of pre-employment medical examinations, including contractors and subcontractors. Those with active infectious diseases affecting their ability to complete work will not be employed on the Project. • The Project shall give preferential consideration to locations away from the centres of AoI settlements while considering possible sites for the operation phase worker dormitories, in order to reduce the potential interfaces of interactions. • During the operation phase, the Project Company shall maintain an onsite emergency room equipped with essential medical supplies. • If workers require diagnostics or treatment for infectious diseases, transport them directly to hospitals in Tangier to prevent contact with community areas such as residential zones, markets, or river corridors, and ensure adequate quarantine and treatment facilities are used. • Develop and implement training and awareness programs for communicable and non-communicable diseases commonly associated with immigration or common in the Project area, including sexually transmitted diseases; train all workers (including contractors) during induction in Arabic, Chinese, and French. • As part of the Project Company's **Worker Code of Conduct**, as first proposed in ***Section 7.3.1.2***, develop and implement policies that enforces zero tolerance for substance abuse, unsafe sexual behaviour, and discrimination; train all workers (including contractors) during induction in at least Arabic and Chinese. • Provide quarterly hygiene training on handwashing and sanitation practices, supplemented by multilingual educational materials on disease prevention. • Regularly test water and food at worker accommodation for biological contaminants (e.g., giardia, helminths), with quarterly sampling at accommodation and site canteens as well as water sources. • Require worker accommodation, including EPC accommodation camps, to comply fully with Workers' Accommodation: Processes and Standards (IFC and EBRD 2009), ensuring minimum spacing of 4m² per person, adequate ventilation, and sanitary facilities. • Develop and implement a **communicable disease monitoring system** for all workers, including contractors and subcontractors. • Immediately inform Laaouama Commune/Caidat health authorities upon detecting suspected disease outbreaks (e.g., Tuberculosis (TB), STDs) and coordinate response efforts.	Section 7.3.2.3	• Pre-employment and regular medical examination records • Disease prevention, Worker CoC and hygiene training records • Food and water quality testing reports • Worker accommodation inspection records • Community health grievance records	• Quarterly verification of medical records, training records, testing reports, and inspection records • Immediate notification of suspected outbreaks	• HR and Admin Team • Onsite Medical Team • Project Construction and ESG Team • CLO • Contractors
	Communicable Diseases and Sexually Transmitted Diseases (STDs) during Operation		√	Moderate	Minor					

						• Implement the mitigation measures for managing the Project's impacts on local healthcare facilities in ***Section 7.3.4.4***. • Partner with regional and local health providers on STD and other communicable disease education, prevention, vaccination, and treatment programs when necessary. • Implement a grievance mechanism to record and resolve community health complaints (e.g., disease exposure, worker misconduct) via hotline and local liaisons.				
S4	Occupational Health and Safety during Construction and Operation	√	√	Moderate	Minor	• Formalize the **Worker Grievance Mechanism**, including: ◦ Develop procedures to prevent and respond to cases of workplace harassment, including a specific policy for sexual exploitation and abuse (SEA), and sexual harassment (SH). ◦ Establish multiple communication channels that allow workers to anonymously raise complaints. ◦ Ensure the grievance mechanism is available to contracted workers or require contractors to have their own procedure. ◦ Organise training and awareness raising with direct and contracted workers on the worker grievance mechanism as well as company policies regarding non-discrimination, working conditions, etc. • An Occupational Health and Safety Management Plan (OHSMP) should be developed and should present detailed measures to ensure the occupational health and safety of direct and contracted workers as well as to provide working conditions that meet established safety and hygiene standards. The OHSMP should cover all OHS risks identified in this SIA and include measures such as, but not limited to: ◦ Prepare Standard Operating Procedures (SOPs) for each type of construction and operation phase activity; ◦ Conduct regular health and safety training, briefings and toolbox talk (in Arabic and Chinese) before the implementation of construction and operation phase activities; ◦ Establish medical and emergency response facility on site with qualified personnel; ◦ Establish resting areas, first aid kit stations, water refill stations and bathrooms across the site; ◦ Provide transportation to workers within the site for key commutes (e.g. transport to workstation at the beginning of shifts), as well as safe walking paths for pedestrians; ◦ Develop indoor canteen for all site workers; ◦ Translate all key signage, particularly H&S related, to Arabic; ◦ Conduct regular third-party H&S audits on site to identify any H&S non-compliances; ◦ Provide Personal Protective Equipment (PPE) to all workers and conduct awareness raising sessions with worker and managers regarding the importance of PPE; ◦ Fence the construction site to limit wildlife access; ◦ Ensure activities are supervised by trained personnel;	Section 7.3.3.2	• Worker Grievance Register • OHS induction and training records • Worker accommodation inspection records • Accident, occupational illness, incident and near-miss records • Site inspection and third-party OHS audit records	• Weekly site inspection • Immediate reporting and investigation of incidents • Monthly review of grievances • Third-party audit once during construction phase and annually during operation phase	• Project Construction and ESG team • ESG Manager • HR and Admin Team • Contractors

						◦ Develop traffic management measures within the site boundaries and for key access points, including speed limits, road quality and marking standards, safety signage, etc.; ◦ Require height and stockpile locations to be in line with good international industry practices; ◦ Provide guidelines on safe storage of equipment and materials to avoid loose items creating tripping hazards and other safety risks; ◦ Document all work-related accidents, illnesses and incidents; and ◦ Develop workers' accommodations in line with the requirements outlined in IFC EBRD Workers' Accommodation Management Guidelines. • Establish an onsite medical team managed during the operation phase; ensure 24/7 access for all workers.				
S5	Pressure on Roads during Construction	√		Minor	Negligible	• Minimise amounts of material handling and avoid double handling to reduce transportation movements. • Where possible, avoid congested routes, in particular those through surrounding villages. • Regularly record the road conditions of main transportation routes through photos and videos. • Repair any damage to local roads (wear and tear over the construction period) to their original state or better. • Comply with speed and weight limit restrictions as per Moroccan regulations for different types of roads. • Engage with Laaouama Caidat and Commune authorities to inform them about transport routes once determined for operation phase and discuss potential traffic impacts. • Coordinate with SATT, Laaouama Caidat and Commune authorities to discuss road safety measures in Gouaret area and other AoI villages as relevant, such as speed bumps, cautionary signposts and speed limits signs. • Communicate with local communities' representatives to inform of the evolution of construction/operation works and timings for large vehicle deliveries.	Section 7.3.4.2	• Road condition documentation archive (photos/videos) with timestamp and location • Traffic incident and grievance records • Road damage assessment and repair records • Records of advance notification to local communities	• Continuous monitoring of traffic compliance • Monthly road inspections during construction • Quarterly road inspections during operation • Immediate reporting of traffic incidents	• Project Construction and ESG Team • ESG Manager • CLO • Contractors
	Pressure on Roads during Operation		√	Moderate	Minor					
S6	Pressure on Utilities and Local Resources during Construction and Operation	√	√	Moderate	Minor	• Improve the Project's information disclosure related to the use of the local resources. Consult with Caidat and Commune representatives regarding potential impacts on the local utilities and resources. • Finalize and implement the GRM to collect grievances, including any concerns related to Project's impacts on local water resources, waste management and electricity, and provide timely feedback. • Implement continuous monitoring throughout the construction and operational phases to detect and respond to any damage, overuse, or service disruptions caused by Project activities. • Monitor the wastewater recycling used as circulating cooling water.	Section 7.3.4.3	• Water and electricity consumption records • Wastewater generation, treatment and recycling records • Waste inventories,	• Monthly monitoring of resource consumption, wastewater recycling and waste records	• Project Construction and ESG Team • ESG Manager • CLO • Contractors

						• Disclose data on water and electricity consumption as well as recycling to local communities in a culturally appropriate manner in French or Arabic during regular stakeholder engagement activities, as prescribed in the SEP. • Monitor potential competition between industrial and residential water needs and maintain vigilance on impacts to local water supply. During periods of scarcity, communicate and cooperate closely with government authorities to prioritise safeguarding residents' water security. • Ensure all waste generated by the Project and its workforce is collected and managed through licensed waste service providers and approved disposal or treatment facilities. • Provide adequate waste collection containers and waste storage areas at the Project site, worker accommodation facilities, and other Project-related premises, and ensure regular collection to prevent overflow. • Implement measures to reduce waste generation, including reuse and recycling programs and procurement practices that minimise packaging waste. • Prohibit open dumping and open burning of waste by Project personnel, contractors, and subcontractors. • Conduct regular inspections of Project facilities and worker accommodation areas to ensure proper waste management practices are maintained. • Provide waste management training and awareness programs for workers, including requirements for waste segregation and responsible disposal. • Engage with the SATT as well as Caidat and Commune authorities to coordinate waste collection arrangements and monitor any increased pressure on local waste management services attributable to the Project.		• transfer notes and disposal records • Waste storage and accommodation inspection records • Training records • Records of coordination with SATT and local authorities		
S7	Pressure on Healthcare Facilities during Construction	√		Minor	Negligible	• Establish procedures for workers in case of injury/health issues outside working hours; • Equip the Project Site or accommodation site with a medical room during the operation phase. The medical room shall provide basic healthcare services to Project Company employees, allowing more basic health problems to be resolved without needing to visit a health centre. • Establish channels of communication with local health authorities, including adequately communicating with the local health authorities about the Project's grievance mechanism.	Section 7.3.4.4	• Onsite medical room inspection records • Medical supply and emergency transport inspection records • Records of communication with local health authorities • Worker and community grievance records	• Monthly inspection of medical facilities, equipment and supplies	• Onsite Medical Team • Project Construction and ESG Team • ESG Manager • CLO
	Pressure on Healthcare Facilities during Operation		√	Moderate	Minor					

S8	Price Hikes during Construction	√		Minor	Negligible	• Conduct biannual monitoring on the prices of local accommodation, food, and other life necessities to meet both the Project and local community demand. Monitoring methods can be through local publicly available data on prices provided by the local government, engagement with local communities in a culturally appropriate manner (e.g., survey at the local market) and tracking the records of Project's GRM. • If significant price hikes and unavailability of certain life necessities incurring from the Project activities are identified in the local communities, targeted mitigation measures should be implemented by BTR Anode including renting accommodation for employees, particularly for migrant workers, in other areas, diversifying procurement strategy etc. • Additionally, if low-income households and other vulnerable groups are adversely affected by significant price increases or shortages of essential goods resulting from Project activities (for example, as evidenced through grievances submitted via the Project's GRM), BTR Anode should consider cooperating with the local government to propose, initiate and support targeted assistance programs for them. • Priority employment for the local community can also be beneficial to mitigate the impacts of labour influx and competing job markets, as described in mitigation measures in ***Section 7.3.1.2***. An area-based assessment should be conducted to identify employment and procurement opportunities. • Considering the overall economic conditions of the local communities, including the changes to livelihoods after the IAZ land acquisition process, as well as impacts from the influx of foreign workers, the Project should consider developing community development and investment programs to support the livelihoods and customary practices of local residents, especially farmers and livestock grazers in the AoI communities.	Section 7.3.5.2	• Local price and shortage monitoring records • Community Grievance Register • Records of corrective or targeted measures implemented	• Biannual monitoring of local prices and availability • Annual review of employment and procurement opportunities	• CLO • GMO • HR and Admin Team
	Price Hikes during Operation		√	Moderate	Minor					
S9	Land Acquisition and Loss of Livelihood from the Temporary Project Power Connection	√		Negligible	Negligible	• The Project shall communicate actively with the TMU to gather documentation to confirm that: ◦ All of the landowners and land users affected by the transmission line have been identified, which should be evidenced by land plot mapping and ownership documentation; ◦ All identified landowners have been compensated for the loss of land and crops, which should be evidenced by signed contracts. Should any land users be affected by the temporary transmission line, they should also be eligible for compensation for any loss of crops experienced due to the transmission line, either by TMU or through the agreement with the corresponding landowner. This should be evidenced through meeting notes of communications with landowners, as well as	Section 7.3.6.2	• Records of communication with TMU and/or SATT • Community grievances register	• Continuous communication • Monthly review of grievances	• Project Construction and ESG Team • ESG Manager • CLO • GMO

			√	Minor	Negligible	signed contracts; ◦ The operation of the temporary transmission line will not extend beyond six months, and will therefore not affect more than one planting season. The temporary transmission line will be decommissioned and land will be rehabilitated for agricultural use once the permanent transmission line is completed; and ◦ The transmission line corridor does not affect any irrigation channels or cause any temporary access blocks. ◦ Should the above points not be confirmed, any potential additional impacts on livelihoods should be assessed and BTR Anode should discuss potential additional compensation entitlements with TMU/SATT commensurate with the impact experienced by these landowners/users. • Disclose the Project's information and its GRM to all affected land owners and users. Any grievances raised in relation to the land acquisition process should be discussed and resolved jointly with SATT and/or TMU. • While land acquisition and livelihood impacts of the main Project site have been scoped out, as detailed in ***Section 4***, it is noted that local communities' ongoing concerns regarding the compensation process may pose reputational risks to the IAZ, which could also affect BTR's operations. Therefore, BTR should initiate discussions with SATT and relevant government authorities to identify opportunities for BTR to contribute to livelihood restoration efforts and programs in the AoI. While BTR occupies a portion of the industrial park land, the footprint of the Project represents only a small fraction of the overall industrial park area. Accordingly, any responsibility assumed by BTR should be proportionate to its contribution to the impacts and should not extend beyond what is reasonably attributable to the Project. • It is also noted that, once operational, the Project is expected to generate significant employment opportunities, which could provide an important pathway for local residents to transition to alternative livelihoods. In this regard, BTR should work closely with local government authorities to develop and implement measures that support workforce preparation, skills training, and equitable access to employment opportunities, as specified in ***Section 7.3.1***. By taking proactive steps in these areas, BTR can help create the conditions and foundation for the sustained improvement of local livelihoods over the long term. • Going beyond direct impact mitigation, considering the overall economic conditions of the local communities, the Project may consider developing community development and investment programs to support the livelihoods and customary practices of local residents, especially farmers and livestock grazers in the AoI communities. Community development programs may also aim to support livelihood activities traditionally or predominantly practiced by women, in order to enhance the socio-economic conditions of women in the AoI. The Project may partner with specialized NGOs to identify suitable activities, which may include sewing, handicrafts, small scale trade, and informal services, and provide meaningful investment and capacity building for these livelihood activities. Livelihood development programs for women should be designed with input from women in the Project AoI, and should not replace the hiring plans for local women.				

						• A detailed account of the land acquisition process of the Project land has not been provided by SATT or relevant government bodies. Considering the overall importance of the land acquisition process to the local communities, as well as reputational risks to the Project that may arise due to contentions surrounding the land acquisition process – even if the Project's own impacts are negligible – it is recommended that the Project continues to work with the SATT and relevant government bodies to gather more information on the acquisition of the Project land. The Project should consider keeping a clear register of the land use history and past land property rights prior to their acquisition, including the owners and any authorized/unauthorized users of the land, the previous land use categories (both regulatory and actual use), the process and compensation of the acquisition of the land, and any conflicts or disputes that arose from the land acquisition process, including any resolved or ongoing legal issues.				
Unplanned Events										
U1	Fire and Explosion		√	Minor	Negligible	**Planning for Fire and Explosion Emergency Response** • Ensure that all people working in the Project Site shall receive an induction training on fire safety and emergency response, this induction shall include, but not limited to: ◦ Evacuation procedures from offices and other buildings in event of fire, assembly point procedures; ◦ Actions in the event of site alarm and assembly procedures; and ◦ Selection and operation of firefighting equipment. • Ensure that the flammable substances (i.e. oil/diesel) will be controlled/distanced to ignition sources; • Install signs to show flammable area and no smoking areas; • Establish and follow electricity safety regulations, check and maintain machines periodically. **Response to Fire Emergencies** • Any person seeing a fire and explosion must first raise the alarm either verbally, blowing of whistle, alarm call point, cell phone or radio call, and immediately report to his supervisor or foreman, who will report to the personnel in the Emergency Contact List; • If it is a small fire, the person(s) who spotted the fire may attempt to use a portable fire extinguisher to control the fire from spreading; • If the fire is beyond control or lives are endangered, inform the fire police and emergency evacuation shall be activated. Immediately inform the fire police in case that the fire cannot be controlled internally. All persons and rescue victims to assembly points as soon as possible and provide necessary first aid, if needed; • The person(s) in charge shall report their headcount and any missing personnel and their last known location immediately. Rescue team shall be informed and instructed to organise search and rescue of all reported missing personnel immediately.	Section 9.3.4	• Induction Training Records • Photo records • Inspection records • Incident reports	Continuous onsite enforcement	ESG Team
U2	Spills and Leaks		√	Negligible	Negligible	**Planning for Spill/Leakage Emergency Response**	Section 9.4.4	• Chemical Incident	Continuous onsite	ESG Team

					• Provide chemical safety training to relevant employees in order to ensure they are competent in response to oil and chemical spill; • For storing onsite: ○ Ensure that the products are properly stored on site (e.g., secondary containment, over filling alarm system) in designated areas (i.e., storage and workshop areas for construction materials, fuels and lubricants); ○ Ensure that the emergency response facilities and equipment for oil spill (i.e., spill kits, Safety Data Sheet ("SDS"), personal protective equipment ("PPE")) are available, adequate and functional at the Project Site; ○ Ensure good inspection for housekeeping conditions of chemical storage areas and integrity of chemical containers, and ensure maintenance procedures to minimise small leaks and spills. ○ If chemical spills and contaminated stormwater are effectively contained within the Project boundary, off-site surface water monitoring is not considered necessary. ○ In the event that spilled chemicals enter the stormwater drainage system and migrate beyond the Project boundary, upstream and downstream surface water quality monitoring shall be undertaken to assess potential impacts. Monitoring parameters may include pH, temperature, conductivity, dissolved oxygen (DO), biochemical oxygen demand (BOD_5), chemical oxygen demand (COD), total suspended solids (TSS), ammonia nitrogen, total nitrogen (TN), total phosphorus (TP), oil and grease, together with any spill-specific contaminants and parameters required by applicable regulatory requirements. • For transporting of hazardous materials/wastes on public road: ○ Vehicles used for transporting hazardous materials shall be affixed with relevant hazardous pictograms on both side and the rear of the vehicle. Hazardous chemical/oil shall be packed and labelled properly; ○ Vehicles used for transporting chemical/oil shall be provided with oil spill kit, fire extinguishers, SDS of transported chemical/oil and suitable PPE as per SDS; ○ Hazardous materials that are likely to react with each other must not be transported in the same vehicle. The driver shall inspect and ensure safety before transport begins **Response to Oil Spillage Emergencies** • If the oil spillage is within the site's capacity, the ERT shall: ○ Evacuate irrelevant/ unauthorized people from the spill area; ○ Isolate the source of the spill and ensure that spillage does not flow into the drainage system; ○ Ensure that the contaminated areas are cleaned up as soon as possible by competent persons and using absorption materials (either sand or proper absorbent);		Prevention and Response Measure • Chemical safety training records • Inspection records • Incident reports	enforcement	

						◦ Keep copies of hazardous substances inventory which are used onsite; ◦ Collect the absorption materials, contaminated material/waste and store in sealed containers and properly labelled, and handle in proper containers and treated and disposed as hazardous waste • If the oil spillage is beyond the site's capacity, the ERT shall: ◦ Liaise with all relevant external parties involved; ◦ Contact the public emergency services such as Police to control the situation; ◦ Arrange for immediate remediation of the affected areas, after spillage is brought under controls.				
U3	Traffic Accident	√	√	Moderate	Minor	• The Project should develop and implement a *Traffic Management Plan* (TMP) proportionate to the scale of traffic generated by the Project. The TMP should include, at a minimum, the following measures: ◦ Preventive Measures – Conduct mandatory pre-qualification screening for all subcontracted logistics providers (safety history, fatality record). – Define operation safety standards covering heavy vehicle movements, site access arrangements, speed limits, vehicle routing, incident response procedures, and driver requirements. – Schedule deliveries of large equipment and bulk materials outside peak commuting periods. – Define speed limits within the Project site and at site access roads. – Require vehicle operators to hold valid licences and receive defensive driving and road safety trainings; Conduct periodic road safety awareness campaigns for workers and drivers. – Install appropriate traffic signage, warning signs, speed restriction signs, and road markings at site entrances and other locations where Project traffic interacts with public roads. – Implement journey management procedures for long-distance transport and oversized loads. – Require the reporting, investigation, and corrective action tracking of all traffic-related incidents and near misses. ◦ Traffic Emergency Response Measures – Ensure all drivers are trained in emergency response procedures, defensive driving, and accident reporting requirements before operating Project vehicles. – Equip Project vehicles with emergency kits, including first aid supplies, fire extinguishers, warning triangles, reflective vests, and emergency contact information.	Section 9.5.4	• Traffic management Plan • Training records • Incident records	Continuous onsite enforcement	ESG team

APPENDIX A STAKEHOLDER ENGAGEMENT PLAN

Appendix A Stakeholder Engagement Plan

Morocco Lithium-Ion Anode Battery Materials Project

PREPARED FOR

BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY

DATE
05 November 2026

REFERENCE
0798554



DOCUMENT DETAILS

DOCUMENT TITLE	Appendix A Stakeholder Engagement Plan
DOCUMENT SUBTITLE	Morocco Lithium-Ion Anode Battery Materials Project
PROJECT NUMBER	0798554
Date	05 November 2026
Version	03
Author	Eric Cao, Marine Krieger
Client name	BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY

DOCUMENT HISTORY

				ERM APPROVAL TO ISSUE		
VERSION	REVISION	AUTHOR	REVIEWED BY	NAME	DATE	COMMENTS
01	000	Various	Marine Krieger	Yang Shen	09.04.2026	Approve to issue
02	001	Various	Marine Krieger	Yang Shen	10.15.2026	Updated based on comments
03	002	Various	Marine Krieger	Yang Shen	11.05.2026	Updated based on comments

SIGNATURE PAGE

Appendix A Stakeholder Engagement Plan

Morocco Lithium-Ion Anode Battery Materials Project

0798554

Yang Shen
Partner

ERM (Shanghai) Limited
Litong Plaza, 20th floor, No. 1350 Sichuan North Road
Shanghai, Hongkou District, China

© Copyright 2026 by The ERM International Group Limited and/or its affiliates ('ERM'). All Rights Reserved.
No part of this work may be reproduced or transmitted in any form or by any means, without prior written permission of ERM.

CONTENTS

EXECUTIVE SUMMARY 1

1. INTRODUCTION 5

1.1 PROJECT DESCRIPTION 5

1.1.1 Project Location 5
1.1.2 Project Components 8
1.1.3 Historical Land Use 11

1.2 PROJECT TIMELINE AND ACTIVITIES 12

1.2.1 Construction Phase 12
1.2.2 Operation Phase 12

1.3 STRUCTURE OF THE SEP 13

2. NATIONAL AND INTERNATIONAL REQUIREMENTS 14

2.1 NATIONAL LEGISLATION 14

2.2 INTERNATIONAL STANDARDS 15

2.2.1 IFC Performance Standards 15
2.2.2 AIIB Environmental and Social Framework 17

3. STAKEHOLDER IDENTIFICATION AND ANALYSIS 18

3.1 STAKEHOLDER IDENTIFICATION 18

3.2 STAKEHOLDER MAPPING 30

4. STAKEHOLDER ENGAGEMENT HISTORY 32

4.1 SUMMARY OF REGULATORY ESIA AND PROJECT PLANNING ACTIVITIES 32

4.2 SUMMARY OF SUPPLEMENTARY ESIA STAKEHOLDER ENGAGEMENT 34

4.3 STAKEHOLDER ISSUES 39

5. STAKEHOLDER ENGAGEMENT PLAN 46

5.1 OVERVIEW 46

5.2 STAKEHOLDER ENGAGEMENT PRINCIPLES 46

5.3 STRUCTURE OF STAKEHOLDER ENGAGEMENT MEETINGS 47

5.4 STAKEHOLDER ENGAGEMENT STRATEGIES 47

5.4.1 Construction Phase Engagement 47
5.4.2 Operation Phase Engagement 50

5.5 VULNERABLE PEOPLE ENGAGEMENT 52

6. GRIEVANCE MECHANISM 53

6.1 OVERVIEW 53

6.2	RESOURCES FOR GRM IMPLEMENTATION	54
6.3	GRIEVANCE MECHANISM KEY PRINCIPLES	54
6.4	DETAILED GRIEVANCE PROCEDURE	56
6.4.1	Step 1: Publicizing the Grievance Mechanism	57
6.4.2	Step 2: Receiving a Grievance	58
6.4.3	Step 3: Acknowledging Receipt of a Grievance	59
6.4.4	Step 4: Documenting a Grievance	59
6.4.5	Step 5: Assessing and Investigating the Grievance	59
6.4.6	Step 6: Grievance Resolution	62
6.4.7	Step 7: Closure of Grievance	62
7.	MONITORING AND EVALUATION	64
7.1	REPORTING	64
7.2	MONITORING AND EVALUATION	64
8.	ROLES AND RESPONSIBILITIES	66

APPENDIX A-1	STAKEHOLDER ENGAGEMENT RECORDS
APPENDIX A-2	PROJECT COMMUNITY GRIEVANCE FORM
APPENDIX A-3	STAKEHOLDER ENGAGEMENT LOG
APPENDIX A-4	GRIEVANCE REGISTER TEMPLATE

LIST OF TABLES

TABLE 0-1	SUMMARY OF SUPPLEMENTARY ESIA PHASE STAKEHOLDER ENGAGEMENT ACTIVITIES	2
TABLE 0-2	SUMMARY OF RECOMMENDED STAKEHOLDER ENGAGEMENT ACTIVITIES	3
TABLE 1-1	PROJECT COMPONENTS	10
TABLE 3-1	STAKEHOLDER CATEGORY LIST	20
TABLE 4-1	SUMMARY OF REGULATORY EIA AND PLANNING PHASE ENGAGEMENT ACTIVITIES	33
TABLE 4-2	ESIA PHASE ENGAGEMENT SUMMARY	35
TABLE 4-3	OVERVIEW OF CONCERNS AND ISSUES RAISED DURING THE SITE VISIT	40
TABLE 5-1	SUPPLEMENTARY ESIA DISCLOSURE	49
TABLE 6-1	SIGNIFICANCE RATING CRITERIA	61

LIST OF FIGURES

FIGURE 1-1	PROJECT LOCATION	7
FIGURE 1-2	PROJECT SURROUNDINGS	8
FIGURE 1-3	PROJECT LAYOUT	9

FIGURE 3-1	PROJECT STAKEHOLDER MAP	31
FIGURE 6-1	GRIEVANCE PROCESS FLOW	57
FIGURE 6-2	GRIEVANCE ELIGIBILITY CHECK	60

ACRONYMS AND ABBREVIATIONS

Acronyms	Description
ABH	Hydraulic Basin Agency
ABHL	Loukkos Water Basin Agency
AIIB	Asian Infrastructure Investment Bank
ANAPEC	National Agency for the Promotion of Employment and Skills
ANEF	National Agency for Water and Forests
AoI	Area of Influence
BTR	BTR New Material Group Co., Ltd.
CLO	Community Liaison Officer
CNEIE	National Committee for Environmental Impact Studies
CRI	Regional Investment Centre
CRUI	Unified Regional Investment Commission
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EIS	Environmental Impact Study
ERM	ERM (Shanghai) Limited
ESG	Environmental, Social and Governance
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESS1	Environmental and Social Standard 1
FGD	Focus Group Discussion
GMO	General Manager Office
GRM	Grievance Redress Mechanism

Acronyms	Description
IAZ	Industrial Acceleration Zone
IFC	International Finance Corporation
KPI	Key Performance Indicator
NGO	Non-Governmental Organisation
ONEE	National Office for Electricity and Water
SEP	Stakeholder Engagement Plan
SATT	Société d'Aménagement Tanger Tech
SRM	Regional Multiservice Company
TMSA	Tangier Med Special Agency
TMU	Tanger Med Utilities
TOR	Terms of Reference
TTAH	Tanger-Tétouan-Al Hoceïma

EXECUTIVE SUMMARY

This Stakeholder Engagement Plan ("SEP") is undertaken to support BTR New Material Group Co., Ltd. ("BTR" or the "Headquarters") in the development of a lithium-ion battery anode materials manufacturing project in Morocco (the "Project"). BTR Mediterranean Anode New Material Technology, a wholly owned subsidiary of BTR was established (the "Project Company", the "Client" or "BTR Anode") to operate the Project. The main product of the Project is anode material with an annual capacity of 60,000 tonnes. The Project has completed the regulatory Environmental Impact Assessment (the "regulatory EIA") and obtained the approval by the competent authority in January 2026.

ERM (Shanghai) Limited ("ERM") has been engaged by the Client to undertake a Supplementary Environmental and Social Impact Assessment ("Supplementary ESIA") for the Project to ensure that the Project's environmental and social impacts have been adequately identified, assessed, and managed in accordance with Applicable Standards, to support the Project's compliance with international lender requirements and facilitate the financing process. As an important component of the supplementary ESIA, this SEP was prepared to meet the stakeholder engagement and information disclosure requirements of IFC PS1 and the AIIB ESF, particularly Environmental and Social Standard 1 (ESS1).

This SEP provides a summary of the stakeholder engagement activities undertaken during the regulatory EIA and Supplementary ESIA as well as recommended activities for the Project's future phases. The SEP includes stakeholder mapping, the outcomes of consultation undertaken during the regulatory EIA and how they have been incorporated into project activities, the findings of the supplementary ESIA phase engagements, as well as an outline of stakeholder engagement activities that will be undertaken in the future by the Project owners during construction and operations.

This SEP was updated based on comments received from AIIB in October 2026.

Stakeholder Identification and Analysis

The SEP has identified and analysed key stakeholders who may affect the execution of the Project or may be impacted by the activities undertaken during the construction and operation of the Project. These key stakeholders include national, regional, and local governmental offices, public and private companies, affected communities and vulnerable groups, civil society and interest groups including NGOs, and relevant academia. The identified stakeholders are then mapped according to a Stakeholder Matrix, which assesses each stakeholder's influence on and interest in the Project's implementation, with each quadrant of the Matrix being suggested a specific engagement strategy. The full stakeholder identification and mapping process is presented in ***Section 3*** of this SEP.

Stakeholder Engagement History

A summary of the stakeholder engagement activities undertaken during the regulatory EIA and Project planning phase is provided in ***Section 4.1***, followed by a summary of the stakeholder engagement activities during ERM's supplementary ESIA phase site visit. Key issues, concerns, and expectations raised by stakeholders during the supplementary ESIA phase engagements were recorded, responded to and integrated in the impact assessment as well as Project planning process. Stakeholder engagements undertaken during the regulatory EIA and Project planning phase mainly concerned engagement of relevant government bodies through the CRI

and CRUI, as well as the public inquiry process as required by Moroccan law. A summary of stakeholder engagement activities during the supplementary ESIA period can be found in ***Table*** 0-1. The full Stakeholder Engagement history is presented in ***Section 4*** of this SEP.

TABLE 0-1 SUMMARY OF SUPPLEMENTARY ESIA PHASE STAKEHOLDER ENGAGEMENT ACTIVITIES

Date	Stakeholder Type	Activities	Stakeholder Involved
11 August	Government authorities	Courtesy Call	Secretariat of General Secretary, Impact Assessment Department
11 August	Government authorities	Courtesy Call	Secretariat of CRI Directorate
11 August	Government authorities	Courtesy Call	Laaouama Commune Director and Vice-President
11 August	Government authorities	Courtesy Call	Laaouama Caid
12 August	Government authorities	Key informant interview	Head of Investment Advisory Division of CRI
12 August	Community stakeholders	Focus group discussion with men	Male villagers from Gouaret Meharza and Gouaret Mechahla
12 August	Community stakeholders	Focus group discussion with women	Female villagers from Gouaret Meharza and Gouaret Mechahla
12 August	Community stakeholders	Key Informant Interview	Mokadems (local administrative officers) of Gouaret Meharza and Gouaret Mechahla
12 August	Community stakeholders	Focus group discussion with men	Male villagers from Slaouiyine and Chaouia
12 August	Community stakeholders	Focus group discussion with women	Female villagers from Slaouiyine and Chaouia
12 August	Community stakeholders	Key Informant Interview (2nd group)	Mokadems (local administrative officers) of Slaouiyine and Chaouia
12 August	Public & nearby company	Key informant interview	SATT
13 August	Commune-level Governments and Offices	Key informant interview	President and Director of Laaouama Commune
13 August	Commune-level Governments and Offices	Key informant interview	President and Director of Sebt Azzinate Commune

Date	Stakeholder Type	Activities	Stakeholder Involved
17 August	Regional Governments and Offices	Online Key informant interview	Representatives of ABHL, Ministry of Equipment and Water, Environmental Department and Regional ANEF Office

Stakeholder Engagement Plan

The plan for stakeholder engagement outlines the principles, structure, tools, objectives, and strategies for the Project, as well as specific engagement activities to be undertaken during the construction and operation phases, including concrete targets, purposes, approaches/tools, responsibilities, and timelines for each activity. Recommendations for ways to ensure inclusion of vulnerable populations are identified in accordance with the IFC Handbook for Stakeholder Engagement Good Practice (2007). A summary of the stakeholder engagement activities recommended by ERM for construction and operation phases can be found in ***Table*** 0-2. The full Stakeholder Engagement plan is presented in ***Section 5*** of this SEP.

TABLE 0-2 SUMMARY OF RECOMMENDED STAKEHOLDER ENGAGEMENT ACTIVITIES

Phase and Engagement Round	Stakeholder	Main Purpose of Engagement
Construction – Information Disclosure	• CRI and CRUI members • Communities from Laaouama Commune, particularly residents of Gouaret Meharza, Gouaret Mechahla, Slaouiyine and Chaouia; • Laaouama and Sebt Azzinate Commune Presidents and Caids; and • Vulnerable groups as defined in ***Section 3.1***.	• Share updated Project information and construction phase plans; and • Disclose Supplementary ESIA findings regarding predicted impacts and mitigation measures. • Share updated Project information and construction phase plans; • Share Supplementary ESIA findings regarding predicted impacts and mitigation measures; • Inform stakeholders about Project Grievance Mechanism and key BTR Anode personnel; • Disclose Project workforce/labour plans to include local workforce requirement and recruitment process; and • Consult stakeholders on concerns and views.
Operation – Regular Engagement	• Laaouama Caid; • Laaouama and Sebt Azzinate El Gharb Commune Presidents; • Communities from Laaouama Commune, particularly residents of Gouaret Meharza, Gouaret Mechahla, Slaouiyine and Chaouia; and	• Share Project development, impacts and opportunities, including operation phase plans and activities; • Disclose environmental and social management and monitoring for operation phase; • Inform about community development programs;

Phase and Engagement Round	Stakeholder	Main Purpose of Engagement
	• Vulnerable groups as defined in ***Section 3.1***.	• Update on progress of grievance resolution process and close out; and • Gather feedback/concerns on operation phase impacts.

Grievance Mechanism

A comprehensive Grievance Redress Mechanism (GRM) has been developed for the Project, which outlines a structured approach to receiving, documenting, investigating, resolving, and monitoring grievances from stakeholders, and is essential to maintaining trust, minimizing risks, and ensuring the successful implementation of the Project. This GRM is designed to identify, assess, and resolve issues throughout the entire lifecycle of the Project, ensuring timely and fair resolution of grievances during both the construction and operation phases of the Project. This GRM provides the key principles, resources, and specific procedures for each stage of the grievance redress process. The GRM also recommends coordination with SATT for grievances involving industrial-zone infrastructure or unclear attribution, and coordination between the community GRMs of the BTR Anode and Cathode Projects. The full GRM is presented in ***Section 6*** of this SEP.

Monitoring and Evaluation

As part of the overall monitoring of commitments, grievances, and performance in the assessment of the effectiveness of this SEP and associated engagement activities, the SEP outlines an approach for the Project to document, monitor, and evaluate all engagement activities. Specific instruments provided by this SEP include information recording mechanisms and indicators for monitoring and evaluation activities. The full Monitoring and Evaluation process is presented in ***Section 7*** of this SEP.

Roles, Responsibilities, and Resources

This SEP has profiled the resources that may be required by an effective implementation of engagement activities. This includes the establishment and training of a Community Liaison Officer (CLO) position to lead the SEP and GRM implementation. The full detailed allocation of roles, responsibilities and resources is presented in ***Section 8*** of this SEP.

1. INTRODUCTION

This Stakeholder Engagement Plan ("SEP") is undertaken to support BTR New Material Group Co., Ltd. ("BTR" or the "Headquarters") in the development of a lithium-ion battery anode materials manufacturing project in Morocco (the "Project"). BTR Mediterranean Anode New Material Technology, a wholly owned subsidiary of BTR was established (the "Project Company", the "Client" or "BTR Anode") to operate the Project. The main product of the Project is anode material with an annual capacity of 60,000 tonnes. The Project has completed the regulatory Environmental Impact Assessment (the "regulatory EIA") and obtained the approval by the competent authority in January 2026.

ERM (Shanghai) Limited ("ERM") has been engaged by the Client to undertake a Supplementary Environmental and Social Impact Assessment ("Supplementary ESIA") for the Project. The objective of the supplementary ESIA is to ensure that the Project's environmental and social impacts and risks have been adequately identified, assessed, and managed in accordance with Applicable Standards described in ***Section 2***, to support the Project's compliance with international lender requirements and facilitate the financing process.

This SEP provides a summary of the stakeholder engagement activities undertaken during the regulatory EIA and Supplementary ESIA as well as recommended activities for the Project's future phases. The SEP includes stakeholder mapping, the outcomes of consultation undertaken during the regulatory EIA and how they have been incorporated into project activities, the findings of the supplementary ESIA phase engagements, as well as an outline of stakeholder engagement activities that will be undertaken in the future by the Project owners during construction and operations. This SEP builds upon ERM's site visit to the Project between 10 and 14 August 2026. All engagements have been conducted in a culturally appropriate manner, by involving community representatives in the preparation of the meetings and accounting for the participation of women.

This SEP was updated based on comments received from AIIB in October 2026.

1.1 PROJECT DESCRIPTION

1.1.1 PROJECT LOCATION

The project is located within Phase I of the Industrial Acceleration Zone (Zone d'Accélération Industrielle, IAZ) of the Cité Mohammed VI Tangier Tech, in Tangier-Assilah Prefecture, Tangier-Tétouan-Al Hoceïma Region, Morocco. The Project Site corresponds to Plot No. 59, a serviced vacant land parcel owned by Société d'Aménagement Tangier Tech (SATT). The Project is situated approximately 20 km southeast of Tangier city.

The Project Site can be accessed from Tangier via Provincial Road P4608. The proposed Project is being developed on a 29.9-hectare plot, which forms part of the total land that the Project Company purchased for this Project for the current development as well as future expansion phases. The Project will have a total building area of approximately 154,652 m². The Project location is shown in ***Figure*** 1-1.

According to Google Earth Pro and ERM's site visit in August 2026, surroundings of the Phase I Project are summarised as below:

- *North*: Immediately bounded by an access road. Further north is a drainage channel associated with the Industrial Acceleration Zone;

- *South*: Immediately bounded by an access road. Further south, are undeveloped vacant land beyond the Industrial Acceleration Zone boundary;
- *West*: Immediately bounded by an access road and the Hailiang Morocco site (a copper processing and new energy materials manufacturing facility). The surrounding area is characterised by ongoing industrial development within the Industrial Acceleration Zone;
- *East*: Immediately bounded by a hillside area and a substation. Further east are undeveloped bare land beyond the Industrial Acceleration Zone boundary.

The nearest settlements are Gouaret Mechahla, located approximately 1.01 km northwest of the Project Site, Slaouiyine, located approximately 0.97 km north of the Project, Chaouia, located approximately 1.77 km northeast of the Project Site, and Gouaret Meharza, located approximately 2.43 km northwest of the Project Site. Although the Project is located in Sebt Azzinate Commune, all of the above four settlements are located in Laaouama Commune.

FIGURE 1-1 PROJECT LOCATION

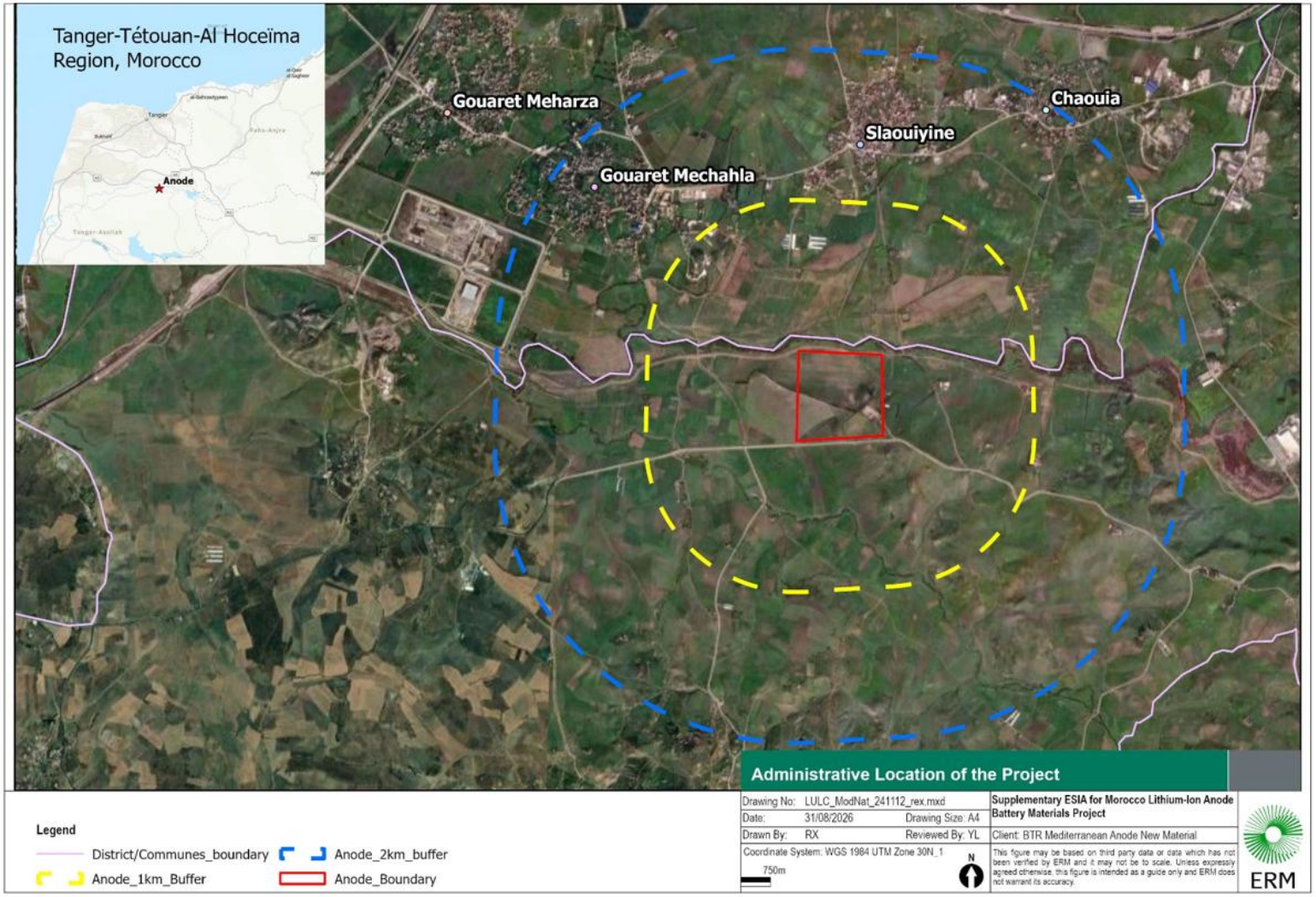
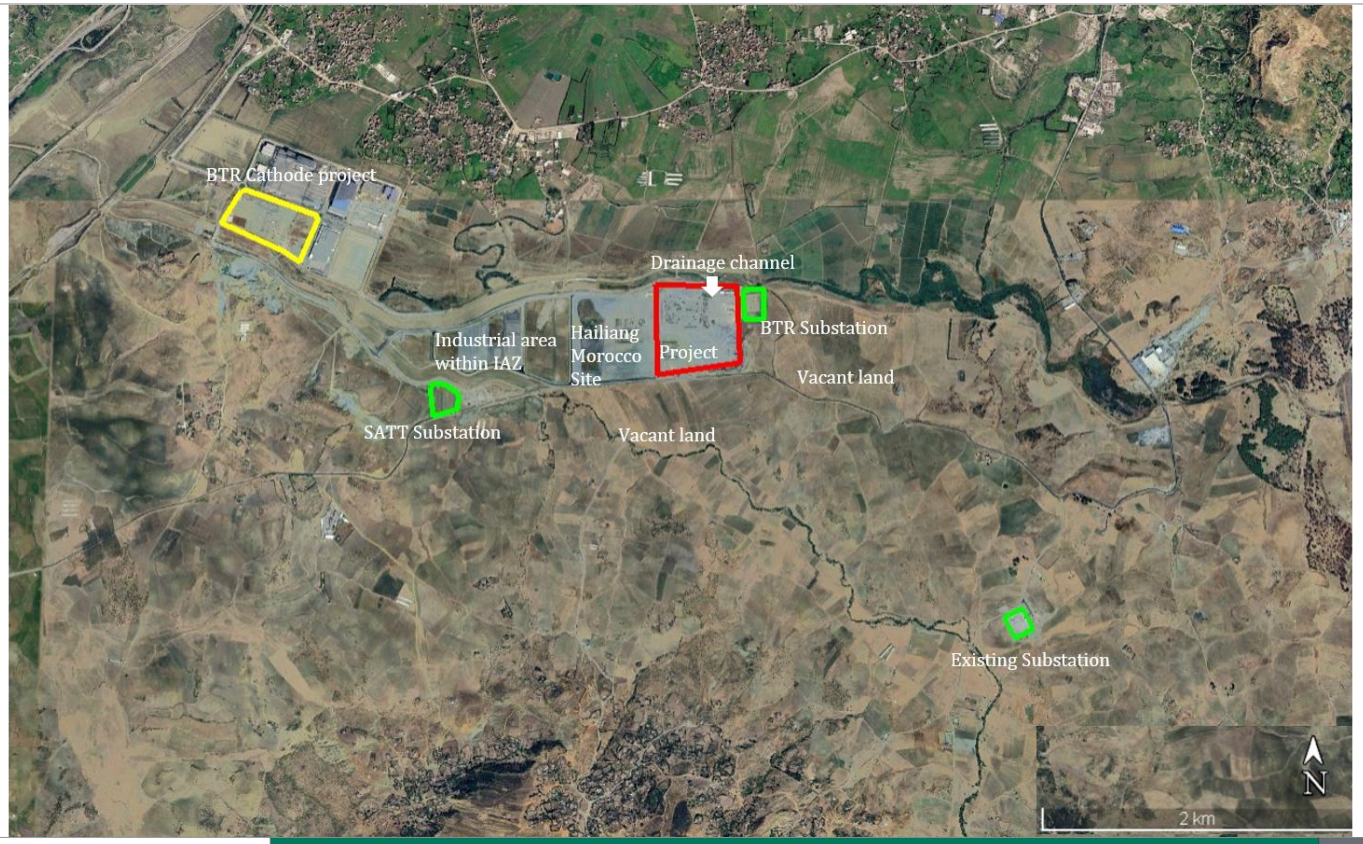


FIGURE 1-2 PROJECT SURROUNDINGS

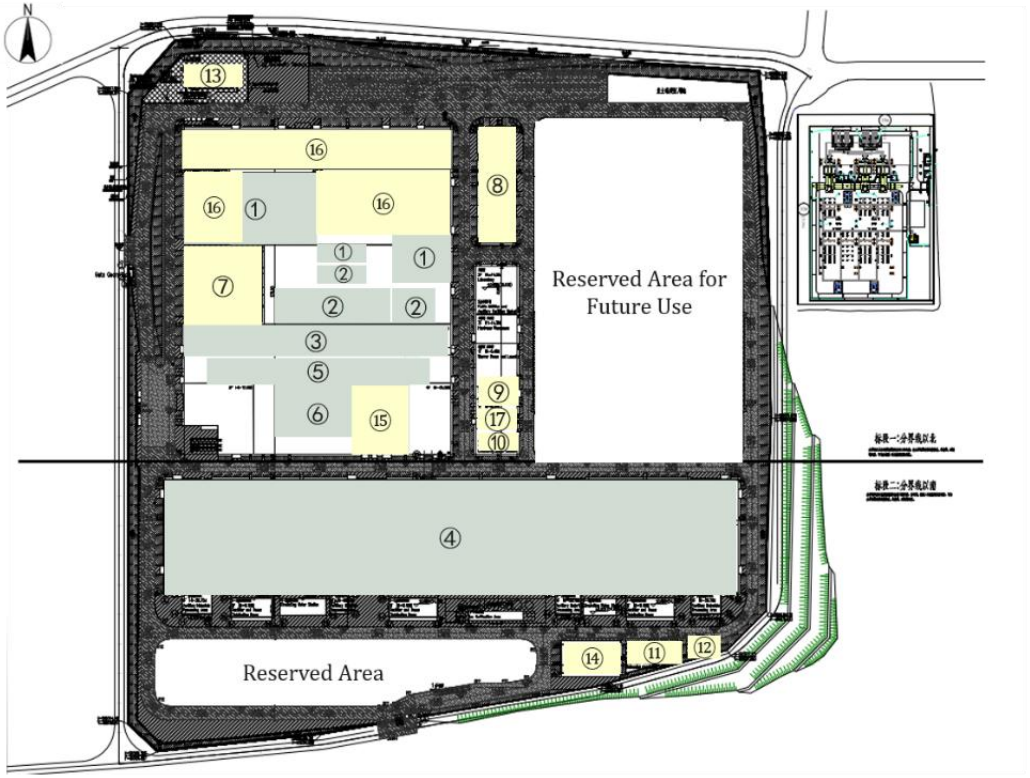


Legend	Surroundings of the Project			
Substation	Date: 24 August 2026	Drawn Size: 16x11 cm	**Supplementary Environmental and Social Impact Assessment**	ERM
	Drawn by: SR	Reviewed by: MX		
	Coordinate System/Source: WGS 1984		BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY	
	This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.			

1.1.2 PROJECT COMPONENTS

The Project layout is shown in ***Figure*** 1-3. A description of the components of the Project is provided in ***Table*** 1-1.

FIGURE 1-3 PROJECT LAYOUT



Legend	Project Layout			
Main Production Area	Date: 24 August 2026	Drawn Size: 16x11 cm	**Supplementary Environmental and Social Impact Assessment**	ERM
Utilities and Auxiliary Area	Drawn by: SR	Reviewed by: MX		
	Coordinate System/Source: WGS 1984		BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY	
	This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.			

TABLE 1-1 PROJECT COMPONENTS

Facility Type	Key Components	Building Area(m²)
Production Facilities	Raw Material Workshop	4,000
	Coating Workshop	6,175
	Granulation Workshop	6,175
	Pre-carbonisation Workshop	12,900
	Graphitisation Workshop	64,376
	Carbonisation Workshop	10,661
	Finished Product Workshop	14,145
Storage Facilities	Graphite Warehouse	19,000
	Packaging Material Warehouse	2,550
	Hazardous Waste Storage Area	1,600
	LPG Storage Tank	~3,000
Utilities and Auxiliary Facilities	Substation	1,800
	Air Compressor Station	1,000
	Circulating Water Station	120
	Fire Water Tank and Pump Station	300
	Wastewater Treatment Station	600
	Accident Water Pond	300
	Rainwater Pond	300
	Administrative Building	7,850
	Nitrogen supply pipeline	/
Total Building Area		**153,852**

In addition to the facilities listed above, a nitrogen supply pipeline will be constructed to transport nitrogen from the air separation unit (ASU) located within the adjacent industrial

facility to the Project Site. Construction of the pipeline is expected to commence in September 2026 and is anticipated to be completed by the end of October 2026. The nitrogen supply pipeline forms part of the Project scope and has therefore been assessed as a Project Component rather than an Associated Facility.

Associated facilities are activities that are not included in the description of the Project set out in the Legal Agreements governing the Project, but which, following consultation with the Client, AIIB determines are:

- Directly and materially related to the Project;
- Carried out, or planned to be carried out, contemporaneously with the Project; and
- Necessary for the Project to be viable and would not be carried out if the Project did not exist.

The associated facilities considered for this project are:

- **A permanent overhead transmission line** will connect the planned **SATT substation** within the Industrial Acceleration Zone and the dedicated BTR substation located adjacent to the Project Site. At the time of preparation of this ESIA, the SATT substation had not yet been constructed, and the final transmission line route and construction schedule had not been confirmed. As the permanent transmission line will be located within the IAZ, the biodiversity and social conditions identified for the main Project Site are considered generally applicable. Potential biodiversity and land-use impacts are expected to be limited and have therefore been scoped out on the same basis as those for the main Project Site. Once the final alignment becomes available, BTR will screen the facility through its Environmental and Social Management System (ESMS) and determine whether additional management measures are required.
- Pending completion of the permanent power supply infrastructure, **a temporary underground cable** will be established (See ***Figure*** 1-2), connecting to a substation located southeast of the Industrial Acceleration Zone to supply power at the initial stage prior to completion of the permanent power infrastructure. A temporary transformer will also be installed at the substation. The temporary facilities are expected to be completed by October 2026.

1.1.3 HISTORICAL LAND USE

The Project occupies Lot No. 59 within the Industrial Acceleration Zone (IAZ), part of Mohammed VI Tangier Tech City in Sebt Azzinate Commune, Tangier-Assilah Prefecture. The 299,437 m² plot is managed within the IAZ by *Société d'Aménagement* Tangier Tech (SATT) and is accessible from the RP4608 road.

Before development of the IAZ, the Project site and surrounding area were predominantly rural and agro-pastoral, comprising cultivated fields, open land, rural tracks, drainage features and scattered structures. According to SATT, the land was expropriated by the Moroccan State for strategic purposes from 2015 and subsequently transferred to SATT as part of the government-led development of the IAZ. The Zone was formally established in 2019, entered commercialisation in 2023, and Phase 1 construction commenced in 2024.

BTR became involved after the industrial-zone land acquisition process had been completed. Following Project authorisation in April 2024, BTR purchased Lot No. 59 from SATT, with the sale registered in December 2025. BTR therefore acquired an industrial plot that had already

been acquired and regularised through the government-led development process and did not participate in the original expropriation or compensation process.

1.2 PROJECT TIMELINE AND ACTIVITIES

The Project construction milestones are listed below:

- Piling and construction: started in May 2025 and scheduled to be completed in October 2026.
- Equipment Installation and Commissioning: started in January 2026 and expected to be completed by December 2026.
- Operations: scheduled to commence in January 2027.

During ERM's site visit in August 2026, the Project construction was in the final stage (overall progress at approximately 80%), with site levelling and early works substantially complete and the remaining scope limited to civil and structural finishing, building completion and equipment installation. The Project's direct construction workforce currently stands at approximately 94 people, with an 84:16 ratio of Chinese to Moroccan workers and a 77:23 ratio of men to women.

1.2.1 CONSTRUCTION PHASE

- **Site preparation and earthworks**: Land clearance, site levelling, excavation, backfilling and ground preparation works for the Project facilities.
- **Civil and structural works**: Construction of production workshops, warehouses, utility buildings, environmental protection facilities, substations, administrative buildings and other supporting facilities. Works include foundations, concrete works, steel structure erection, roofing, cladding and building finishing.
- **Equipment installation and commissioning:** Installation and testing of production equipment, environmental protection systems, together with associated control, monitoring and auxiliary systems.

1.2.2 OPERATION PHASE

For the purpose of smooth operation, the following events will be planned (as planned events). Besides, countermeasures will be developed in case of contingency covering the following scenarios (as unexpected contingency).

Planned Activities:

- Production of artificial graphite anode materials.
- Raw material transport, transfer, handling and storage, exhaust and wastewater treatment, and waste management.
- Routine monitoring and operations, including operation of process control systems, environmental monitoring systems, inspection activities and performance monitoring.
- Preventive maintenance, including routine inspection, maintenance and servicing of production equipment, utilities, environmental protection facilities and safety systems.
- Corrective maintenance, including repairing and replacement of equipment, components and utility systems as required to maintain safe and continuous operation.

Unexpected contingency:

- Fire and explosion.
- Spills and leaks.

1.3 STRUCTURE OF THE SEP

Following this introductory section, the remainder of the SEP is organised as follows:

- **Section 2 National and International Requirements** - outlines key host country legislation and international guidelines regarding stakeholder engagement that apply to the Project;
- **Section 3 Stakeholder Identification and Analysis** - identifies the Project stakeholders and analyzes their interest and power influence;
- **Section 4 Stakeholder Engagement History** - sets out consultation activities conducted by the Project to date;
- **Section 5 Stakeholder Engagement Plan** - provides a description of proposed stakeholder engagement activities, including a timetable showing when these activities should occur;
- **Section 6 Grievance Mechanism** – provides details of the grievance mechanism;
- **Section 7 Monitoring and Reporting** – describes monitoring and reporting measures to ensure success of the SEP; and
- **Section 8 Roles and Responsibilities** – assigns responsibilities of implementing this SEP to the responsible party.
- **Appendix A Stakeholder Engagement Records** – provides records of stakeholder engagement activities conducted for the Project;
- **Appendix B Project Community Grievance Form** – provides a standard form for submitting and documenting community grievances;
- **Appendix C Stakeholder Engagement Log** – provides a template for recording and tracking stakeholder engagement activities; and
- **Appendix D Grievance Register Template** – provides a template for recording, tracking and managing grievances received by the Project.

2. NATIONAL AND INTERNATIONAL REQUIREMENTS

All forms of stakeholder engagement are governed by a set of legal acts at both international and national levels.

2.1 NATIONAL LEGISLATION

The cornerstone of Morocco's environmental assessment system is Law No. 12-03 of 12 May 2003, which defines the categories of projects subject to environmental impact assessment, outlines the procedural requirements for conducting assessments, and establishes the framework for public investigation and approval. This Law stipulates that:

- Every project that is subject to an environmental impact study is the object of a public inquiry. The inquiry aims to allow the concerned public to be aware of the possible impact of the projects on the environment and to record relevant observations and suggestions. Those observations and suggestions are taken into account during the examination of the environmental impact study.
- Projects that are subject to another public inquiry by virtue of other legislative and regulatory texts are exempted from the public inquiry mentioned in the first paragraph of this article provided that the public be apprised of the environmental impact study in the course of the inquiry hearings. The conditions under which the inquiry is organised are defined in a regulatory text.
- The administration must take all the necessary measures for the relevant information and conclusions of the environmental impact study to be accessible for the public during the public inquiry, with the exception of information and data that are deemed confidential.

The implementing decrees promulgated by Law 12-03 are as follows:

- Decree 2-04-563 of November 4, 2008 on the powers and operation of the national and regional impact assessment committees.
- Decree 2-04-564 of November 4, 2008 setting out the procedures for organising and conducting the Public Inquiry (*enquête publique*) into projects subject to EIA.

This Law has been amended and supplemented by Law No. 49-17, published in Official Gazette No. 6908 of 13 August 2020, which strengthens the regulatory framework and introduces updated provisions. Regarding the public inquiry process, this Law stipulates that:

- Any project subject to an environmental impact assessment shall be the subject of a public inquiry at the petitioner's expense. This inquiry shall enable the population concerned to submit their comments and proposals on the potential environmental impacts of the project.
- The procedures for conducting the public inquiry are set by regulation.
- The application for an environmental acceptability decision must be accompanied by a summary and report of the public inquiry.
- Projects subject to a public inquiry provided for by other legislative texts are exempt from the public inquiry, provided that a summary of the environmental impact study is made available to the public throughout the duration of the public inquiry.

Implementing decrees for Law No. 49-17 are currently under development.

Additionally, Law 47-18 stipulated the establishment of Regional Investment Centres (CRI) and Region Unified Regional Investment Commissions (CRUI), outlining their roles, composition,

and responsibilities. This Law provides both the legal framework and the approach by which the Project engages key government stakeholders during the permitting process.

2.2 INTERNATIONAL STANDARDS

In addition to aligning to national standards, the Project is committed to following international standards.

2.2.1 IFC PERFORMANCE STANDARDS

IFC Performance Standards (PS) on Environmental and Social Sustainability, effective since 1 January 2012, are generally regarded as best practice in environmental and social performance for the private sector. These standards, including guidelines for engagement activities, are a key source of guidance in planning engagement activities.

The IFC PS requires clients to engage with affected people through public consultation and informed participation, in a manner commensurate with the risks to and impacts on the affected people. ***Box*** 2.1 outlines the main requirements for consultation and informed participation under Performance Standard 1 (IFC PS1), the umbrella standard on the *Assessment and Management of Environmental and Social Risks and Impacts*.

BOX 2.1 INTERNATIONAL REQUIREMENTS FOR PUBLIC CONSULTATION AND INFORMED PARTICIPATION

Aims:

To ensure that affected stakeholders, including individuals, businesses, communities, government authorities, NGOs and other institutions, and other interested or affected parties are appropriately engaged on issues that could potentially affect them; to build and maintain a constructive relationship with them and to establish a grievance mechanism.

Who to Consult:

- Directly and indirectly affected individuals, businesses, communities;
- Positively and negatively affected communities/individuals/associations;
- Elected officials;
- Informal/traditional institutions;
- Those with influence due to local knowledge;
- Vulnerable groups, where the Project is identified to have adverse impacts on them; and
- Communities /individuals in the wider area of influence (AoI).

When to Consult:

As early as possible or at the latest consultation should begin prior to commencement of Project activity. Consultation should be an on-going process throughout the life of the Project, i.e. iterative. Consultation should also allow for a feedback mechanism where affected people are able to present their concerns and grievances for consideration and redress.

What to Consult on:

- Dissemination of Project information (purpose, nature, scale);
- Dissemination on the Action Plan as a result of consultation, with periodic reports to demonstrate implementation;
- Risks and impacts of the Project; and
- Updates actions and proposed mitigation measures to address negative impacts and areas of concern for affected communities.

How to Consult:

- Be inclusive and culturally appropriate;
- Allow for free, prior and informed participation of affected people;
- Be in the language preferred by the affected people;
- Consider the needs of disadvantaged and vulnerable groups;
- Feed into decision making process including proposed mitigation, benefit sharing and opportunities;
- Be iterative;
- Be documented;
- Be responsive to stakeholder concerns and grievances;
- Be easily understood and transparent; and
- Allow for differentiated means of engagement particularly for disadvantaged or vulnerable groups.

* Where engagement relies substantially upon a community/ association representative the client will aim to ensure that the views of affected communities are communicated, and that the results of consultation are communicated back to the community/ association.

Source: IFC Performance Standard 1, paragraphs 25-35, 2012.

According to IFC PS 1, special attention shall be paid to vulnerable groups. Vulnerable people include those who, by virtue of their gender, ethnicity, age, physical or mental disability, economic disadvantage or social status may be more adversely affected by a project than others, and who may be limited in their ability to take advantage of a project's development

benefits. Thus, the stakeholder engagement process needs to be designed to address the needs of these vulnerable groups (if any) who will be affected by project activities.

2.2.2 AIIB ENVIRONMENTAL AND SOCIAL FRAMEWORK

The Project will reference Asia Infrastructure Investment Bank's (AIIB) Environmental and Social Framework (ESF) last amended on 26 June 2024, which outlines AIIB's policy on addressing environmental and social impacts. A summary of applicable stakeholder engagement considerations under the Environmental and Social Standard 1 (ESS1) are outlined below:

- Environmental and Social Assessment (ESA): Under ESS1, clients are required to conduct a comprehensive ESA to identify and evaluate the potential environmental and social impacts of their projects. This assessment includes considering the implications for local communities, public health, safety, and livelihoods.
- Environmental and Social Management Plan (ESMP): Based on the findings of the ESA, clients must develop an ESMP that outlines specific measures to avoid, minimise, mitigate, or compensate for adverse environmental and social impacts. The plan must be designed to ensure the sustainability and social acceptability of the project.
- Disclosure of Information: ESS1 emphasises the need for transparency by mandating the disclosure of environmental and social information to all stakeholders. This means making relevant documents and assessment findings publicly accessible to ensure that stakeholders are well-informed about the potential impacts and benefits of the project.
- Consultation: Clients are required to engage in meaningful consultation with affected communities and stakeholders throughout the project cycle. This ongoing dialogue ensures that stakeholders' concerns and inputs are considered in decision-making processes, thereby enhancing project design and implementation.

3. STAKEHOLDER IDENTIFICATION AND ANALYSIS

The objective of stakeholder identification is to establish which organisations and individuals may be directly or indirectly affected (positively and negatively) by, or have an interest in, the Project. Stakeholder identification is an on-going process, involving regular review and the updating of the stakeholder register as the Project proceeds. The following sections will provide an overview of stakeholder groups that were identified for the purpose of ESIA development and consultation.

A stakeholder mapping exercise was undertaken to identify key stakeholder groups and organisations.

3.1 STAKEHOLDER IDENTIFICATION

Stakeholders identified for inclusion in engagement activities must meet at least one of the following criteria:

- Have an interest in the Project.
- Would potentially be impacted by or have an influence on the Project (negatively or positively); and/or
- Could provide commentary on issues and concerns related to the Project.

With these considerations, two principal categories of stakeholders are initially identified as follows:

- **Affected parties**: people/entities directly affected by the Project and/or have been identified as most vulnerable to change and who need to be engaged in identifying impacts and their significance, as well as in decision-making on mitigation and management measures. Local communities, famers, women, vulnerable peoples, other businesses in the area etc. are considered for this group; and
- **Other Interested parties**: this stakeholder group consists of people/entities whose interest is to ensure the Project operates in accordance with applicable laws and mitigate all adverse impacts. If their demands are not met, they may report a negative aspect of the Project activities, which in turn could have a negative effect on the Client's reputation and potentially cause issues in the Project operation and activities. These stakeholder groups include government authorities, NGOs and others.

The mapping exercise drew knowledge on the working experience of the consultants (ERM and SELF, ERM's local partner), including knowledge and understanding of the local context; engagements during the supplementary ESIA site visit; and recommendations from the Project Company and other stakeholders.

Table 3-1 presents an overview of the main stakeholder groups of relevance to the Project as identified through this process.

Stakeholder identification and engagement also seek to identify any potentially vulnerable or disadvantaged individuals and groups in the impacted communities. Consistent with IFC Performance Standard 1 and AIIB Environmental and Social Standard 1, vulnerable individuals or groups are those who, because of disadvantaged or vulnerable status or factors beyond their control, may be more likely to be adversely affected by Project-related environmental and social risks and impacts, may have more limited ability to access Project benefits, or may face barriers to participating fully in the mainstream stakeholder engagement process. Vulnerability

is therefore context-specific and should be understood in relation to the Project's risks, impacts, benefits and engagement process.

This Project proposes to categorise vulnerable people using the following criteria:

- People who face poverty or economic vulnerability (whose average annual expenditure is between relative poverty line and 1.5 times that line);
- People who receive benefit from the official Social Benefit Program;
- Female-headed Household;
- Elderly (Pensioners); and
- Disabled People.

TABLE 3-1 STAKEHOLDER CATEGORY LIST

Category	Stakeholders	Roles and Responsibilities	Relevance to the Project
National Government and Offices	Government of Morocco / Relevant Moroccan Authorities	Established the Tangier Tech Industrial Acceleration Zone and oversaw the government-led acquisition and regularization of land within the zone.	Regulatory and political influence over land regularization, permitting and compliance, which may affect Project implementation.
	National Committee for Environmental Impact Studies (CNEIE)	The CNEIE is a national-level committee responsible for reviewing and issuing opinions on Environmental Impact Assessments (EIAs) for large-scale projects (such as those with investments of more than 200 million dirhams, multi-regional projects, or transboundary projects).	Could delay Project in case of issues with EIA approval.
Regional Governments and Office	The government of Tangier-Tétouan-Al Hoceïma Region	The Wali represents the Ministry of the Interior at the regional level, while the elected Regional Council is responsible for regional development planning and coordination.	Political influence on Project implementation. The regional government will be affected by any potential regional-scale positive or negative impacts of the Project.
	Regional Investment Centre (CRI), Tangier-Tétouan-Al Hoceïma	This Centre facilitates investment, coordinates the Unified Regional Investment Commission (CRUI) and the permitting process, manages the public inquiry process, and acts as intermediary between the Project and government authorities of different levels.	This stakeholder acts as a liaison between the Project and government stakeholders from all levels of administration throughout the entire permitting process. Can delay Project in case of issues with permitting/ compliance.
	Regional Directorate of State Private Domains-TTAH	This entity is responsible for the management of the State's private domain and related land transactions at the regional level. It undertook the State-led land	Influence on the resolution of legacy land acquisition and compensation matters associated with the development of the industrial zone.

Category	Stakeholders	Roles and Responsibilities	Relevance to the Project
		expropriation for the Tangier Tech Industrial Acceleration Zone.	The entity may need to be engaged where concerns related to the State-led land expropriation process are raised by affected communities.
	Unified Regional Investment Commission (CRUI)	This Commission is a multi-ministerial commission for the approval of Environmental Impact Assessments (EIAs) and permits. It includes representatives from all relevant stakeholders, including ministries, agencies, regional, provincial, and commune governments. For this Project, BTR was authorized by CRUI Decision No. 02/SATT/2024 to establish an industrial unit in Tangier Tech.	This stakeholder acts as an aggregating platform for all governmental bodies that have a stake in the Project's EIA and permitting process. Can delay Project in case of issues with permitting/ compliance.
	Regional representatives of governmental ministries, to be engaged through the CRI and the CRUI	The Regional Directorates of the following national ministries are relevant to the Project: • Ministry of Agriculture, Maritime Fisheries, Rural Development, and Water and Forests: The government body responsible for shaping and implementing national policies on agriculture, fisheries, rural development, irrigation, and forest management. • Ministry of Energy Transition and Sustainable Development: The government body, represented at the regional level by the Regional Directorate of the Environment and the Regional Directorate of Energy Transition, is responsible for protecting the environment and implementing environmental policies. It will oversee compliance with environmental regulations. • Ministry of the Interior: Oversees the budget of communes in Morocco and is represented at the	These stakeholders may be part of the unified permitting/compliance process and may cause delays to the Project in case of issues. Aside from permitting and compliance, these stakeholders may also hold general interests in the Project's implementation and performance.

Category	Stakeholders	Roles and Responsibilities	Relevance to the Project
		regional level by a Wali and at the Provincial / Prefectural level by a Governor. • Ministry of Economic Inclusion, Small Business, Employment and Skills: Implements labour policies, promotes employment standards, and ensures adherence to national regulations concerning workplace safety, employment contracts, and social security obligations. Oversees the ANAPEC. • Ministry of Investment, Convergence and Public Policy Evaluation: This Ministry promotes a favourable investment climate, attracts and supports investors with incentives, and simplifies administrative processes through agencies like the Regional Investment Centres (CRIs). • Ministry of Transport and Logistics: Draws up and implements government policy in the road, motorway, port, and maritime sectors, among others. • Ministry of Equipment and Water: Manages essential physical infrastructure like roads and ports and oversees water resources management, ensuring compliance with regulations regarding water supply and wastewater discharge. Oversees the Loukkos Water Basin Agency (ABHL), supervises the National Motorway Company (ADM), supervises the National Office for Electricity and Water (ONEE) along with Ministry of Energy Transition and Sustainable Development. • Ministry of Industry and Trade: The Regional Delegation of this Ministry is responsible for	

Category	Stakeholders	Roles and Responsibilities	Relevance to the Project
		designing and implementing government policy in the fields of industry, trade and new technologies. • Ministry of National Land Use Planning, Urban Planning, Housing and City Policy: Responsible for drawing up and implementing government policy in the fields of town and country planning, regional development and architecture. • Ministry of Justice: This ministry oversees the judicial system and legal framework, ensuring compliance with national laws and regulations and safeguarding the rule of law. • Ministry of Health and Social Protection: This ministry is responsible for public health policy, healthcare infrastructure, and social protection programs that uphold workforce well-being and occupational health standards. • Ministry of Culture, Youth, and Communication: This ministry promotes cultural development, youth engagement, and information dissemination, shaping social cohesion and public communication norms within the country.	
	Regional Directorate of the National Agency for Water and Forests (ANEF)	This Agency is an autonomous public agency responsible for the sustainable management of forest and water resources. It will oversee the implementation of appropriate mitigation related to any forest areas, vegetation, fauna and ecologically sensitive areas.	Can delay Project in case of issues with permitting/compliance as part of the CRUI decision making process.
	Regional agency of the National Agency for the Promotion of Employment and Skills (ANAPEC)	This Agency is Morocco's public agency to promote employment and skills development. It connects job seekers with employers, supports entrepreneurship, and	Can delay Project in case of issues with compliance, especially in the realm of local recruitment and

Category	Stakeholders	Roles and Responsibilities	Relevance to the Project
		manages programs for vocational training and international labour mobility under Law 51-99.	obtaining relevant permits for hiring foreigners.
	Regional Production Directorate of the National Office for Electricity and Water (ONEE), TTAH	This office is the local regional directorate of Morocco's state-owned utilities office. It is charged with the regional access to electricity and potable water, management wastewater treatment, the development of infrastructure for production, transport, and distribution of these essential services. This Office is relevant to the Project's electricity supply arrangements.	Affect utilities provision to the Project.
	Loukkos Water Basin Agency (ABHL)	The ABHL is responsible for the integrated management of water resources in the Loukkos hydraulic basin. It may be involved in the review and implementation of water-related mitigation and management measures.	Can delay Project in case of issues with compliance. The means and volume of water consumption and provision of the Project may impact hydraulic management and planning of the ABHL.
	The government of Tangier-Assilah Prefecture	The Governors are representatives of the Ministry of the Interior at the Provincial / Prefectural level and lead Provincial / Prefectural Councils. The Governor has the responsibility under Moroccan law to mandate public surveys and consultations as part of land acquisition and the preparation of EIA Studies.	Political influence on Project implementation. This stakeholder's approval is required to proceed with any stakeholder engagement activities. They may also support data collection to inform baseline conditions. The prefectural government will be affected by any potential provincial-scale positive or negative impacts of the Project.

Category	Stakeholders	Roles and Responsibilities	Relevance to the Project
Commune-level Governments and Offices	Communal Councils of Sebt Azzinate and Laaouama Communes, including Presidents and Directors.	Presidents of rural communes are elected officials and represent the interests of local communities. They must be involved in the implementation of mitigation measures and to facilitate the active participation of local communities. Commune authorities also participate in the CRUI process and provide their approval or input for the Project through this channel, as part of the broader administrative approval procedure.	These stakeholders command general political influence on Project implementation. Their involvement is important for Project approval through the CRUI process, local stakeholder engagement, baseline data collection, and coordination of mitigation measures as well as potential community benefits. These leaders may be interested in how the Project may bring benefits or negative impacts to their villages.
	Caids (leaders of Caidats) and ”Chefs de Cercles” (circle chiefs) of Laaouama Caidat	Caids, pachas and cercle chiefs are appointed local administration officials under the Ministry of Interior. They support territorial administration, public order, coordination with local authorities, and implementation of government decisions at the local level.	These stakeholders command general political influence on Project implementation. They are relevant for administrative coordination, public authority liaison, local access arrangements and stakeholder engagement facilitation.
Companies	Tangier Med Utilities (TMU)	TMU is a services entity within Tangier Med Group providing utility and waste management services within Tangier Med’s industrial and logistics zones. For the Project, TMU provides utility connections and waste management services, including construction-phase solid waste disposal and operational-phase domestic waste and general solid waste disposal.	Can affect the provision of electricity, water, sanitation and waste management services to the Project, as well as the Project’s construction and operational environmental compliance performance.
	Regional Multiservice Company (SRM)-TTAH	The SRM-TTAH is a publicly owned regional utility company responsible for the unified management and distribution of drinking water, electricity, and liquid	Can impact the provision of water, electricity, and liquid sanitation services to the Project, as well as

Category	Stakeholders	Roles and Responsibilities	Relevance to the Project
		sanitation services across the Tangier-Tétouan-Al Hoceïma Region.	affecting the Project's environmental compliance performance.
	SATT	SATT is the developer and manager of the Tangier Tech Industrial Acceleration Zone and is responsible for the development, management and promotion of the Tangier Tech zone. It is also the seller of the Project land.	Can affect Project implementation in case of issues related to development obligations, infrastructure coordination or compliance with Tangier Tech Industrial Acceleration Zone rules.
	Companies in the Tangier Tech Industrial Acceleration Zone	The Tangier Tech Industrial Acceleration Zone is a large industrial and smart city platform developed and managed by SATT. The zone has attracted several industrial investors, including Hailiang.	Potential commercial ties with the Project Company. Common interest in infrastructure coordination, especially traffic management.
Village-level Stakeholders and Affected Communities	Sheikhs and Mokadems of villages/douars of Gouaret Meharza, Gouaret Mechahla, Slaouiyine and Chaouia	Sheikhs and Mokadems are local representatives of the authorities and serve as a key liaison between local communities, government authorities and the Project. They need to be involved in order to coordinate activities with affected communities as well as other stakeholders.	Can play a role in mobilising communities for stakeholder engagement activities and relaying complaints and grievances from the population.
	The communities in the villages/douars of Gouaret Meharza, Gouaret Mechahla, Slaouiyine and Chaouia	Local communities may experience impacts from the Project, including potential emissions, noise disturbances, traffic congestion, labour influx-induced antisocial behaviour, rising cost of living, employment opportunities, cultural friction, etc.	If expectations are not met and impacts are not properly mitigated, it could lead to reputational damage, social unrest and/or cause delays to the Project's activities. It is especially important to fully engage and consult affected communities in affected settlements, as negative opinion towards the Project and conflict with the communities poses risks of

Category	Stakeholders	Roles and Responsibilities	Relevance to the Project
			substantial delays to the development of the Project. Members of these communities are the direct receptors of the positive and negative impacts of this Project, and may be interested in Project activities as potential supply workforce or commercial collaborators.
Vulnerable Groups	Vulnerable people living in the villages/douars of Gouaret Meharza, Gouaret Mechahla, Slaouiyine and Chaouia	Vulnerable groups may include the following: • People who face poverty or economic vulnerability (whose average annual expenditure is between relative poverty line and 1.5 times that line); • People who receive benefit from the official Social Benefit Program; • Female-headed Household; • Elderly (Pensioners); and • Disabled People.	If expectations are not met and impacts are not properly mitigated, it could lead to reputational damage, social unrest and/or cause delays to the Project's activities. It is especially important to fully engage and consult affected communities in affected settlements, as negative opinion towards the Project and conflict with the communities poses risks of substantial delays to the development of the Project. Vulnerable groups may face especially challenging impacts from potential adverse effects of the Project, but may also be interested in the Project in its potential to bring positive livelihood benefits such as job opportunities.
	Place de l'Environnement – Tangier-Assilah	Place de l'Environnement is a civil society-oriented environmental platform covering Tangier, Tétouan and	Influence on Project implementation.

Category	Stakeholders	Roles and Responsibilities	Relevance to the Project
		Al Hoceïma, including Tangier-Assilah. It promotes participatory, transparent and inclusive environmental management and aims to strengthen the role of civil society in local environmental issues.	These stakeholders may influence conservationists and/or other stakeholder groups to support/reject the implementation of the Project. Can be engaged for collaboration in the realization of the Project's impact mitigation efforts.
	Association AMNA pour la Protection des Femmes Victimes de Violence	Association AMNA is a Tangier-based association established in 1998 to support women and children affected by violence. Its services include reception and orientation, legal support, medical and psychological assistance, family mediation, professional integration and empowerment.	Can be engaged for collaboration in the realization of the Project's impact mitigation efforts.
	Human rights-related associations: • Moroccan Association for Human Rights (AMDH)[1]	Some associations focused on the protection of human rights operate at the national or regional levels. The AMDH Promotes respect for human rights through education, advocacy, and legal assistance. It monitors human rights violations nationwide.	Can be engaged for collaboration in the realization of the Project's impact mitigation efforts.
	Women's groups: • Union of Moroccan Women (UNFM, *Union Nationale des Femmes du Maroc*) • LDDF-INJAD	Some associations focused on the protection of women's rights and interests operate at the national levels. The UNFM works on women's rights, socio-economic inclusion, and anti-violence programs nationwide. LDDF-INJAD is a national network against gender-based violence, providing legal advice and psychological support through listening centres.	Can be engaged for collaboration in the realization of the Project's impact mitigation efforts.

1 Av. Hassan II, Rue Aguensous, Imm 6, Appt 1, Rabat, http://www.amdh.ma/ amdh1@mtds.com

Category	Stakeholders	Roles and Responsibilities	Relevance to the Project
Academia	Universities and research institutions in Tangier and the TTAH Region	Expertise and research facilities in universities in the vicinity of the Project may assist in Project-related E&S work, such as E&S monitoring. Notable universities nearby are located in Tangier, including Abdelmalek Essaâdi University and the National School of Applied Sciences of Tangier.	Facilitate Project E&S monitoring and compliance needs.

3.2 STAKEHOLDER MAPPING

The following matrix (***Figure*** 3-1) was used to map the stakeholders. The Stakeholder Matrix is a dynamic tool that should be periodically updated as and when interest and/or influences of each stakeholder changes over the Project implementation period. Depending on the level of interest and influence of the stakeholder, it is placed into one of the four quadrants. Each group of stakeholders requires different engagement strategies. This is a preliminary mapping and can be revised as the Project progresses into later stages of stakeholder engagement. The main factors taken into account when identifying stakeholders are:

- Their attitude towards the Project as measured by the extent to which the stakeholder will "back" (support) or "block" (resist);
- Their influence/power or ability to influence. This may be measured according to their potential to influence others, derived from their position or resource power, or may be their actual influence derived from their credibility as a leader or expert; and
- Their interest in the Project as measured by the extent to which they will be active or passive.

Key stakeholders have then been categorised and analysed according to their influence and interest in the Project and classified into four (4) groups to determine management actions: Informing, Collaborating, Monitoring and Engaging (***Figure*** 3-1).

Depending on the results of the mapping, engagement strategies are suggested specifically to each group. This includes:

- Collaborate/manage closely (high influence/high interest): The stakeholders should be managed closely. This includes regular engagement and consultation;
- Inform/keep satisfied (high influence/low interest): The stakeholders should be engaged and consulted on issues of interest;
- Engage/keep informed (low influence/high interest): The stakeholders should be kept informed and should be consulted on key interest areas; and
- Monitor (low influence/low interest): The stakeholders should be monitored and kept informed about the Project (e.g., through factsheets and media notifications).

FIGURE 3-1PROJECT STAKEHOLDER MAP



4. STAKEHOLDER ENGAGEMENT HISTORY

4.1 SUMMARY OF REGULATORY ESIA AND PROJECT PLANNING ACTIVITIES

The purpose of the stakeholder engagement as part of the regulatory ESIA and Project planning activities was to engage with key stakeholders and local community stakeholders identified during the pre-construction phase, to collect concerns and feedback related to the Project.

It is noted that limited information about activities and timeline was documented regarding earlier engagement activities conducted prior to the Supplementary ESIA process. ***Table*** 4-1 presents a high-level summary of activities conducted, as per information received from BTR and during the meeting with the CRI of TTAH Region.

TABLE 4-1 SUMMARY OF REGULATORY EIA AND PLANNING PHASE ENGAGEMENT ACTIVITIES

Stakeholder Type	Activities	Stakeholder Involved
Government offices	Initial and advanced-level discussions of investment terms and conventions; Specific terms of Project scale, site planning, land acquisition, and other relevant topics Discussion of permitting process, requirements, Project impacts, and other relevant topics.	Government of Morocco CRI-TTAH, CRUI ANEF ABHL Regional Government of TTAH Ministry of Agriculture, Maritime Fisheries, Rural Development, and Water and Forests ONEE Ministry of Energy Transition and Sustainable Development Department of Sustainable Development Ministry of the Interior Ministry of Industry and Trade Ministry of National Territory Planning, Urban Planning, Housing and City Policy Ministry of Transport and Logistics Ministry of Equipment and Water Ministry of Tourism, Handicrafts and Social and Solidarity Economy Ministry of Health and Social Protection Ministry of Justice
Government offices, affected communities	The Public Inquiry process was conducted, as mandated by Moroccan regulations. According to the CRI, the Public Inquiry for the Project commenced on 21 April 2025 and was conducted over a 20-day period. Public Inquiry notices were posted in Arabic and French at the relevant commune offices, and members of the public were provided with an opportunity to submit comments or grievances during the inquiry period. The CRI indicated that non inquiries or concerns were raised during the Public Inquiry process.	Commune governments of Laaouama and Sebt Azzinate Residents of Laaouama and Sebt Azzinate Commune

4.2 SUMMARY OF SUPPLEMENTARY ESIA STAKEHOLDER ENGAGEMENT

Stakeholder engagement activities for the Supplementary ESIA preparation were planned with consideration for upcoming legislative elections in September 2026. During the Courtesy Call with the Laaouama Caid, it was mentioned that commune representatives may see extensive stakeholder engagement activities at this time of the year as an opportunity for electoral benefits. The Caid therefore recommended to hold consultations over a short period of time (one to two days) at the Caidat Office, and administrative officers (Mokadems) supported the transport of community members for Project meetings. The Project took these recommendations into consideration and stakeholder engagement activities were organised between 10 and 14 August, with community FGDs and Commune authorities' KIIs conducted at the Caidat Office.

During this period, ERM and representatives of the Project Company engaged certain key external and internal Project stakeholders. One additional online key informant interview with water, environment and biodiversity authorities was conducted after the site visit. These consultations aimed to disclose Project information, gather insights, collect feedback, understand previous land use and ensure alignment with local regulations and interests as part of the Project development process.

Table 4-2 shows the information on the date, location, stakeholder groups and participation for each of the meetings.

TABLE 4-2 ESIA PHASE ENGAGEMENT SUMMARY

Date	Stakeholder Type	Activities	No. Participants	Stakeholder Involved	Key Concerns Raised
11 August	Government authorities	Courtesy Call	3	Secretariat of General Secretary, Impact Assessment Department	N/A – submission of letter to the Prefecture
11 August	Government authorities	Courtesy Call	1	Secretariat of CRI Directorate	N/A – disclosure of Project information, Supplementary ESIA Study and coordination for meetings organisation
11 August	Government authorities	Courtesy Call	2	Laaouama Commune Director and Vice-President	N/A – disclosure of Project information, Supplementary ESIA Study and coordination for meetings organisation
11 August	Government authorities	Courtesy Call	1	Laaouama Caid	N/A – disclosure of Project information, Supplementary ESIA Study and coordination for meetings organisation
12 August	Government authorities	Key informant interview	1	Head of Investment Advisory Division of CRI	• Concerns expressed at the time of the Regulatory EIA included: ○ Need for clearer understanding of sector-specific regulatory requirements and procedures. ○ Need for more detailed Project information to support the environmental assessment process. ○ Compliance assessment required before issuance of the operating permit.
12 August	Community stakeholders	Focus group discussion with men	10	Male villagers from Gouaret Meharza and Gouaret Mechahla	• Air emissions, wastewater, industrial waste and pollution. • Health risks linked to limited information on production processes. • Loss of agricultural land, livestock activity and household income. • Limited local access to stable or skilled jobs without training.

Date	Stakeholder Type	Activities	No. Participants	Stakeholder Involved	Key Concerns Raised
					• Weak road, sanitation and waste infrastructure.
12 August	Community stakeholders	Focus group discussion with women	2	Female villagers from Gouaret Meharza and Gouaret Mechahla	• Limited job opportunities for women. • Poor access to health services, transport, street lighting and public facilities. • Lack of clear Project information on employment, training and environmental impacts. • No information received on formal or informal grievance mechanisms.
12 August	Community stakeholders	Key Informant Interview	1	Mokadem (local administrative officers) of Gouaret Meharza and Gouaret Mechahla	N/A – Informal discussion, no separate concerns were raised.
12 August	Community stakeholders	Focus group discussion with men	10	Male villagers from Slaouiyine and Chaouia	• Decline in agriculture and livestock due to land expropriation and reduced access to land. • Partial or inadequate land compensation and unresolved price disputes. • Heavy truck traffic affecting douar roads and road safety. • Pollution, industrial discharges, toxic materials and waste impacts. • Wage delays, underpayment or non-payment linked to intermediaries or subcontractors.
12 August	Community stakeholders	Focus group discussion with women	3	Female villagers from Slaouiyine and Chaouia	• Limited stable employment opportunities for women. • Concerns about harassment affecting women's willingness to take local jobs.

Date	Stakeholder Type	Activities	No. Participants	Stakeholder Involved	Key Concerns Raised
					• Limited local services, distant transport pick-up points and weak access to healthcare. • Concern over emissions, environmental and health impacts. • No known formal or informal grievance mechanisms.
12 August	Community stakeholders	Key Informant Interview (2nd group)	2	Mokadems (local administrative officers) of Slaouiyine and Chaouia	N/A – Informal discussion, no separate concerns were raised.
12 August	Public & nearby company	Key informant interview	5	SATT	• Companies in the industrial zone must comply with SATT requirements on EIA documentation, wastewater pre-treatment, discharge standards, water and air monitoring, waste contracts and hazardous-waste handling. • Company-level emergency planning remains the responsibility of companies.
13 August	Commune-level Governments and Offices	Key informant interview	2	President and Director of Laaouama Commune	• Former land users and local residents may be vulnerable to livelihood change. • Rising living costs, limited employment and reduced agricultural land affect local livelihoods. • Shortage of cultural, recreational and green-space facilities. • Need for local employment support and continued coordination with the Commune.
13 August	Commune-level Governments and Offices	Key informant interview	2	President and Director of Sebt Azzinate Commune	• Limited Project information available to the Commune.

Date	Stakeholder Type	Activities	No. Participants	Stakeholder Involved	Key Concerns Raised
					• Low land compensation and ongoing legal disputes over compensation rates. • Industrial-zone fencing blocked the historic access road. • Youth have not yet seen employment benefits. • Road-safety black spot on a regional road used by Project trucks. • Cultural differences, conflict risk and language barriers between workers and local residents.
17 August	Regional Governments and Offices	Online Key informant interview	5	Representatives of ABHL, Ministry of Equipment and Water, Environmental Department and Regional ANEF Office	• Wastewater discharge requires ABH/ABHL authorization and treatment. • The Project area is susceptible to flooding. • Regional biodiversity sensitivities include Tahaddart wetland, Jbel Musa, Cap Spartel, bird migration features and Outarde / Great Bustard presence. • Clarification requested on supplementary ESIA scope, its relationship with the Regulatory EIA.

4.3 STAKEHOLDER ISSUES

This Section provides an overview of the key issues raised by stakeholders during the site visit.

Notes from these meetings are recorded and presented in ***Appendix A***. An account of issues and how these are being incorporated in the Project design and in the development of mitigation measures is presented below.

TABLE 4-3 OVERVIEW OF CONCERNS AND ISSUES RAISED DURING THE SITE VISIT

Stakeholder	Stakeholder Concerns/ Issues	Stakeholder Expectations	Integration of Feedback into Project
National and Regional Government stakeholders	-	Disclose the Supplementary ESIA to government authorities.	This request has been considered in the development of this Stakeholder Engagement Plan (SEP).
	Wastewater discharge may create compliance risks if not properly treated and authorized.	Treat wastewater prior to discharge and obtain the relevant ABH/ABHL authorization where applicable.	A Regulatory EIA has been adopted for the Project, and the Project will continue to meet regulatory requirements as addressed in the Regulatory EIA.
President of Sebt Azzinate Commune	Limited substantive Project information available to the Commune; available materials were not easily accessible to Commune staff because they were mainly in French and focused on the public inquiry process.	Provide more substantive Project information in an accessible language and format.	This concern has been considered in the development of this SEP, which makes provisions for more regular and culturally-adapted engagement with Commune authorities.
	Industrial-zone land acquisition affected privately owned agricultural and grazing land; compensation levels are viewed as low.	-	This concern is relevant for SATT and State authorities who led the land acquisition process prior to BTR involvement. BTR Anode will communicate this concern with SATT.
	Industrial-zone fencing cut off the historic road between the village, Gouaret and Tangier, creating access and transport disruption.	-	This concern is relevant for SATT and State authorities who led the land acquisition process prior to BTR involvement. BTR Anode will communicate this concern with SATT.

Stakeholder	Stakeholder Concerns/ Issues	Stakeholder Expectations	Integration of Feedback into Project
	A road-safety black spot exists on a regional road in the Gouaret area that is used by Project-related trucks.	-	Traffic impacts have been assessed in ***Section 7.3.4.2*** of the Supplementary ESIA and mitigation measures have been recommended accordingly.
	Cultural differences, language barriers and potential conflict between workers and local residents may affect community relations.	-	Impacts on community cohesion and social relations have been assessed in ***Section 7.3.1*** of the Supplementary ESIA, and mitigation measures have been recommended accordingly.
	Population growth and Project-related employment may increase housing and infrastructure pressure.	Attract real estate development, facilitate administrative procedures and accelerate approval of the development plan.	Impacts on the local cost of living have been assessed in ***Section 7.3.5*** of the Supplementary ESIA, and mitigation measures have been recommended accordingly.
	Limited visible employment benefits for local youth may weaken community support over time.	Provide youth training and information on job opportunities.	The Project has taken note of this concern for future consideration. An HR representative also joined some community Q&A sessions preceding the FGDs to answer participants' questions about job opportunities and training.
President of Laaouama Commune	Local residents and former land users may be vulnerable to livelihood change linked to land transfer and industrial development.	Give priority to these groups in employment opportunities and provide support, assistance and flexible arrangements to help them benefit from the Project.	This concern is relevant for SATT and government authorities who led the land acquisition process prior to BTR involvement. BTR Anode will communicate this concern with SATT.

Stakeholder	Stakeholder Concerns/ Issues	Stakeholder Expectations	Integration of Feedback into Project
			Measures to enhance local employment have been included in ***Section 7.3.1*** of the Supplementary ESIA.
	Reduced agricultural land, limited employment and rising living costs are affecting local livelihoods.	Strengthen employment opportunities and provide support and assistance to local residents.	Measures to enhance local employment have been included in ***Section 7.3.1*** of the Supplementary ESIA.
	-	Strengthen communication with the Commune and residents, and develop agreements or partnerships to establish cultural, recreational and green-space facilities.	Such recommendations can be taken into account by BTR for future Corporate Social Responsibility (CSR) activities.
Community stakeholders - Men	Loss of agricultural and grazing land has reduced household livelihoods, livestock activity and agricultural income.	-	This concern is relevant for SATT and government authorities who led the land acquisition process prior to BTR involvement. BTR Anode will communicate this concern with SATT.
	Land compensation is considered inadequate, and several families are seeking revision of compensation rates.	-	This concern is relevant for SATT and government authorities who led the land acquisition process prior to BTR involvement. BTR Anode will communicate this concern with SATT.
	Youth unemployment and lack of vocational skills limit access to Project employment.	Provide training, stable employment, fair remuneration and formal sustainable contracts	Measures to enhance local employment have been included in ***Section 7.3.1*** of the Supplementary ESIA.

Stakeholder	Stakeholder Concerns/ Issues	Stakeholder Expectations	Integration of Feedback into Project
	Temporary employment through intermediaries may expose local workers to wage deductions, underpayment, non-payment or payment delays.	Eliminate intermediaries or subcontracting practices that reduce worker wages or favour non-local recruitment networks.	Labour rights and working conditions impacts have been assessed in ***Section 6.1*** of the HRIA and mitigation measures have been recommended accordingly.
	Project information is insufficient, and many residents rely on rumours or informal discussions.	Hold regular formal meetings with BTR Anode representatives on Project progress, workforce needs, skills requirements and recruitment arrangements.	This concern has been considered in the development of this SEP, which makes provisions for more regular and culturally-adapted engagement with community members.
	Potential emissions, pollution, industrial discharges, toxic materials and long-term environmental effects may affect local health and water resources.	-	A Regulatory EIA has been adopted for the Project, and the Project will continue to meet regulatory requirements as addressed in ***Section 7.2*** of Supplementary ESIA
	Concerns were raised about the management and disposal of waste generated by industrial activities, and its potential impacts on surrounding communities and the environment.	Resolve the waste issue and improve village infrastructure to accommodate industrial-zone related activities.	A Regulatory EIA has been adopted for the Project, and the Project will continue to meet regulatory requirements as addressed in ***Section 7.2*** of Supplementary ESIA
	Heavy truck traffic is affecting roads to the douars and increasing road-safety risks for residents.	-	Traffic impacts have been assessed in ***Section 7.3.4.2*** of the Supplementary ESIA and mitigation measures have been recommended accordingly.

Stakeholder	Stakeholder Concerns/ Issues	Stakeholder Expectations	Integration of Feedback into Project
	Alcohol consumption, noise, inappropriate waste disposal and culturally inappropriate behaviour by some foreign workers may create social tension.	-	Impacts on community cohesion and social relations have been assessed in ***Section 7.3.1*** of the Supplementary ESIA, and mitigation measures have been recommended accordingly.
	-	BTR Anode is expected to contribute to local communities and associations through social initiatives.	Such recommendations can be taken into account by BTR Anode for future CSR activities.
Community stakeholders - Women	Project awareness is low among some women, with information obtained mainly from Chinese residents or local informal sources.	-	This concern has been considered in the development of this SEP, which makes provisions for more regular and culturally-adapted engagement with female community members.
	Limited training and stable employment opportunities constrain women and youth access to Project benefits. Women face barriers to employment, including limited capital, informal job information, family or social expectations, harassment concerns and reputational risk.	Provide adequate training, promote women's integration, ensure equal opportunities and prioritise local people in recruitment.	Gender-related human rights impacts have been assessed in the HRIA and mitigation measures have been recommended accordingly. Measures to enhance local employment have been included in ***Section 7.3.1*** of the Supplementary ESIA.
	-	Promote mutual understanding, integration and positive relations between workers and local residents.	Impacts on community cohesion and social relations have been assessed in ***Section 7.3.1*** of the Supplementary ESIA, and mitigation measures have been recommended accordingly.

Stakeholder	Stakeholder Concerns/ Issues	Stakeholder Expectations	Integration of Feedback into Project
	-	Future engagement should cover job opportunities, training, working conditions, environmental impacts and Project progress.	This expectation has been considered in the development of this SEP.

5. STAKEHOLDER ENGAGEMENT PLAN

5.1 OVERVIEW

Stakeholder engagement is centred on building and maintaining constructive relationships over time with groups of people/stakeholders who are affected or interested in the Project's activities. It is an ongoing process between the Project and its stakeholders which will extend throughout the life of the Project and will encompass a range of activities and approaches, from information sharing and consultation, to participation, negotiation, and information of partnerships.

The goal is to ensure the timely provision of relevant and understandable information and to create a process that provides opportunities for all stakeholders to express their views and concerns and will allow the Project to consider and respond to them efficiently. The engagement will be conducted with the specific objective to:

- Identify stakeholders and communities potentially affected by Project activities;
- Introduce relevant stakeholders and planned Project activities to potentially affected groups; and
- Engage with the potentially affected groups to understand their activities within the Project's AoI, potential Project impacts, perceptions and concerns, and discuss appropriate mitigation measures.

5.2 STAKEHOLDER ENGAGEMENT PRINCIPLES

Interaction with stakeholders in terms of establishing and constantly maintaining constructive relationships throughout the Project implementation is important. Interaction with stakeholders includes a wide range of activities and approaches, from information exchange to consultation and engagement.

In its activities, the Project is guided by international best practices, including the following principles which are to be implemented commensurate to the Project context:

- Providing meaningful information in a format and language that is understandable to the relevant stakeholder(s) and responsive to their needs. In the Project context, it is noted that Arabic is more widely understood than French;
- Providing information prior to consultation and decision-making;
- Choosing ways and places to distribute information so that stakeholders are able to access it easily;
- Respect for local traditions, languages, deadlines and decision-making procedures;
- Two-way dialogue that allows both sides to exchange views and information, listen to the other side, communicate their problems and discuss potential solution;
- Providing a wide range of opinions, including opportunities for women, vulnerable people and/or minorities to speak out;
- Free of intimidation and coercion;
- Having a clear mechanism for responding to opinions, suggestions and complaints;
- Using feedback when developing the Project and providing reports/updated information to interested parties;

- Allowing for anonymised reporting based on analysis of the feedback;
- Ensuring that consultation activities are gender-sensitive and inclusive, including providing safe and culturally appropriate opportunities for women and other underrepresented groups to participate, express their views, and influence decision-making; and
- Considering potential barriers to participation, such as timing, location, mobility, caregiving responsibilities, literacy, and social norms, and adapting engagement methods to enable equitable participation by women and men.

5.3 STRUCTURE OF STAKEHOLDER ENGAGEMENT MEETINGS

Stakeholder engagement meetings are recommended to be structured as follows:

- Introduction and information sharing: Inform the current Project status, employment and training opportunities, stakeholder engagement process, the potential environmental and social impacts and mitigations to help the stakeholders understand the Project's intentions for engagement;
- Question and answer (Q&A) session: Stakeholders should be able to raise their concerns, comments or ask questions to which the Project can directly respond; and
- Data collection: Collection of more in-depth information through interviews with key stakeholder groups whenever required.

This format should be adjusted depending on the Project phase and specific objectives of each meeting.

A printed handout is recommended to be developed in Arabic and distributed during engagement activities whenever required. It will describe the Project's characteristics including, but not limited to location, size, project status, potential impact and proposed mitigation measures, employment opportunities, grievance mechanism etc. As the Project progresses, these documents will be reviewed and updated as often as necessary to ensure accuracy of information at any given time.

Where feasible, gender-disaggregated data will be collected through separate meetings with men and women. For all meetings, the number of men and women attending should be recorded as part of meeting notes.

5.4 STAKEHOLDER ENGAGEMENT STRATEGIES

5.4.1 CONSTRUCTION PHASE ENGAGEMENT

5.4.1.1 SUPPLEMENTARY ESIA DISCLOSURE

Considering the limited engagement activities undertaken to date with local communities, one (1) round of consultation meeting is recommended to be conducted following the completion of the Supplementary ESIA, to inform stakeholders about the current status of the Project and Supplementary ESIA findings, and then to collect the views of people that will be affected by the Project. The consultations should be organised to ensure that identified vulnerable people can attend meetings and express their views. Given the gender dynamics of the Project area, a separate meeting with women participants should be conducted to understand their attitudes, concerns and recommendations. Relevant provincial and communal authorities should be

engaged in order to obtain the authorization to proceed with a new round of stakeholder engagement.

The main objectives of this stakeholder engagement round include:

- Share Project description, key stakeholders involved and timeline;
- Disclosure of EIS and supplementary ESIA findings and mitigation measures;
- Disclose contact channels and Grievance Redress Mechanism (GRM) procedure;
- Disclose Project workforce/labour management, including local workforce requirement and recruitment process, training opportunities;
- Provide information on construction activities i.e., schedule/progress to the nearest affected communities in advance; and
- Gather feedback and concerns from stakeholders and integrate those in the Project activities.

The approach for this activity is presented in ***Table*** 5-1.

Considering the Project is expected to complete construction phase by December 2026, no further round of stakeholder engagement is considered necessary for this phase.

TABLE 5-1 SUPPLEMENTARY ESIA DISCLOSURE

Stakeholder	Purpose of Engagement	Approach/Tools	Responsibility	Timeline
• Communities from Laaouama Commune, particularly residents of Gouaret Meharza, Gouaret Mechahla, Slaouiyine and Chaouia; • Laaouama and Sebt Azzinate Commune Presidents and Caids; and • Vulnerable groups as defined in ***Section 3.1***.	• Share updated Project information and construction phase plans; • Share Supplementary ESIA findings regarding predicted impacts and mitigation measures; • Inform stakeholders about Project Grievance Mechanism and key BTR personnel; • Disclose Project workforce/labour plans to include local workforce requirement and recruitment process; and • Consult stakeholders on concerns and views.	Approach: • Consultation; and • Information Dissemination. Tools: • Face-to-Face Public Consultation Meetings; • Websites.	BTR Anode GMO, ESG & Legal Compliance Function	Following Supplementary ESIA completion and approval, during construction phase
• CRI and CRUI members	• Share updated Project information and construction phase plans; and • Disclose Supplementary ESIA findings regarding predicted impacts and mitigation measures.	Approach: • Consultation; and • Information Dissemination. Tools: • Meeting (online or in person).	BTR Anode GMO, ESG & Legal Compliance Function	Following Supplementary ESIA completion and approval, during construction phase

5.4.2 OPERATION PHASE ENGAGEMENT

During the operation phase of the Project, stakeholder engagement activities will focus on obtaining broad stakeholder opinions, disclosing updated Project information, and effectively communicating and implementing a grievance mechanism for local communities. Consultation and disclosure at this stage will allow potential operation phase impacts and proposed actions of the Project to be documented and provide opportunities for questions and answers to alleviate concerns and build understanding.

Where appropriate, stakeholder engagement activities should be coordinated with the BTR Cathode Project and/or with the SATT to reduce stakeholder engagement fatigue among local communities and authorities, as the two projects are located within the same industrial zone and involve similar stakeholder groups, engagement topics and communication channels. In the long-term, the Project may discuss with SATT the implementation of regular community forums at the Industrial Acceleration Zone level with all concerned companies and communities.

Engagement during the operation phase of the Project aim to provide updates on the progress of the Project's operations, maintain constructive relationships with any groups and communities impacted by the Project as well as government stakeholders, maintain awareness of environmental and safety practices in the local communities, manage concerns and complaints from stakeholders, provide information on environmental and social impact mitigation measures and monitoring results in line with relevant government approvals, and monitor community attitudes towards the Project.

During the operation phase, the main stakeholder engagement activities include:

- Grievance redressing and monitoring activities;
- Disclosure of updated information on the operation activities; and
- Regular coordination and reporting to the relevant government agency related to the implementation of environmental and social management and monitoring plan if there is any.

Table 5-3 presents a summary of the proposed stakeholder engagement during the operation phase of the Project.

TABLE 5-3 OPERATION STAGE STAKEHOLDER ENGAGEMENT

Stakeholder	Purpose of Engagement	Approach/Tools	Responsibility	Timeline
• Laaouama Caid; • Laaouama and Sebt Azzinate El Gharb Commune Presidents; • Communities from Laaouama Commune, particularly residents of Gouaret Meharza, Gouaret Mechahla, Slaouiyine and Chaouia; and • Vulnerable groups as defined in ***Section 3.1***.	• Share Project development, impacts and opportunities, including operation phase plans and activities; • Disclose environmental and social management and monitoring for operation phase; • Inform about community development programs; • Update on progress of grievance resolution process and close out; and • Gather feedback/concerns on operation phase impacts.	Approach: • Consultation; and • Information dissemination. Tools: • Direct one-on-one meetings as required; and • Public meetings at the Commune/Village level.	• BTR GMO, ESG and Legal Compliance Function	• Every six (6) months during operation phase (can be reduced to annually over time if no significant concerns or grievances raised)

5.5 VULNERABLE PEOPLE ENGAGEMENT

The IFC Handbook for Stakeholder Engagement Good Practice (2007) outlines several steps that can help ensure that vulnerable populations are recognised and actively included in the consultation process, including:

- Identify vulnerable groups: Review available data on demographics, economic status, social structures, health, education, and land rights to identify those potentially affected by the Project that may be vulnerable, such as women, children, elderly individuals, and low-income populations;
- Engage with local organisations: Collaborate with local NGOs, advocacy groups, and community leaders who have established connections and trust within vulnerable communities;
- Tailor communication approaches: Ensure that consultation materials are available in simple, clear language and, where necessary, in local dialects to enhance understanding. Respect cultural practices and norms when inviting participation and during engagement activities;
- Utilise appropriate engagement methods: Organise focused discussions to allow vulnerable groups to express their concerns, needs, and priorities in a safe and supportive environment. Hold inclusive meetings at accessible locations and times to accommodate those who may have mobility or transportation issues. Use techniques that enable stakeholders to share their insights and feedback openly, such as anonymous surveys, suggestion boxes, and one-on-one discussions; and
- Follow-up and feedback mechanisms: After consultations, communicate the outcomes and how feedback from vulnerable groups has been incorporated into Project planning or design. Create mechanisms for continuous engagement, ensuring vulnerable populations can voice their concerns throughout the Project lifecycle.

6. GRIEVANCE MECHANISM

6.1 OVERVIEW

Grievances are complaints or comments (or questions/suggestions) concerning the way in which a Project is being implemented. IFC PS 1 and AIIB ESS 1 require a Grievance Redress Mechanism (GRM) to be developed, as a measure to pre-empt rather than react to issues or tensions with surrounding communities. The GRM provides an avenue for stakeholders to engage with the Project proponent and contractors, whilst the monitoring of grievances provides signals of any escalating conflicts or disputes. This GRM procedure identifies who will receive grievances from affected communities, how and by whom will they be resolved, who will keep a written record of such grievance process and how the response will be communicated back to the complainant.

Engagement activities undertaken during the Supplementary ESIA preparation indicated that affected communities may face difficulties in identifying the entity responsible for impacts arising within the Industrial Acceleration Zone, and the majority do not differentiate between BTR Anode and neighbouring BTR Cathode project. It is therefore expected that grievances raised by communities may not be easily attributable to a specific Project in the Industrial Acceleration Zone. To address this, BTR Anode is recommended to adjust the GRM as follows:

- **Construction phase (short-term):**
    - Inform SATT about establishment of GRM and discuss approach to treat grievances received that are not specific to BTR Anode but concern the broader Industrial Acceleration Zone. If possible, request SATT support to investigate and address such grievances.
    - Coordinate with BTR Cathode Project where relevant during the GRM implementation, including communication about grievances received that may have implications for both companies. Share regular GRM implementation reports to support consistent grievance handling and, where appropriate, the referral or joint investigation of grievances, while maintaining clear allocation of responsibilities between the two Projects.
- **Operation phase (medium to long-term):** As a longer-term complementary measure, BTR Anode is recommended to discuss with SATT the possibility to establish a GRM at the industrial zone level, which would be managed by SATT. This would avoid the multiplication of grievance channels and approaches by different companies in the Industrial Acceleration Zone, while communities currently do not differentiate between different operators in the zone. The SATT would be responsible for initial screening, investigation and allocation of grievances to specific companies, where possible. More general grievances regarding the overall Industrial Acceleration Zone would be investigated and resolved by the SATT directly, with support requested from companies as required. Such arrangements would be subject to discussion and agreement with SATT and would not replace the Project-level GRM.

BTR Anode is proposed to implement the Project-level GRM set out in the following sections.

6.2 RESOURCES FOR GRM IMPLEMENTATION

The IFC Good Practice Note on Addressing Grievances from the Project Affected Communities (2009) indicates the importance of the Project resources such as staff, infrastructure, and finances as determining factors in shaping a grievance mechanism.

The GRM should be operationalized as soon as possible during construction phase, with a designated representative appointed to manage the process. This representative will serve as the first point of contact for all grievances and will be responsible for ensuring that each grievance is directed to the appropriate party for resolution in accordance with the established procedures. While personnel responsible for grievance management during construction and operations have not yet been finalized, the GRM is structured to ensure continuity and accountability throughout the Project lifecycle.

A Community Liaison Officer (CLO) should be appointed in the GMO or ESG & Legal Compliance Function of BTR Anode to conduct consultations with local communities and implement the GRM (see ***Section 8***). The CLO should also act as the focal point for coordination with SATT on community relations matters.

As detailed in ***Section 6.1***, BTR Anode should propose the designation of grievance contacts and a written procedure with SATT for grievance referral, joint investigation where required, and follow-up. Any sharing of personal or sensitive information should be subject to the complainant's consent and applicable confidentiality requirements. BTR Anode should maintain its own Grievance Register and monitor all Project-related grievances, including those referred to SATT. The CLO should also coordinate with the grievance focal point of the BTR Cathode Project in accordance with the coordination mechanism established between the two Projects. The Project may decide to appoint additional CLOs based on the Project's future operational needs.

Please Refer to ***Appendix B*** for the Community Grievance Submission Form and ***Appendix D*** for the Grievance Register Template.

6.3 GRIEVANCE MECHANISM KEY PRINCIPLES

Identifying and responding to grievances supports the development of positive relationships between the Project proponent and the communities, workers, and other stakeholders. An effective grievance management process is essential to ensuring that concerns are addressed promptly, transparently, and fairly (see Box 6-1). A GRM has been developed for the Project and is structured according to recommended good practice.

The Grievance Mechanism enables any stakeholder to make a complaint or suggestion regarding the way the Project is being implemented.

BOX 6-1 KEY COMPONENTS OF AN EFFECTIVE GRIEVANCE MECHANISM

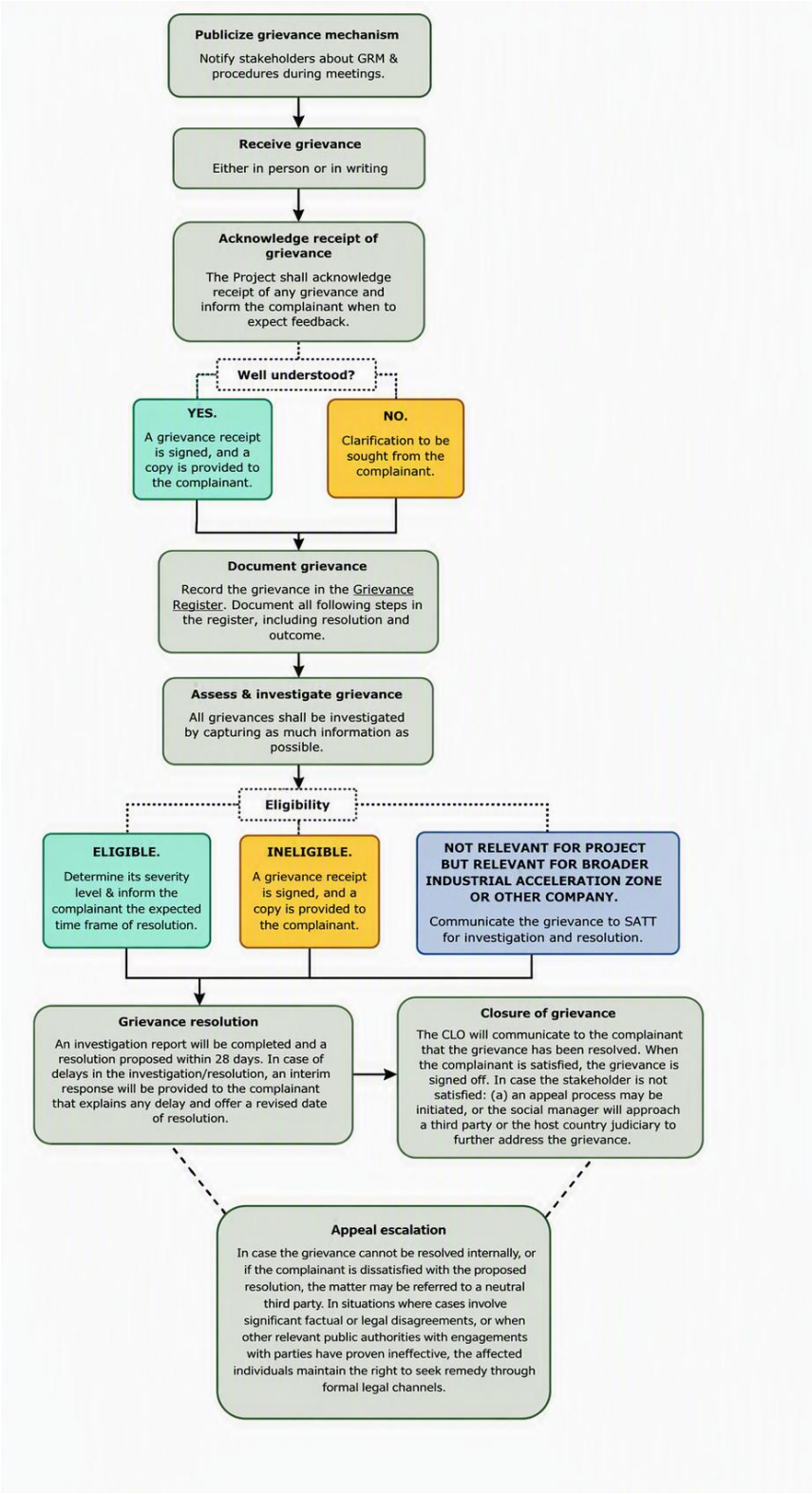
- **Simple and Culturally appropriate Process:** It should be convenient to submit complaints. There should be several appropriate channels through which community stakeholders can submit complaints free of charge, and without retribution to the party that originated the issue or concern.
- **Simple Internal Procedure:** A simple and consistent procedure is required to record grievances, identify those responsible for addressing them and ensure that they are resolved.
- **Training:** The launch or modification of the grievance management process should include internal induction and/or training for operational staff and a Community Representative.
- **A Set Timeframe:** The grievance process should set a timeframe within which complainants can expect acknowledgement of receipt of grievance and a response and/or resolution of grievance.
- **Sign Off:** Actions planned to resolve grievances considered to be of significant concern by the Grievance Officer should be signed-off by a member of the senior management, suitably qualified to assess the effectiveness of the response.
- **System of Response:** A clear system of response is required to identify who should respond to the complainant and how. Response to the complainant should be provided in a timely and transparent manner.
- **Appeal process:** An appeal process with the involvement of third parties should be in place in case the complaint is not resolved to satisfaction of the complainant.
- **Disclosure:** The grievance mechanism should be clearly and widely disclosed to affected communities.
- **Access to Legal Remedies:** The mechanism should not impede access to judicial or administrative systems.
- **Monitoring Effectiveness:** Mechanisms should be set in place for monitoring the effectiveness with which complaints are being recorded and resolved.
- **Gender Sensitivity:** The grievance mechanism should be gender-sensitive and inclusive, ensuring that women, men, and individuals of diverse gender identities can access and use the mechanism safely and equitably. Grievance channels, communication methods, investigation processes, and resolution approaches should take into account gender-specific risks, barriers to access, confidentiality concerns, and cultural norms.
- **Protection Against Retaliation:** Complainants, witnesses, community representatives, and any other persons participating in the grievance process should be protected from retaliation, intimidation, harassment, discrimination, or other adverse consequences. The mechanism should provide options for confidential and anonymous reporting where appropriate and ensure that concerns regarding retaliation are promptly investigated and addressed.

6.4 DETAILED GRIEVANCE PROCEDURE

The GRM for the Project is designed to identify, assess, and resolve issues throughout the entire lifecycle of the Project—from construction through to operations. The mechanism is a key component of BTR Anode's commitment to social responsibility, transparency, and stakeholder engagement. The GRM outlines a structured approach to receiving, documenting, investigating, resolving, and monitoring grievances from stakeholders. Timely and fair resolution of grievances is essential to maintaining trust, minimizing risks, and ensuring the successful implementation of the Project.

Grievances may include minor concerns or serious, long-term issues. They may be raised by individuals, communities, workers, civil society organisations, or other stakeholders affected or likely to be affected by the Project's environmental or social impacts. These may include complaints about damage, disruptions, perceived risks, or requests for information. **Figure** 6-1 summarizes the grievance process flow.

FIGURE 6-1GRIEVANCE PROCESS FLOW



6.4.1 STEP 1: PUBLICIZING THE GRIEVANCE MECHANISM

The Project is required to communicate and disclose the GRM via formal and informal meetings and discussions. To ensure accessibility, transparency and cultural appropriateness, the GRM will be translated into Arabic and French, and other relevant languages spoken by the workforce and local communities. The mechanism will be communicated through:

- Community meetings and stakeholder consultations;
- Posters and signage at key locations (e.g., project site entrances, community centres, worker accommodations);
- Factsheets and brochures distributed during consultations; and
- Verbal communication by trained Project Company and contractor staff, if applicable.

The following information should be communicated and disclosed:

- Who can raise complaints (focusing on affected communities);
- Where, when, and how community members can log complaints;
- Who is responsible for receiving and responding to complaints, and if any external parties can receive complaints from communities;
- What type of responses complainants can expect from the Project including timing of responses; and
- The benefits that complainants can receive from using the grievance mechanism.

During all stakeholder engagements, the existence of the GRM will be highlighted, and stakeholders will be assured that the process is free of charge and that complainants are protected from retaliation. Special attention will be given to ensuring that women, youth, and vulnerable groups are aware of and can access the mechanism.

It is essential that the local government and contractors also fully understand the GRM to enable them to communicate the step-by-step process to the Project-affected people, particularly in the case where the grievances are submitted to them for resolution.

6.4.2 STEP 2: RECEIVING A GRIEVANCE

Grievances can be submitted in French, Arabic, Chinese, and English through multiple channels to ensure inclusivity and ease of access:

- In person: Submitted directly to the BTR Anode's Environmental and Social (E&S) personnel, particularly the CLO;
- Through local government authorities: As per the existing local governance structure, communities typically raise any complaints to the Laaouama Caidat Office. The CLO should check on a monthly basis whether any complaints have been raised to the Caidat in relation to the Project;
- In writing: Using a grievance form (template provided in ***Appendix B***), submitted by hand or post (address to be confirmed);
- Online: Through the Project website (to be confirmed);
- By phone: Via a dedicated grievance hotline (number to be confirmed);
- Grievance boxes: Secure boxes placed at strategic locations such as worker camps, commune offices, and Industrial Acceleration Zone entrance; and
- Email: Sent to a dedicated grievance email address (to be confirmed).

Grievances may be submitted anonymously. All personnel and contractors, where applicable, will be trained to accept and forward grievances appropriately.

Through the CLO, BTR Anode should also provide specific support and protection for vulnerable groups (women, the poor, elderly) in accessing the mechanism and ensure their safety when reporting.

6.4.3 STEP 3: ACKNOWLEDGING RECEIPT OF A GRIEVANCE

BTR Anode will acknowledge receipt of any grievance within three (3) working days of submission. If the grievance is unclear or lacks sufficient detail, the complainant will be contacted for clarification (if contact information is available).

A Grievance Receipt Form will be completed and signed by the CLO. A copy will be provided to the complainant as confirmation of receipt.

The complainant will be informed of the expected timeframe for resolution. For standard grievances, the Project Company aims to resolve the issue within 28 calendar days from the date of receipt. For more complex grievances (e.g., those classified as Level 4 in ***Table*** 6-1), the resolution period may be extended to 60 days, with regular updates provided to the complainant explaining the reasons for the delay and outlining the next steps.

6.4.4 STEP 4: DOCUMENTING A GRIEVANCE

All grievances—whether deemed eligible or ineligible—will be recorded in a centralized Grievance Register (see ***Appendix D***). This register will include:

- Unique case number;
- Date of receipt;
- Complainant's name and contact details (if provided);
- Description of the grievance;
- Actions taken;
- Referral or coordination with other entities, where applicable;
- Outcome and resolution date; and
- Follow-up actions (if any).

GMO or ESG & Legal Compliance Function will be responsible for logging, tracking, and updating the register. All records will be securely stored and regularly reviewed to identify trends and recurring issues. BTR Anode should retain a record of grievances referred to SATT or coordinated with the BTR Cathode Project.

6.4.5 STEP 5: ASSESSING AND INVESTIGATING THE GRIEVANCE

Once a grievance has been received and documented, the next step involves a thorough assessment and investigation to determine its eligibility, severity, and appropriate course of action. This process is critical to ensuring that grievances are handled fairly, transparently, and in a timely manner.

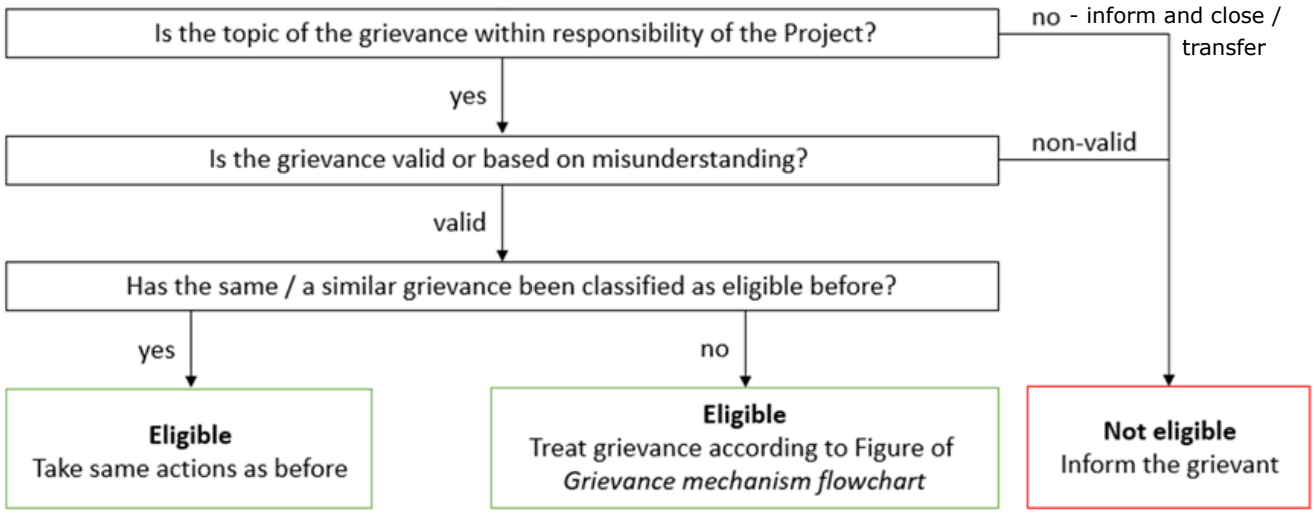
The following steps will be undertaken by the CLO or designated Environmental and Social (E&S) personnel:

- Information Collection: As a first step, the grievance handler will gather as much information as possible from the individual who received the complaint and, where possible, directly from the complainant. This includes understanding the nature of the

grievance, the parties involved, the location and timing of the incident, and any supporting evidence or documentation. Ensure complaints related to employment, worker behaviour, discrimination, GBV, resource use (like water), or community conflicts are documented, investigated fairly and promptly, and resolved with feedback provided to the complainant;

- Site Visit and Stakeholder Engagement: If necessary, a site visit will be conducted to observe the issue firsthand. During the visit, the grievance handler may consult with other stakeholders, including community members, the Project employees, or contractor staff, to gain a comprehensive understanding of the situation. The aim is to clarify the facts, identify any misunderstandings, and explore preliminary options for resolution;
- If the grievance involves physical damage (e.g., to crops, property, infrastructure, or community assets), photographic evidence will be collected, and the exact location will be recorded using GPS or other mapping tools. This documentation will support the investigation and help determine appropriate corrective actions;
- Eligibility Determination: The grievance will be assessed to determine whether it falls within the scope of the Project's GRM. ***Figure*** 6-2 shows the grievance eligibility check of the grievance mechanism.

FIGURE 6-2 GRIEVANCE ELIGIBILITY CHECK



Eligible grievances include those directly or indirectly related to the Project's activities, impacts, or commitments—such as environmental concerns, social impacts, worker welfare, or community safety. Ineligible grievances may include issues unrelated to the Project or its contractors, or those more appropriately addressed through other mechanisms (e.g., legal channels, government agencies, or community-based systems). If a grievance is deemed ineligible, the complainant will be informed in writing with a clear explanation of the reasons. This decision, along with the rationale, will be recorded in the Grievance Register.

At this stage, any grievances that are identified to be relevant for the broader Industrial Acceleration Zone or other companies in it will be deemed ineligible for the Project GRM and will be communicated to SATT.

Where appropriate, a Grievance Investigation Team will be formed, comprising representatives from the GMO, ESG & Legal Compliance Function, relevant technical departments and

contractor personnel. Relevant external entities may be consulted where required. This team will be responsible for:

- Conducting a thorough investigation of the grievance;
- Identifying the root cause of the issue;
- Recommending corrective actions or mitigation measures; and
- Coordinating with the complainant to agree on a resolution.

All findings from the investigation, including interviews, site observations, evidence collected, and proposed actions, will be entered into the Grievance Register (***Appendix D***). This ensures transparency, accountability, and traceability throughout the grievance management process.

The goal of this step is not only to determine the validity of the grievance but also to lay the groundwork for a fair and effective resolution that addresses the concerns of the complainant and aligns with the Project's environmental and social commitments.

For eligible grievances, the CLO will assess the severity of the issue using a predefined significance matrix (***Table*** 6-1). This classification will help determine:

- Whether the grievance can be resolved immediately or requires a more detailed investigation;
- Whether senior management needs to be informed or involved; and
- The level of urgency and resources required for resolution.

TABLE 6-1 SIGNIFICANCE RATING CRITERIA

Significance Level	Type of Grievance	Responsibility
Level 1	A grievance that is isolated or 'one-off' and essentially local in nature and restricted to one complainant. Note: Some one-off grievances may still be significant enough to be classified as Level 4 (e.g., if a law is broken).	CLO
Level 2	A grievance that affects the local community or region, has occurred more than once, and has the potential to disrupt Project operations or attract negative attention from local media or stakeholders.	Project Manager
Level 3	A grievance that is widespread and repeated, has caused long-term damage, and/or has led to negative local media coverage or is likely to generate such attention (e.g., damage to a sacred site).	General Manager
Level 4	A grievance that is either a serious one-off or widespread/repeated issue that results in a breach of Project or Company policy, national/international law, or attracts national/international media or stakeholder attention (e.g. failure to pay compensation where appropriate, e.g. resettlement).	General Manager

6.4.6 STEP 6: GRIEVANCE RESOLUTION

All grievances received by the Project Company will be addressed on a case-by-case basis, with a focus on fairness, transparency, and stakeholder engagement. The resolution process is designed to promote dialogue and mutual understanding between the Project and affected parties, ensuring that outcomes are equitable and that the process builds trust.

Upon receipt and registration of a grievance, the CLO will initiate a resolution process that may involve:

- Direct engagement with the complainant to clarify the issue and explore potential solutions;
- Internal investigation by the relevant department, depending on the nature of the grievance; and
- Coordination with contractors, particularly if the grievance relates to construction activities, environmental impacts, or worker behaviour.

An Incident Investigation Report will be prepared and a resolution proposed within 28 days of the grievance being received. This report will document the findings, proposed actions, and any follow-up required. If the grievance is complex and cannot be resolved within this timeframe, the complainant will be informed of the delay, provided with an explanation, and given a revised timeline for resolution.

Where possible, grievances will be resolved directly by BTR Anode. The resolution will be communicated in a respectful and transparent manner, including:

- A clear explanation of the decision;
- Supporting data or rationale; and
- Any corrective actions to be taken.

If the grievance cannot be resolved internally, or if the complainant is dissatisfied with the proposed resolution, the matter may be referred to a neutral third party. This may include:

- SATT;
- Local NGOs or community leaders;
- Legal advisors or mediators; or
- Government representatives or regulatory bodies.

In cases where further arbitration is required, BTR Anode will support the involvement of appropriate government authorities. As a final recourse, complainants retain the right to pursue legal action through the judicial system.

6.4.7 STEP 7: CLOSURE OF GRIEVANCE

Once a resolution has been agreed upon and implemented, the CLO will formally communicate the outcome to the complainant. This communication will confirm that:

- The grievance has been addressed;
- Corrective actions (if any) have been completed; and
- The complainant’s concerns have been resolved to the extent possible.

If the complainant is not satisfied with the resolution, the following options will be considered:

1. Escalation to the Project Company Senior Management: The grievance will be reviewed at a higher level, and additional actions may be proposed;
2. Referral to a Neutral Third Party: A mediator or independent expert may be engaged to facilitate further dialogue and resolution; or
3. Referral to the Judiciary: If no resolution is reached, the complainant may pursue legal remedies through the host country's court system.

Once the grievance is resolved and the complainant has accepted the outcome (or all reasonable efforts to resolve the issue have been exhausted), the grievance will be formally closed. The closure will be documented in the Grievance Register (***Appendix D***), including:

- Date of closure;
- Summary of actions taken;
- Confirmation of complainant satisfaction (if applicable); and
- Signature of the responsible Project Company staff member.

The staff member signing off on the closure must have sufficient knowledge of grievance and the resolution process to ensure that the matter has been handled appropriately and in accordance with the Project Company's grievance procedures.

7. MONITORING AND EVALUATION

The Project will implement a data management and monitoring process as part of the overall monitoring of commitments, grievances, and performance to assess the effectiveness of this SEP and associated engagement activities.

7.1 REPORTING

All engagement activities throughout the life of the Project will be documented and appropriately stored to track and refer to records when required and ensure delivery of commitments made to stakeholders.

The following stakeholder engagement records and documentation will be used:

- **Meeting Notes Template:** Used to collect full meeting minutes to be captured within the Stakeholder Engagement Log. It will capture the date and time of every meeting, the attendees (disaggregated by gender), topics of discussion, any photos taken and any decisions or commitments made. This information will be entered into the Stakeholder Engagement Log within 48 hours of each engagement;
- **Stakeholder Engagement Log (Appendix C):** All engagements with stakeholders should be recorded using information from the meeting template to provide high-level tracking of engagements taken to date. Where detailed information on a specific engagement is required, the Stakeholder Engagement Log may be cross-referenced with archived meeting templates; and
- **Grievance Register (Appendix D):** All grievances received will be recorded in a Grievance Log/Register in order to document progress in resolving them, to identify patterns, avoid recurrent problems and improve the Project's overall social performance. Grievances are to be addressed as per the requirements included in the Grievance Management Procedure.

The Project will develop regular reports (every six (6) months during construction and operation phases) to present all activities for the period and summarised raised issues. These reports should be developed from the data analysis of the stakeholder and grievance database managed by the Project. The report will also detail the measures taken to address the issues, timeline of responses, as well as corrective and mitigation measures to address grievances, and analysis of trends. It will be supported by records of engagement activities, grievances submitted and minutes of key meetings. The status of monitoring indicators presented in the following sections will be presented.

The SEP should be considered as a live document, and as such must be regularly updated to reflect Project and stakeholder changes.

7.2 MONITORING AND EVALUATION

The SEP will be monitored and evaluated by the Project regularly using the indicators recommended by international good practice (e.g., IFC Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets (2007).

Suggested monitoring and evaluation activities are outlined below:

- Monitor the grievance register in terms of response times to address complaints logged as well as the recurrence of complaints over time;

- Monitor whether records of all engagement activities are documented and stored (electronic or hard copies) and that the stakeholder engagement log is maintained and up to date;
- Review/ audit the implementation of the SEP;
- Develop and assess performance in terms of Key Performance Indicators (KPIs), such as:
    - Number of engagement activities facilitated by stakeholder group and engagement type;
    - Number of attendees at stakeholder engagement activities (expected vs actual);
    - Frequency of information disclosure;
    - Number of grievances received per annum;
    - Number of grievances unresolved/outstanding;
    - Time taken to resolve grievances;
    - Number of satisfied responses from complainants;
    - Number of stakeholders with knowledge of the grievance process and whether they use it; and
    - Overall perceptions of the Project and BTR Anode.

The Project should ensure that the SEP be updated annually based on outcomes of monitoring exercise.

8. ROLES AND RESPONSIBILITIES

The SEP will be effective if adequate resources, including personnel, systems and processes, and associated financial resources, are assigned to its implementation, and if responsibilities are clearly defined. Stakeholder engagement management should be recognised as a business function with clearly defined objectives, assigned responsibilities, timelines, budget, senior management oversight, and regular reporting.

Stakeholder engagement responsibilities currently appear to be shared between BTR Anode's General Manager Office (GMO) as well as ESG and Legal Compliance Functions. Clear coordination and allocation of responsibilities will be required between these functions to ensure engagement activities are consistently planned, documented, tracked and followed up.

It is recommended that BTR Anode designate and train at least one local Moroccan staff member, either within the GMO or the ESG & Legal Compliance Function, as a Community Liaison Officer (CLO) to manage stakeholder engagement and community relations going forward. This staff member should serve as the day-to-day focal point for community relations and the implementation of SEP-related activities. The role should help ensure that engagement with local communities and authorities is coordinated, documented and followed up in a consistent manner.

Targeted training should be provided to ensure that the staff member understands the SEP requirements and is able to manage the engagement process in a structured manner. This should include practical guidance on documenting consultations, managing stakeholder feedback and grievances, tracking follow-up actions, and escalating unresolved issues to the relevant internal teams and senior management.

APPENDIX A-1 STAKEHOLDER ENGAGEMENT RECORDS

1. MEETING WITH THE REGIONAL INVESTMENT CENTRE OF TANGIER-TÉTOUAN-AL HOCEÏMA REGION (CRI-TTAH)

Date (DD/MM/YY)	**12 August 2026**
Start-End Time	**9:00 – 9:45**
Engagement Type	**Key Informant Interview**
Name of Interviewer	**Marine Krieger, Eric Cao**
Venue	**CRI of Tangier-Tétouan-Al Hoceïma Region, Tangier**
General Information of Interviewee	
Name, position, and organisation	CRI Head of Investment Advisory Division

INTRODUCTIONS

- The Client introduced their representatives and the ERM Team.
- ERM disclosed the purpose of the engagement.

DISCUSSION

No.	Questions	Answer
1.	Could you briefly describe the EIA approval process for the BTR Cathode and Anode Projects?	The EIA approval process includes preparation and submission of the EIA; a 20-day public inquiry; posting the public inquiry notice at the relevant commune in Arabic and French; disclosure of the Project's nature, main components and potential impacts; an opportunity for the public to submit comments or grievances; and review by the competent committee and relevant government departments. After the inquiry closes, the committee reviews the EIA and any comments or grievances. The consultant must provide clarifications and, where applicable, proposed mitigation measures. The EIA process is generally completed before the necessary Project authorizations are obtained.
2.	Are you aware of the process followed by the Project for site selection? Were any alternatives considered to minimise displacement impacts?	The land-related process, including procedures concerning the Project site, was handled by SATT. The possible presence of residential dwellings in the surrounding area was discussed based on satellite imagery. No information was provided on the site-selection process or whether alternatives were considered to minimise displacement impacts.
3.	What key environmental and social issues were considered during the EIA review or approval process?	The main review areas include infrastructure and related works; storage requirements and standards for products, fuels and other flammable materials; environmental protection and the natural environment; wastewater discharges, sanitation and compliance with discharge standards; and water resources and aquatic environments.

No.	Questions	Answer
		No separate list of social issues considered during the EIA review was provided.
4.	Were any specific environmental or social conditions, commitments, or follow-up requirements attached to the Project approvals?	The EIA is accompanied by an ESMP setting out the company's environmental management commitments and implementation measures. Competent authorities monitor these commitments, including compliance with applicable discharge requirements and other environmental commitments. In addition, a compliance assessment is required after construction and before the relevant operating permit can be issued.
5.	What measures do you expect the Project to take to mitigate or address impacts on communities?	No specific community mitigation measures were identified. Where comments are raised during the public inquiry, the consulting firm is expected to provide clarifications and, where applicable, describe mitigation measures addressing the identified impacts or concerns.
6.	Are you aware of any stakeholder engagement and information disclosure activities conducted by the Project as part of the land acquisition process?	No engagement or disclosure undertaken specifically as part of land acquisition was identified. For the EIA process, stakeholder engagement and information disclosure include a 20-day public inquiry, notice posting at the relevant commune in Arabic and French, disclosure of information on the Project and its potential impacts, and an opportunity for members of the public to submit comments or grievances. The land-related process was handled by SATT.
7.	What grievance or communication channels are normally used for communities to raise concerns related to industrial projects?	The EIA public inquiry is a channel through which members of the public may submit comments or grievances. No other community grievance or communication channel was described during the meeting.
8.	What is the current status of the EIA procedures for the Anode and Cathode Projects?	For the Anode Project, the environmental acceptability decision has already been obtained. For the Cathode Project, a favourable opinion has been issued and the corresponding decision is under signature.
9.	When were the public inquiries opened, and were any grievances received?	The Anode Project public inquiry opened on 21 April 2025 for 20 days. The Cathode Project public inquiry opened on 25 July 2024. No specific grievances have been received to date.
10.	Why may no specific grievances have been received during the public inquiries?	This may be partly explained by the Projects' location within an industrial zone and their distance from residential areas.

No.	Questions	Answer
11.	Which government departments and institutions are involved in EIA review, and what issues do they cover?	The Ministry of Equipment and Water reviews infrastructure and related works. The Ministry of Energy and Mines reviews storage requirements and standards concerning products, fuels and other flammable materials. The Ministry of Environment covers environmental protection and the natural environment. The Regional Multiservice Company (SRM) covers wastewater discharges, sanitation and discharge standards. The Hydraulic Basin Agency (ABH) covers water resources and aquatic environments.
12.	Can the CRI facilitate follow-up discussions with the relevant authorities?	Several relevant representatives are currently on leave. Discussions may be facilitated with the Department of Equipment, ABH and the Department of Energy and Mines. Potential online meetings could be arranged at the beginning of the following week, particularly Monday or Tuesday, subject to the departments' availability.
13.	What is required before the operating permit can be issued?	Once plant construction is completed, a compliance assessment must be carried out before the relevant operating permit can be issued.
14.	What construction schedule information was provided for the Cathode Project?	Construction works for the Cathode Project are expected to be completed around early September.
15.	Can the CRI provide commune monographs or other local reference documents for the assessment?	No specific documents are available for transmission at this stage, including commune monographs or other local reference documents.
16.	What were the main challenges associated with the Project and the environmental assessment process?	No major difficulty was identified other than the need to better understand sector-specific requirements and applicable procedures. At the initial stage, the Client also had to provide more detailed information to support understanding of the Project and the applicable process.
17.	What affected the timing of certain steps in the EIA process?	The timing of certain steps was partly affected by initial unfamiliarity with the procedure and the need to provide more detailed information in the submitted documentation.

PHOTO



ATTENDANCE SHEET

ERM (Shanghai) Limited
Litong Plaza, 20th floor,
No. 1350 Sichuan North Road
Shanghai, Hongkou District, China
Tel: +86 21 5385 3050 Fax: +84 21 6469 2185
www.erm.com

Attendance Register

Meeting Type	Meeting with Regional Investment Office R-S-K.
Project	Gotion Morocco Environmental & Social Consultant
Date	October 2025 15th
Venue	CRI, Rabat
Time Started	15:15
Time Ended	17:00

Name	Organization	Province/District/Cercle/Commune	Telephone Number	Signature
Btissame NAAOUI	CRI-RSK	Rabat	0665631262	
Soukaina ZAANOUN	CRI RSK	Rabat	0664000616	
Houda Akakir-zzat	ANEF(DREFRSK)	KENITRA	06.66.79.41.67	
AYOUB Mostafa	Direction Régionale Investissement Energétique à Rabat	Rabat	0661175296	
Abdelali FARES	Direction Régionale de l'Environnement	Rabat	0661142706	
Oussama HARIB	RR M/SELF	Rabat	0697706244	
SEMMAR Amine	GOTION			
XINFENG	11			
XUELI HUANG	11			
PANCEK Elsa	ERT	Paris		
Mohamed Dalaki	SELF			

2. MEETING WITH MEMBERS OF AOI COMMUNITIES – MEN'S GROUP (GOUARET MEHARZA AND GOUARET MECHAHLA)

Date (DD/MM/YY)	**12 August, 2026**
Start-End Time	**14:30 – 15:30**
Meeting Type	**Focus group discussion**
Name of Interviewer	**Marine Krieger, Eric Cao, Mohamed Amine Moustanjidi**
Venue and Location	**Caidat of Laaouama**
Participants	10 male residents from Gouaret Meharza and Gouaret Mechahla Mokadem of Gouaret area

INTRODUCTIONS

- The Client introduced their representatives and the ERM Team.
- ERM disclosed the purpose of the engagement.

DISCUSSION WITH COMMUNITY MEMBERS

No.	Questions	Answers
General Baseline		
1.	What are the main economy and types of livelihoods / income sources for people in the community?	Main activity: agriculture and livestock raising. To a lesser extent, some community members are engaged in construction and textile activities outside the commune.
2.	Regarding farming activities in the area (if mentioned as a common livelihood): - What type of crops do other farmers know usually grow? - How have farming practices changed in the past 10 years? What caused the changes? - What is the main agriculture equipment used for any kind of cultivation or farming activity? Do you have access to irrigation systems? - Do farmers usually own the land they farm on? Describe your ownership status of the farmland. - Is farming usually households' only income source or do they have several occupations? If so, what are the other common occupations combined with farming?	Agriculture: cereals, fruits and vegetables (irrigated by the river flowing from the dam). Negative trend in agricultural activity since the installation of the industrial zone fence. In particular, irrigation pipelines and agricultural water infrastructure were removed. The land was privately owned by families and community members; its cultivation was the population's source of income, mainly through agriculture. Deterioration of household living standards in the absence of alternative employment opportunities. Direct economic and social impact on the entire family (parents and children).

	- Is farming usually used for household consumption or for sale? If sale, where do farmers usually sell crops?	
3.	Regarding livestock raising activities in the area (if mentioned as a common livelihood): - What type of animals are typically raised? - How have livestock raising practices changed in the past 10 years? - What areas are used for grazing? - Is livestock raising usually used for household consumption or sale? - If it is used for sale, is it commonly the main livelihood of households? Or it is used as a side income?	Sheep, goats and cattle are raised. Most people have sold their livestock because of the expropriation of their land and the significant decrease in herd sizes. Only a small number of households continue limited livestock activities Each household used to raise livestock on its own land. Livestock products (meat and milk) were intended for sale.
4.	Do people usually work within the community or outside? If outside, where do they work and how do they travel?	Currently, few people (estimated at 10%) work outside the area in construction. The means of transport used are public transport services connecting Gouaret to Tangier. Unemployment combined with a lack of training and the absence of alternative employment opportunities. According to the population, this issue was not taken into consideration before the expropriation of the land and the installation of the IZ.
5.	What are the main challenges currently faced by the community as a whole?	See above. In addition to the roads, residents complain about the complete absence of sanitation networks in the villages. The problem has become even more serious with the increase in population density and the arrival of foreign workers.
6.	What is the project land use historically or currently? Are you aware of any individuals or groups previously accessing or using the Project land?	There used to be a few poultry farming units in the Chaouia village.
7.	What roads are frequently used by community? Are there frequent accidents?	The infrastructure was already weak and has deteriorated further since the installation of the IZ. The recent floods this year had a significant impact on the roads and caused waterways to become blocked by waste.
8.	What types of security concerns exist in the area (e.g., petty crime, theft, local disputes)?	Community members reported that differences in cultural backgrounds and daily living

		practices between foreign workers and local residents have occasionally contributed to misunderstandings and community concerns. Issues raised included differences in social behaviours, noise levels, and waste management practices.
9.	Are there any migrants or non-local workers in the area? If yes, indicate ethnicity/nationality of migrants and how do they get along with the local people?	Primarily the Chinese community. Chinese nationals themselves invest in commercial projects without involving the local population.
Anticipated Impacts and Stakeholder Engagement		
10.	Have you heard of the BTR Cathode or Anode Projects? If yes, from which source?	Yes, as a lithium battery manufacturing project. There is no official source. Information comes only from discussions among the population.
11.	What are your thoughts or impressions about this project? Do you think there will be positive impacts or opportunities associated with the project? What are your main concerns regarding negative impacts and how would you like to see them mitigated?	Major concerns regarding the environmental impact of BTR activities. There was no pollution before the project was installed.
12.	What concerns and recommendations do you have regarding the project?	In the absence of training and qualifications among young people, they will be unable to take advantage of the economic opportunities that the project may offer in terms of employment. Direct communication between company representatives and the population, beyond procedures involving the authorities.
13.	Are there any formal or informal mechanisms in place for addressing grievances?	No. There are no particular concerns about submitting complaints and grievances, but there is a lack of knowledge about the procedures to follow and the people to contact.
14.	What are your expectations for future stakeholder engagement by the project? (e.g. frequency, type of information to be shared)	Request for regular formal meetings with representatives of the BTR project to explain the project's progress, workforce and skills requirements, recruitment arrangements, etc.
15.	Do you have any other remarks?	Resolve the waste problem and improve village infrastructure in order to better accommodate secondary activities associated with the IZ

PHOTO



ATTENDANCE SHEET

ERM (Shanghai) Limited
Litong Plaza, 20th floor,
No. 1350 Sichuan North Road
Shanghai, Hongkou District, China
Tel: +86 21 5385 3050 Fax: +84 21 6469 2185
www.erm.com

Attendance Register

Meeting Type	FGD – Men & Women of Gouvernt Mechraa & Gouvernt Mechraa
Project	BTR Morocco Anode & Cathode
Date	August 2026
Venue	12/08/2026
Time Started	Caidat Louanama
Time Ended	12H30

Name / Nom et Prénom	Organisation et rôle	Douar/Village/Préfecture	N° de téléphone	Signature
Hicham Aouzzoud			0628902661	
BENNOUR ABDELALI			0652531253	
AHMAD HAFNAOUI			0662650737	
Mamad MECHTLAH	Autorités locales		0624337996	
AYOUB ETTaoui	ESG Engineer BTR	BTR	06.93.60.89.95	
	ESG BTR	BTR	0710930150	

ERM (Shanghai) Limited
Litong Plaza, 20th floor,
No. 1350 Sichuan North Road
Shanghai, Hongkou District, China
Tel: +86 21 5385 3050 Fax: +84 21 6469 2185
www.erm.com

Attendance Register

Meeting Type	Focus Group Discussion - Men & Women of Gouvernt
Project	BTR Morocco Anode & Cathode
Date	August 2026 12/08/2026
Venue	Caidat LOUANA
Time Started	12H30
Time Ended	

Name / Nom et Prénom	Organisation et rôle	Douar/Village/Préfecture	N° de téléphone	Signature
RAYANI KANBOI			0679442044	
			0772279258	
AYOUBZOUBIR			0618038803	
			0608152434	
BRAHIM DRIOUACHE			0670952817	
BILAL SETRA			0656220	
ISMAIL DRIOUCH			0669655858	
Achibani Mariam			0673686536	
Safae Khallouqi			0681943492	
			0655536518	

3. MEETING WITH MEMBERS OF AOI COMMUNITIES – WOMEN'S GROUP (GOUARET MEHARZA AND GOUARET MECHAHLA)

Date (DD/MM/YY)	**12 August, 2026**
Start-End Time	**14:30 – 15:30**
Meeting Type	**Focus group discussion**
Name of Interviewer	**Marine Krieger, Wafa Dhaiouir**
Venue and Location	**Caidat of Laaouama**
Participants	2 female residents from Gouaret Meharza and Gouaret Mechahla

INTRODUCTIONS

- The Client introduced their representatives and the ERM Team.
- ERM disclosed the purpose of the engagement.

DISCUSSION WITH COMMUNITY MEMBERS

No.	Questions	Answers
General Baseline		
1.	What are the main economy and types of livelihoods / income sources for people in the community?	In the past, the main sources of income for local people were agriculture and small businesses. Women mainly worked in sewing factories or ran small businesses, such as selling homemade bread and other products. Since the arrival of Chinese companies, some Moroccan women have also become involved in the food and catering businesses serving the Chinese community, although these activities are not always very profitable.
2.	What are the types of jobs that women and men do in your community? Are women in your community able to find jobs that align with their skillset and preferences? Why or why not?	Women in the community do not have many employment opportunities, despite having the necessary skills and abilities. One of the main reasons is the lack of financial resources to start their own businesses. In addition, job opportunities are often shared through word of mouth, which can make it difficult for women to access information about available jobs.
3.	What public infrastructure and services are available to you and your household? How would you rate their accessibility?	In Douar Ain Mqaber, there is no mosque, and there is a lack of road infrastructure, pharmacies, and public transportation. In Gouaret village, there is no vocational training centre or extracurricular activity club. Public transportation is available through buses and grand taxis. There is a local dispensary, but it does not provide emergency services and there is often a lack of medicines. During the summer period, access to healthcare becomes particularly difficult because doctors go on vacation and there are no replacements.

No.	Questions	Answers
		There is also no public street lighting, which creates safety concerns, particularly for women at night.
4.	What are the water sources available for the community? Are they considered clean and reliable water sources?	Potable water is connected to the houses. However, most people prefer to use water from natural springs because they consider the quality of this water to be better.
5.	What are the main health problems faced by the population in the settlement?	The main health problems reported in the community include diabetes and eczema. There are also some chronic illnesses.
6.	Are there any challenges with accessing health services?	Yes. Some douars face difficulties accessing healthcare services because of their distance and the lack of adequate road infrastructure. The Gouaret centre is more accessible, as it is closer to the community
7.	What are the main challenges currently faced by the community as a whole?	The main challenges are the lack of transportation, poor road conditions, limited services and facilities, electricity cuts, and weak telephone network coverage. For women, there are also concerns about harassment, limited job opportunities, especially for older women, and limited access to recreational facilities, which are often closed.
8.	Are there any specific difficulties faced by youth? (health, employment, etc.)	Yes. One of the main difficulties is the lack of vocational training centres, which are important for helping young people gain the skills needed to access job opportunities. Most available jobs are seasonal, so young people also face a lack of stable employment.
Gender Dynamics		
9.	Who makes the decisions at home? When there is a dispute between the husband and wife, how is the dispute resolved?	The father is generally the head of the household and has the final say in decisions. In cases of disputes between husbands and wives, the father usually makes the final decision. Domestic violence is also relatively frequent, and some cases occur in public
10.	Are women and men given equal opportunities in your community? Why or why not?	No, women do not have the same opportunities as men. Traditional attitudes and the mentality of some parents can limit women's ability to find jobs. Women may also be restricted in their choice of work and career
11.	Are you a member of any women's groups? What is the purpose of these groups?	No, I am not a member of any women's group. There are some premises for associations, but these activities do not continue and the associations eventually close.
12.	How active are women in community decision-making or cooperative leadership	Women's participation in community decision-making is still limited. For example, there is a woman elected to the municipal council, Sara Nouri, who is active in community issues. Recently, she raised the issue of waste management, which contributed to a decision being taken on this matter.

No.	Questions	Answers
13.	What level of education do girls and boys typically receive? Are there differences?	In the past, girls generally stopped their education after primary school, around the sixth grade. Today, some continue to high school and even go on to university, sometimes completing three years of university studies. Boys generally continue up to high school, but many do not obtain their baccalaureate. Some lack motivation, while others have to leave school to work and help their families, or combine work with their studies, which makes it difficult for them to stay motivated.
14.	What are the main reasons why girls and young women drop out of school in your community?	The main reasons are the distance from high schools, family expectations for girls to stay at home, and early marriage, with some girls getting engaged before the age of 18.
15.	Have you experienced any challenges in accessing education? Please share some examples.	Yes. Accessing university was difficult because there was no direct transportation, and it sometimes took me a long time to reach the main road to catch a bus. When I was in middle school, we had to make two round trips a day. If I had gaps between classes, I had to stay at school, and transport delays sometimes meant that I arrived home late and was always tired
16.	What types of security concerns exist in the area (e.g., petty crime, theft, local disputes)? Are any security issues particularly affecting women?	There are some security concerns, particularly petty crime and theft. On weekends, there can be problems involving young people, and the lack of public lighting makes the situation worse. Women may also face social pressure and judgment, especially those working in small Chinese-owned restaurants or businesses in rural areas, as this can sometimes affect their reputation in the eyes of the local community. Foreign women working in these businesses can face similar issues, as can local women who do not wear the veil
17.	Do women feel comfortable raising complaints or concerns through existing community or project grievance channels?	Yes, women feel comfortable raising complaints in person. For example, complaints have been submitted to the caïdat regarding electricity issues, although there has been no response so far.
Anticipated Impacts and Stakeholder Engagement		
18.	Have you heard of the BTR Cathode or Anode Projects? If yes, from which source?	Yes, I have heard about the BTR Cathode and Anode Projects through Chinese people living in the area, as well as through other local sources.
19.	What are your thoughts or impressions about this project?	Our impression of the project is positive because we see it as an opportunity for job creation in the community. However, our main concerns are about providing adequate training for Moroccan workers and the potential long-term environmental impacts, as we do not have enough information about the production process.
20.	What concerns and recommendations do you have regarding the project?	Our main recommendations are to provide training in advance, promote the integration of women, ensure

No.	Questions	Answers
		equal opportunities, and give priority to local people when recruiting
21.	Are there any formal or informal mechanisms in place for addressing grievances?	We have not received any information about formal or informal grievance mechanisms or how they work.

PHOTO



ATTENDANCE SHEET

Please refer to the attendance sheet for the meeting with members of the AoI communities, Men's Group (Gouaret Meharza and Gouaret Mechahla).

4. MEETING WITH MEMBERS OF AOI COMMUNITIES – MEN'S GROUP (SLAOUIYINE AND CHAOUIA)

Date (DD/MM/YY)	**12 August, 2026**
Start-End Time	**16:00 – 17:00**
Meeting Type	**Focus group discussion**
Name of Interviewer	**Marine Krieger, Mohamed Amine Moustanjidi**
Venue and Location	**Caïdat of Laaouama**
Participants	6 male residents from Slaouiyine and 4 from Chaouia

INTRODUCTIONS

- The Client introduced their representatives and the ERM Team.
- ERM disclosed the purpose of the engagement.

DISCUSSION WITH COMMUNITY MEMBERS

No.	Questions	Answers
General Baseline		
1.	What are the main economy and types of livelihoods / income sources for people in the community?	Mainly agriculture (80%). Other sectors include small retail businesses and employment in construction outside the village.
2.	Regarding farming activities in the area (if mentioned as a common livelihood): - What type of crops do other farmers know usually grow? - How have farming practices changed in the past 10 years? What caused the changes? - What is the main agriculture equipment used for any kind of cultivation or farming activity? Do you have access to irrigation systems? - Do farmers usually own the land they farm on? Describe your ownership status of the farmland. - Is farming usually households' only income source or do they have several occupations? If so, what are the other common occupations combined with farming?	- Main crops: cereals, pulses, olives, fruits and vegetables. - There has been a major reduction in agricultural activity due to various factors: abandonment and expropriation of land, drought, and increased prices of agricultural inputs. - Only fruits and vegetables are irrigated; the other crops are mainly rainfed. Irrigation is carried out using wells dug on the farms. - Land ownership is predominantly private. - Agricultural activity has a dual purpose: commercial sales and household consumption.

	- Is farming usually used for household consumption or for sale? If sale, where do farmers usually sell crops?	
3.	Regarding livestock raising activities in the area (if mentioned as a common livelihood): - What type of animals are typically raised? - How have livestock raising practices changed in the past 10 years? - What areas are used for grazing? - Is livestock raising usually used for household consumption or sale? - If it is used for sale, is it commonly the main livelihood of households? Or it is used as a side income?	The farming system is agro-pastoral. Livestock raising is an important activity. - The animals raised are both sheep and cattle. - Livestock raising is strongly dependent on access to land and grazing areas. The installation of the Industrial Zone prevents such access and has consequently considerably reduced livestock activity. - Livestock is mainly raised for sale and constitutes an important source of income.
4.	Do people usually work within the community or outside? If outside, where do they work and how do they travel?	Approximately 20% of the population is estimated to work outside the commune in various occupations. Transport is provided either by public transport or private means (motorcycle, car).
5.	What are the main challenges currently faced by the community as a whole?	Youth unemployment is cited as the main challenge. According to participants, this problem has worsened since 2017 and the installation of the Industrial Zone due to the decline in agricultural activity and the decrease in household incomes, leaving households unable to invest in other activities.
6.	What is the project land use historically or currently? Are you aware of any individuals or groups previously accessing or using the Project land?	The land was used for agriculture and livestock raising and has been almost entirely expropriated. Compensation to landowners was partial. The amounts granted vary according to the size and characteristics of the land. Certain

		legal disputes relating to the land remain unresolved.
7.	What roads are frequently used by community? Are there frequent accidents?	There is currently a new wave of expropriation for the expansion of the Industrial Zone and the construction of the new Sabben river canal. The roads leading to the douars are severely affected by the density of heavy truck traffic, with casualties among douar residents.
8.	What types of security concerns exist in the area (e.g., petty crime, theft, local disputes)?	Main problem: waste management + frequent road accidents.
9.	Are there any migrants or non-local workers in the area? If yes, indicate ethnicity/nationality of migrants and how do they get along with the local people?	Participants did not report any incidents of theft or assault, but they complained about foreign workers' lack of respect for local culture, particularly regarding their clothing practices and alcohol consumption. No other nationalities apart from the Chinese community.
Anticipated Impacts and Stakeholder Engagement		
10.	Have you heard of the BTR Cathode or Anode Projects? If yes, from which source?	No detailed information apart from the production of batteries. Sources: rumours.
11.	What are your thoughts or impressions about this project? Do you think there will be positive impacts or opportunities associated with the project? What are your main concerns regarding negative impacts and how would you like to see them mitigated?	In terms of positive impacts, these mainly concern job creation and training for young people. In terms of negative impacts, these mainly concern pollution and industrial discharges.
12.	What concerns and recommendations do you have regarding the project?	Concern about discharges from the BTR plant and the risk of environmental pollution from toxic materials and their potential impacts on the health of the population. There is currently a major housing shortage due to the complete suspension of the issuance of new building permits. Accelerating approval of the area's development plan and issuing permits would help address this shortage and allow decent, modern housing to be built for foreign workers while creating a direct source of income for the local population.
13.	Are there any formal or informal mechanisms in place for addressing grievances?	Absence of a formal channel for communicating with those responsible. There is a perception that the responsible authorities and local elected officials are unable to address the problems raised.

14.	What are your expectations for future stakeholder engagement by the project? (e.g. frequency, type of information to be shared)	Stable employment, training and fair remuneration. Young people want formal and sustainable contracts rather than precarious employment. Some people who have already been employed at the BTR site described situations in which workers were not paid at all, were paid less than the agreed amount, or experienced significant payment delays. To avoid this type of situation, they recommend eliminating intermediaries and subcontractors who take part of the wages of workers recruited on a temporary basis and are responsible for these problems. Intermediaries, who are not from the region, favour connections in their region of origin to the detriment of the local population.
15.	Do you have any other remarks?	Young people's dependence on the income of their parents, who themselves face difficult economic circumstances due to the loss of their land and the cessation of agricultural activity. There is an urgent household waste problem that needs to be addressed in the villages because of the sudden increase in population and the arrival of workers in the Industrial Zone.

PHOTO



ATTENDANCE SHEET

SLAOUIYINE + (CHAOUIA) 12/08/2026 15H00

Name / Nom et Prénom	Organisation et rôle	Douar/Village/Préfecture	N° de téléphone	Signature
OMAR HMITI		Selawiyine	06-02-39-06-19	
Mohamed AMRI Berki		Selawiyine	06-88-01-18-73	
RAMZI AMRI Berki		Selawiyine	07-86-0089-56	
OMAR. FAROJI		Selawiyine.	07-22-45-90-44	
DJAIJI Aicha		Selaouine	06 14 17 60 26	
GHZlan Bouras Salissi		Schaouia	0766076372	
chaimae lamgari		Schaouia	0765396441	
ABDLKRAFI Ouassal		Schaouia	0697140057	
ADIL RAOUNAJI		" "	0676690615	
FADL RABITI		SLAWIYINE	0672209177	
RAWNAKI MOHAMED		Chaouia	0623097746	
ZAKARIAE Boulhaq		Salawiyine	06-25-09-58-05	
AHMED AMRI BERGUI		SLAWIYINE	0623479660	
MOHAMED HUMAN		schaouia	0611907502	
AYOUB HMITI		SLAWIYINE	0655532653	
TORIK RABITI		SLAWIYINE	0666170123	
MOUNER AMRI BERGUI		SLAWIYINE	0708439536	

3

5. MEETING WITH MEMBERS OF AOI COMMUNITIES –WOMEN'S GROUP (SLAOUIYINE AND CHAOUIA)

Date (DD/MM/YY)	**12 August, 2026**
Start-End Time	**16:00 – 17:00**
Meeting Type	**Focus Group Discussion**
Name of Interviewer	**Marine Krieger, Wafe Dhaiouir**
Venue and Location	**Caïdat of Laaouama**
Participants	3 female residents from Slaouiyine and Chaouia

INTRODUCTIONS

- The Client introduced their representatives and the ERM Team.
- ERM disclosed the purpose of the engagement.

DISCUSSION

No.	Questions	Answers
General Baseline		
1.	What are the main economy and types of livelihoods / income sources for people in the community?	The main sources of income in the community are agriculture, mainly cereal farming, handicrafts such as painting, plasterwork and zellige, and small businesses. Some people also work independently, for example in sewing or by selling products at the local souk. Men are mainly involved in agriculture, handicrafts and small businesses, while women are more often involved in sewing, small-scale businesses and informal activities. Women can find work that matches their skills to some extent, but their opportunities remain limited, particularly due to the lack of stable employment opportunities.
2.	What are the types of jobs that women and men do in your community? Are women in your community able to find jobs that align with their skillset and preferences? Why or why not?	Women can find some work that matches their skills, particularly in sewing and small businesses. However, their opportunities are limited, and some women are reluctant to take local jobs because of concerns about harassment, for example when working in local markets or shops.
3.	What public infrastructure and services are available to you and your household? How would you rate their accessibility?	We do not have many public services in the community. There is a mosque, a few small shops, and a primary school. We also have access to buses, but we need to travel to the designated pick-up point, which can be quite far from our homes. For other essential services, we have to go to Gouaret Centre.
4.	What are the water sources available for the community? Are they considered clean and reliable water sources?	The houses are connected to the public drinking water supply. However, most people use water from natural springs for drinking because they consider it to be of better quality.

No.	Questions	Answers
5.	What are the main health problems faced by the population in the settlement?	The community has a local dispensary nearby, but it mainly provides basic care for common health conditions, such as diabetes, and routine consultations. There are no specialists, so for more serious or specialist medical care, we have to go to the main hospital in Tangier.
6.	Are there any challenges with accessing health services?	Yes. Access to healthcare can be difficult due to the distance, and there are no emergency services available locally in case of urgent medical needs.
7.	What are the main challenges currently faced by the community as a whole?	The main challenges are the lack of developed infrastructure and services. For example, the local school is not well equipped, and students have to go to Gouaret Centre to continue their education at middle and high school. There are also concerns about the future of the community due to the development of the industrial zone, particularly regarding the long-term stability of residents and the possibility of displacement.
8.	Are there any specific difficulties faced by youth? (health, employment, etc.)	Young people face several difficulties, including a lack of interest in education and limited experience and vocational training, which makes it difficult for them to access employment opportunities. They also have limited access to healthcare, as there is no dispensary nearby, and they need to go to Gouaret Centre for administrative services
Gender Dynamics		
9.	Who makes the decisions at home? When there is a dispute between the husband and wife, how is the dispute resolved?	The father is generally the head of the household. When there is a disagreement between the husband and wife, it is usually resolved through communication. There are some cases of domestic violence, but in most cases, women report them to the Royal Gendarmerie, where the husband may be required to sign a commitment not to repeat the violence.
10.	Are women and men given equal opportunities in your community? Why or why not?	Not really. In our community, women tend to seek employment opportunities less often, partly because of social and family expectations. Men are generally expected to work and support the household, so they have more opportunities and are more likely to enter the labour market.
11.	Are you a member of any women's groups? What is the purpose of these groups?	No, there are no women's associations available in the area.
12.	How active are women in community decision-making or cooperative leadership	Women's participation in community decision-making is limited. There is only one elected woman representative, Sara, who is active in raising various issues affecting the local population.
13.	What level of education do girls and boys typically receive? Are there differences?	Boys generally continue their education up to middle school, while some girls continue to high school and even pursue university studies.

No.	Questions	Answers
14.	What are the main reasons why girls and young women drop out of school in your community?	The main reasons are the lack of nearby schools, particularly middle and high schools and universities, which makes transportation tiring and difficult. Parents' attitudes and expectations can also play a role, as well as early marriage
15.	Have you experienced any challenges in accessing education? Please share some examples.	Yes. One of the main challenges is the distance to middle and high schools, as there is no school transportation. Private transportation is expensive for families. Family circumstances can also create difficulties; for example, some young people may have to take on family responsibilities at an early age, particularly after the loss of a family member who was supporting the household.
16.	What types of security concerns exist in the area (e.g., petty crime, theft, local disputes)? Are any security issues particularly affecting women?	There are some concerns about harassment, particularly affecting women. However, there are not many issues related to theft or other petty crime, and the community is generally considered safe. The presence of foreign workers has not created any particular security risks.
17.	Do women feel comfortable raising complaints or concerns through existing community or project grievance channels?	Yes. Women can raise complaints in person at the caïdat, which receives complaints every Wednesday. They can also report concerns through the mokaddems.
Anticipated Impacts and Stakeholder Engagement		
18.	Have you heard of the BTR Cathode or Anode Projects? If yes, from which source?	No, I have never heard about the BTR Cathode or Anode Projects.
19.	What are your thoughts or impressions about this project?	We have a positive impression of the project, particularly because it could create employment opportunities and contribute to the development of the area. However, we are concerned about potential emissions and their impact on the environment and health. There is also a question of trust, as we would like to have clear and reliable information about the project and its potential impacts.
20.	What concerns and recommendations do you have regarding the project?	Our main recommendations are to strengthen the integration of the local population, provide adequate training to prepare local people for employment opportunities, and create specific employment and training opportunities for women.
21.	Are there any formal or informal mechanisms in place for addressing grievances?	We don't know of any formal or informal mechanisms for addressing grievances.
22.	What are your expectations for future stakeholder engagement by the project? (e.g. frequency, type of information to be shared)	We would like the project to regularly engage with the local community and provide clear information about the project's progress, employment and training opportunities, and potential environmental and social impacts.

PHOTO



ATTENDANCE SHEET

Please refer to the attendance sheet for the meeting with members of the AoI communities, Men’s Group (Slaouiyine and Chaouia).

6. MEETING WITH SATT

Date (DD/MM/YY)	**12 August, 2026**
Start-End Time	**15:00 – 16:00**
Engagement Type	**Key Informant Interview**
Name of Interviewer	**Marine Krieger**
Venue	**SATT Office in the IAZ**
General Information of Interviewee	
Name, position, and organisation	Representatives of SATT and TMU

INTRODUCTIONS

- The Client introduced their representatives and the ERM Team.
- ERM disclosed the purpose of the engagement.

DISCUSSION

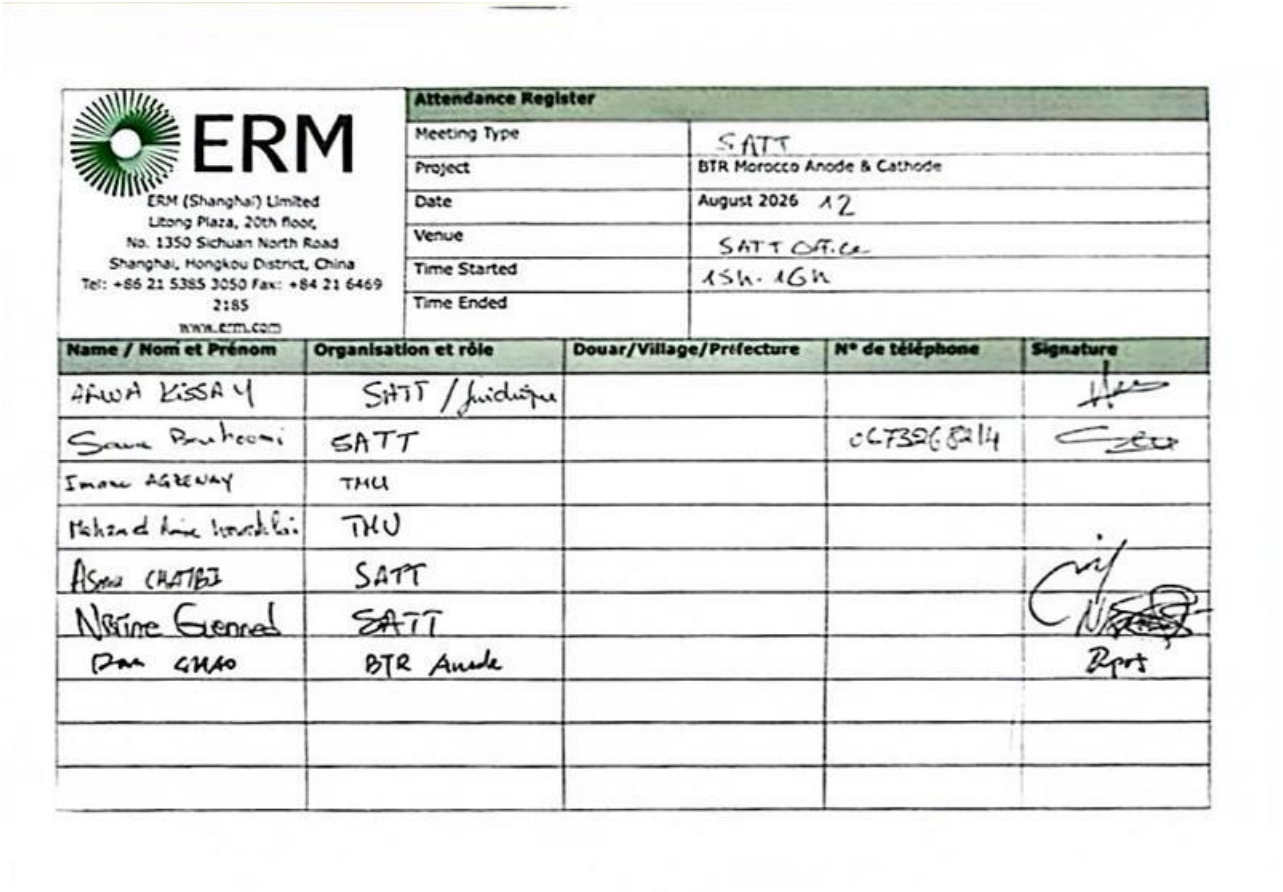
No.	Questions	Notes
1.	Could you briefly describe the Cité Mohammed VI Tangier Tech development, including Phase I of the Industrial Acceleration Zone and its current development status?	SATT zone is planned on approx. 2,200 ha of land. The development of companies in the zone started in 2023. Main developments include a free zone of 900 ha for industries, and residential areas (property development, smart city project) that will be developed starting next year. They industrial zone has started with 87 ha of development. Phase 1 is a total of 493 ha, to be finished by the end of the year. Phase 2 will start next year.
2.	What are the respective roles of SATT, TMSA, TMU, local authorities, and tenant companies such as BTR in the planning, development, and operation of the IAZ?	The roles are as follows: TMU – management of water and electricity SATT – management of the zone SATT requires EIA to be completed and submitted as part of the documentation to be provided by companies in the industrial zone.
3.	What types of industries and tenant companies are currently present or planned in the IAZ?	Most companies are in the automotive industry and battery sector. In Phase 1, there are 50 industrial factories in construction or operation (most in construction).
4.	How do the BTR Cathode and Anode Projects fit within the wider Tangier Tech development plan?	They are one of the most important clients in the zone.
5.	Could you describe the land acquisition process for the Tangier Tech IAZ, especially	The zone is a government project, so the state is in charge of the acquisition. The state did the expropriation (Direction des Domaines Prives de l'Etat – entity at regional level).

No.	Questions	Notes
	the areas where the BTR project sites are located?	Before land acquisition, some of the land was used for agriculture, but the area was reportedly not ideal for such use due to flood risks. Expropriation started in 2015. Acquisition by SATT started in 2020 (86 ha). This consisted in permanent acquisition at a price determined by the state (based on expropriation process rates). In 2023, official commercialisation started so some companies started to come in. In 2024, the construction of the first part of Phase 1 started. SATT is not sure about the past land use. In case any activities were still in place when SATT got the land, it was the state who was in charge of removing it. This acquisition process took place before BTR involvement, which started in 2023. The SATT sells the land to companies developing their activities in the zone (not leased).
6.	What infrastructure and services are provided at the IAZ level?	Water supply: SATT build a reservoir (15,000 m3) to provide industrial water for the zone. There is a water treatment station to make reservoir water clean. This is managed by the Tangier City Water Management authority. Wastewater treatment plant: There are wastewater treatment from the zone itself: they are establishing a wastewater management network (pipelines). Wastewater will be pumped to bring wastewater to treatment plant of Tangier City. This plant is in Boukhalef. The government plans to develop a new wastewater treatment plant, currently 70% built. That plant will manage the wastewater created by the industrial zone (and the future residential developments). This one is in Bougdour. For the companies themselves, they are in charge of the wastewater management within their site and then connect to the zone wide network. Each company should have their own pre-treatment facilities to respect the discharge requirements (in line with EIA). The companies have technologies to reuse the wastewater with wastewater treatment plants. Electricity supply: A substation is under construction next to Anode site specifically for them. They have the largest electricity demand in the site. There are two other substations in the zone (120MVA, 24 MVA). One more substation in planning. For Cathode, will use the above 120 MVA substation. All substations are connected to public network (Office National de l'Electricite - ONE)

No.	Questions	Notes
		There are transmission lines connecting to the ONE network. All transmission lines are built by the ONE. Other services provided by SATT: Telecom network Security management Management of the industrial zone space Waste management in the common spaces BTR is in charge of their own waste management TMU can provide waste management service for construction phase. They have a contract with BTR for this. This is separate from SATT basic management services. The TMU has a waste management/recycling facility in the zone. TMU is active in several industrial zones and all the waste from there is sent to this waste management facility. Recyclable waste is then sent to relevant industries who can reuse it.
7.	Does SATT or the IAZ have an environmental and social management system? What requirements are imposed on tenant companies during construction and operation?	The industrial zone did a project to manage flood risk in the valley and conducted a hydraulic study (confidential). The river is being rerouted to manage flood risk. There is a TOR for the SATT, which companies have to abide by, including some environmental requirements. The company is required to respect some standards for water discharge, and to monitor water discharge regularly. Monitoring of air emissions is also required. The ToR includes requirements for compliance with local standards. Companies are encouraged to reuse wastewater treatment plant output (water usage efficiency). The TOR provided by SATT requires companies to have a contract in place for waste management and discharge (on temporary basis for construction phase, and then permanently for operation phase). In case of hazardous wastes, they are required to have a certified company handle them.
8.	How does SATT monitor tenant compliance?	TMU and/or SATT will check that monitoring is done on a monthly or quarterly basis.
9.	Were there any concerns raised by the local communities regarding the activities conducted within the industrial area? If yes, what are they and how are they addressed?	The SATT did a 'diagnostique territorial' where they engaged communities and local representatives. Some feedback was provided as follows: - Positive perception of the industrial zone, which is considered to support economic development of the villages - Many expectations for employment and improvement in living conditions (e.g. development of a park)

No.	Questions	Notes
10.	What employment or local business opportunities have been created by the IAZ so far?	Some targeted job creation was announced in 2017-2018, including the smart city component of the Tangier Med project. It is expected that up to 300,000 people would live and work in the zone. Currently approx. 20,000 jobs are estimated to have been created.
11.	What emergency response arrangements exist at the IAZ level?	Yes this is coordinated by SATT. There is a firefighting unit near the site which SATT helped build. There is also an ambulance available in case of accident in the common spaces. SATT has been certified ISO 45001 and 9001. Companies are in charge of their own emergency planning. If an emergency happens, SATT can help the response and coordinate with authorities.

ATTENDANCE SHEET



ERM
ERM (Shanghai) Limited
Litong Plaza, 20th floor,
No. 1350 Sichuan North Road
Shanghai, Hongkou District, China
Tel: +86 21 5385 3050 Fax: +84 21 6469 2185
www.erm.com

Attendance Register

Meeting Type	SATT
Project	BTR Morocco Anode & Cathode
Date	August 2026 12
Venue	SATT Office
Time Started	15h - 16h
Time Ended	

Name / Nom et Prénom	Organisation et rôle	Douar/Village/Préfecture	N° de téléphone	Signature
AFWA KISSAY	SATT / Juridique			
Sara Berhoumi	SATT		0673966214	
Imane AGRENAY	THU			
Mahamad Amine Houssaini	THU			
Asma CHATBI	SATT			
Nadine Gennet	SATT			
Dan GHAO	BTR Anode			

7. MEETING WITH THE PRESIDENT AND DIRECTOR OF LAAOUAMA COMMUNE

Date (DD/MM/YY)	**13 August 2026**
Start-End Time	**12:30 – 13:30**
Engagement Type	**Key Informant Interview**
Name of Interviewer	**Marine Krieger, Mohamed Amine Moustanjidi**
Venue	**Caidat of Laaouama**
General Information of Interviewee	
Name, position, and organisation	President of Laaouama Commune Director of Laaouama Commune

INTRODUCTIONS

- The Client introduced their representatives and the ERM Team.
- ERM disclosed the purpose of the engagement.

DISCUSSION

No.	Questions	Notes
1.	How does the Commune view the Project in relation to local development priorities?	The Laaouama Commune views the BTR Project positively, considering it a project that can contribute to local development by creating employment opportunities, stimulating the local economy and enhancing the attractiveness of the area to investment, while ensuring compliance with legal and environmental standards and alignment with the Commune's development priorities.
2.	Can you briefly describe the historical land use of the Tangier Tech IAZ area and the BTR project sites, to the extent known by the Commune? Are there any known legacy issues related to land acquisition, relocation, compensation, or access restrictions?	The land located in the Tangier Tech area and at the BTR Project site was historically used for agricultural purposes, particularly crop cultivation and livestock, before being allocated to industrial and investment projects associated with the economic development of the area.
3.	Are there or were there any informal settlers, land users, tenants, farmers, or other users on or near the Project land before the IAZ or BTR land transfer?	Yes. Before ownership of the land was transferred, there were farmers, land users and local residents who used the land, particularly for agricultural and pastoral purposes.

No.	Questions	Notes
4.	Are there any groups that are considered vulnerable and may be particularly affected by the Project?	Yes. There may be vulnerable groups, particularly local residents and former land users. We request that the entity responsible for the BTR Project give these groups special attention by giving them priority in employment opportunities, providing the necessary support and assistance, and adopting the greatest possible degree of flexibility and facilitation in dealing with them, in order to ensure that they benefit from the Project and improve their social and economic conditions.
5.	What are the main livelihoods and employment sources in the nearby settlements? Are any livelihoods dependent on land or resources near the Project sites?	The main sources of livelihood and employment for residents of the neighbouring villages are primarily agriculture and livestock production, self-employment, trade and work in the services sector. Part of the population also depends on land and resources close to the Project site, particularly through agricultural and pastoral activities and the use of land.
6.	What are the key changes and challenges you've seen in these livelihoods? How have they evolved in recent years?	Livelihoods have gradually changed in recent years as dependence on agricultural and pastoral activities has declined and there has been an increasing shift towards trade and services. Residents also face challenges related to the rising cost of living, limited employment opportunities and the reduction in land available for agricultural activities. This calls for strengthening employment opportunities and providing support and assistance to local residents.
7.	Are there any cultural, religious, historical, or archaeological sites in or near the Commune, such as mosques, cemeteries, graves, shrines, historic buildings, cultural landscapes, or ritual places?	The area has some religious and historical monuments, including the Sidi Al Arabi shrine in Douar Al Kouaret. There is also a mosque and a cemetery in almost every douar. However, the area has a significant shortage of cultural and recreational centres and green spaces, which are facilities that residents have been hoping for many years. In this context, we request that BTR strengthen communication with the Commune and local residents and work towards agreements and partnerships that could contribute to establishing such facilities, for the benefit of citizens and in support of local development.

PHOTO



ATTENDANCE SHEET

Caïdat - 13/08/2026 (Réunion avec le Président de la commune)

	Nom/Préno	Organisation/Role	Téléphone	email	Signature
10	Dan [illegible]	BTR Anode	665-256422	[illegible]	
11	Jinlong Chen	ERM	14613764676646	Jinlong.chen@ERM.com	
12	Louise Liu	BTR Anode	07120888822	liuying1@btrchina.com	
13	Jean Lee	BTR	0669484285		
14	Raouzouni ABDERRAOUF	Z. R.C. AWAM	0661879769		
15	Mouad MECHLAH	Autorité Locale	0629337946		
16	BELMOULATI Abdelouahid	Directeur des Services par intérim	0661262880		
17	Marine KRIEGER	ERM	/	/	
18	Miao Xie	ERM			Miao Xie
19	Dhaiouia Wafa	Self			
20	Nejmeddine Amine	SOLF	0662721737		
21					
22					
23					

8. MEETING WITH THE PRESIDENT AND DIRECTOR OF SEBT AZZINATE COMMUNE

Date (DD/MM/YY)	**13 August, 2026**
Start-End Time	**13:30 – 14:30**
Meeting Type	**Key Informant Interview**
Name of Interviewer	**Mohamed Amine Moustanjidi**
Venue and Location	**Caidat of Laaouama**
Participants	President of Sebt Azzinate Commune Director of of Sebt Azzinate Commune

INTRODUCTIONS

- The Client introduced their representatives and the ERM Team.
- ERM disclosed the purpose of the engagement.

DISCUSSION

No.	Questions	Notes
1.	How does the Commune view the Project in relation to local development priorities?	Limited information about the project. The document presented to the Commune was in French (a language that is not mastered by the Commune members) and contained many pages related to the procedure for collecting the population's views rather than information about the project itself. More information about the project is needed.
Land Acquisition		
2.	Can you briefly describe the historical land use of the Tangier Tech IAZ area and the BTR project sites, to the extent known by the Commune? Are there any known legacy issues related to land acquisition, relocation, compensation, or access restrictions?	100% agricultural use of the land, with cereal farming and cattle, sheep and goat raising on privately owned land. The expropriation was carried out with low compensation. 2,800 ha that will be affected directly or indirectly by the industrial zone is in the two neighbouring communes of Laaouama and Sebt Azzinate , of which 70% is located in Sebt Azzinate. Some community representatives considered the historical compensation arrangements to be inadequate. There are currently many legal disputes between the population and the authorities regarding the proposed price rather than opposition to the project.

No.	Questions	Notes
		However, the Commune is aware of the potential positive impact of the project on the long-term.
3.	Are there or were there any informal settlers, land users, tenants, farmers, or other users on or near the Project land before the IAZ or BTR land transfer?	In some cases, agricultural land was rented from its owner, but always for agricultural use. Compensation was granted to the owner, who is responsible for reaching an agreement with the tenant.
Social-Economic Baseline		
4.	Are there any ethnic, nomadic, or culturally distinct groups in the Commune that may require specific engagement approaches?	The population is very homogeneous, consisting of families that have lived in the villages for several decades. In 2020 and 2021 (during the COVID-19 crisis), there was reverse migration to Azzinate from the city, particularly among residents who had previously left. They were encouraged by the proximity of Tangier and the availability of services.
5.	Are there any other groups that are considered vulnerable and may be particularly affected by the Project?	First impact: the fencing of the Industrial Zone, considered a high-security area, consequently blocked the historic and only road linking the village to Gouaret and subsequently to Tangier. Young people have not yet seen the impacts in terms of employment.
6.	What are the main livelihoods and employment sources in the nearby settlements? Are any livelihoods dependent on land or resources near the Project sites?	Land development/exploitation eliminated the population's sources of income. There are no other sources of employment. Sebt Azzinate is a predominantly rural commune with limited opportunities for service development and a strong dependence on land. The only alternative currently available is migration to the city.
7.	What are the key changes and challenges you've seen in these livelihoods? How have they evolved in recent years?	The situation has remained almost the same. Population expectations are high regarding the future effects following the operationalization of the Industrial Zone (IZ).
8.	What types of employment opportunities do local residents expect from the Projects, and are local skills aligned with these opportunities?	No concrete ideas. Training provided by IZ companies and language learning should help improve the employment situation.

No.	Questions	Notes
		It remains to be determined who should be responsible for this training (the State or the companies).
9.	Are there any cultural, religious, historical, or archaeological sites in or near the Commune, such as mosques, cemeteries, graves, shrines, historic buildings, cultural landscapes, or ritual places?	IBN BATTOUTA Dam: a site of ecological interest with historical and archaeological sites such as KASR RAISSOUNI and KASBAH ROUMANIA, but the potential of these sites remains underutilised. The Commune's souk has more than 100 years of history.
Anticipated Impacts and Stakeholder Engagement		
10.	Was the Commune consulted or requested to provide any opinion, clearance, or support letter for the Project or the IAZ development?	The Commune played a role in supporting the population during the expropriation process. Issuance of authorizations with the CRI. Presence of a Commune representative during the work of the regional commission responsible for reviewing administrative files related to the Industrial Zone project. The Commune also facilitated the public inquiry to collect the population's views on the project (no opinion was expressed by the population at the time due to a lack of information about the project).
11.	Have you personally been engaged by the Project or received any project information? If yes, what was shared, and by whom?	NO. Information only from the CRI.
12.	How would you raise complaints or concerns about the Project? Are you aware of any mechanism to raise grievances?	Direct contact with the population. Contact with the local authority. Transmission to the competent authorities (Wali). The Commune mainly plays an intermediary role and does not have the authority to resolve project-related conflicts and complaints.
13.	How do you feel the Project will affect the local community? (positive and negative impacts, e.g. economic, health and safety, employment, transport, pressure on public services, influx of construction workers etc.)	Overall, the Commune views the project positively as a major economic opportunity, with the positive impacts appearing to outweigh the negative ones. However, some negative impacts are related to access and transportation following the installation of the fencing. Previous project impact assessments appear not to have taken this major effect into consideration.

No.	Questions	Notes
		A proposal was submitted to the competent authorities to develop an alternative road and construct a bridge. This request is currently being processed and has reportedly already received approval in principle. Another effect: if the current problems of unemployment and the lack of opportunities for young people to enter the workforce persist, they may affect the population's perception of the project. Need to establish direct communication channels and facilitate contact with IZ companies regarding the concerns of the population.
14.	Are there any existing road safety concerns in the Commune that may be affected by construction traffic or project-related transport?	Black spot on the regional road, with frequent accidents. Road used by the project's trucks. Resolve this issue as part of the road expansion project.
15.	Do you have any concerns about the Project? If so, how do you think the Project could address these concerns?	Essentially, cultural differences between workers and local residents. Risk of conflicts. Language barrier to be overcome.
16.	What measures do you expect the Project to take in order to mitigate / address these impacts?	Launch training programs to improve the skills of young people and inform them regularly about job opportunities. Attract real estate development companies to develop modern housing and infrastructure that meets growing needs of the population that will be employed and attracted by the project. For example the population has tripled over the past 20 years in Gueznaya due to the establishment of new industrial projects Facilitate administrative procedures and accelerate the development plan.
17.	What are the key stakeholders that you recommend us to engage in the future engagement for the project? (e.g. any part of the community or specific groups that will be interested in the project?)	The companies themselves Local authorities Population

PHOTO



ATTENDANCE SHEET



- Réunion. P. Commune Sebt Ziaate – 13/08/2026

	Nom / Prénom	Role / Organisation	Téléphone	email	Signature
10	Wafa Dhaiouri	Self	0624059208	—	
11	EL ABBASY Abdelhamid	prés. Com. T Sebta Ouzzinate	0661050925	abdelhamidelabbasy@gmail.com	
12	Rahmouni Rotiami	Directeur service de la commune	0661[illegible]	Communesebtaouzinate.com	
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					

9. ONLINE MEETING WITH CRI-ENVIRONMENT AND WATER

Date (DD/MM/YY)	**17 August 2026**
Start-End Time	**19:30 – 20:30**
Meeting Type	**Key Informant Interview**
ERM Consultants and Partners Present	**Marine Krieger, Eric Cao, Jinlong Chen, Miao Xue**
Venue and Location	**Online**
Participants	Representative fromAgence Bassin hydrolique Loukkos (ABHL) Representative fromMinistry of Equipment and Water Representative from Environmental Department and Regional ANEF Office.

INTRODUCTIONS

- The Client introduced their representatives and the ERM Team.
- ERM disclosed the purpose of the engagement.

DISCUSSION

No.	Questions	Notes
1.	How do local people (local = nearby residential area if possible) have access to drinking water and domestic water (source)? Is water resource/quality a problem for local residents in the Project area? Do you foresee any impact of the BTR Anode and Cathode Project on local water use and safety?	Drinking water is supplied from a dam in Tangier city and managed by SRM. Some local residents may also use private wells, although groundwater use is not common. No existing concerns regarding water quality and no impact from the BTR Anode and Cathode Project on local water use or water safety is anticipated.
2.	Any requirement of tracking monitoring on groundwater?	Monitoring: there are monitoring places, so far none in the zone, but in the future maybe also instituted in the zone (2 times year by ABH; for within the industrial zone or inside the projects they don't know) – Maybe it's SRM that knows about discharge in the industrial zone, since ABH is only for monitoring in the natural environment
3.	What are the permitting requirements of the sewage or (industrial) wastewater discharge?	ABH is responsible for issuing the required authorization, and any wastewater generated must be appropriately treated prior to discharge.
4.	Any mitigation measures or monitoring were implemented for the river cut-off/ rerouted of the industrial park?	Flood control channels planned and constructed for the industrial zone, since this area is susceptible to flooding.

No.	Questions	Notes
5.	Has the project area experienced any water supply restrictions or interruptions in the past?	Likely no, not sure
6.	Is the project site located within a floodplain or an area susceptible to flooding?	Yes - susceptible but not necessarily every year.
7.	What are the key/sensitive biodiversity features within the Project Site, transmission line, and surrounding area (e.g. the local protected area)? Are there any known populations of species of conservation concern (Birds, amphibians or plants)?	The industrial zone had some forests used for exploitation in the past. Communities were allowed to cross the area with their livestock but any logging was not allowed. The main sites of biodiversity interest in the region are: - In the north : Jbel Musa, which is part of the intercontinental biosphere and is mainly located in a neighbouring province (near Tetouan). There is more detailed documentation available about this site, such as the Plan directeur d'aménagement des aires protégées and some 'fiches sur chaque site'. - Tahaddart wetland protected area in Assilah, west of the industrial zone (assumed this is the Ramsar site, estimated within 30km) - Cap Spartel in Tangier area There are species of importance in these areas, as they are part of bird migration path, particularly for the wetland. One noted species is the Outarde (bird). No further details available.
8.	What are the seasonal dynamics of biodiversity in the Tangier City or wider in the Tangier-Tétouan-Al Hoceïma Region (e.g. migratory periods, breeding seasons for birds)?	Migratory seasons apply. No further details available. The Service - étude de partenariat au niveau de la direction régionale (Tétouan) would be able to provide more information.
9.	Are there any concerns regarding invasive or alien species in this area?	None. As part of replanting programs, the ANEF puts the priority on indigenous plants. There are also some programs to replant trees with species that grow faster (conifers).
10.	Are there any existing or planned biodiversity monitoring or conservation programmes covering the Regional Wildlife Sanctuary or adjacent KBA/Ramsar Site, Oued Tahaddart?	The ANEF follow the strategy 'forests of Morocco' for 2020-2030. One of the 4 areas of focus is reforestation, with the aim of regenerating forests in the region through replanting programs. There are sometimes challenges with communities who oppose such programs. The main trees planted are cork oaks. Another issue affecting forests is fires. The ANEF coordinates effort to replant trees in areas affected by forest fires. They recruit guardians to prevent illegal logging and also to watch over protected species such as birds.

No.	Questions	Notes
		The ANEF also organise awareness raising programs in schools and communities.
11.	Have any biodiversity surveys been recently conducted near the Project Site by your department or partner institutions? Are these available for reference?	The studies are mainly done in the context of reforestation studies. The respondent is also aware of a study done on erosion.
12.	Are there any relevant academic institutions, NGOs, or CSOs actively engaged in ecological studies or conservation work in this region? Could you recommend any experts or stakeholders we should consult?	There are some NGOs working in the above-mentioned protected zones: - Grepom works in the RAMSAR site - Ampovis works to rehabilitate vultures in the protected area to the north (Jbel Musa) The ANEF also creates local forest development organisations (ODF) at the Commune level, and they have done so in Jouamaa Commune for example. These ODFs lead awareness raising efforts with communities. The representative from the environmental department enquired about the following: - Nature of additional studies done for international ESIA process - Whether the international ESIA findings will affect any of the outcomes of the regulatory EIA process - Whether the ESIA will also consider air quality, risk of environmental pollution, waste management, and other such topics - Whether the ESIA would be disclosed to authorities - ERM clarified that the ESIA is supplemental to the regulatory study and will not affect its findings. Rather, the studies will suggest additional measures that can further strengthen the Project's E&S management. Additional explanation was provided on differences in methodology and standards. BTR indicated that the ESIA may be shared if and when international financing deal(s) are closed.

APPENDIX A-2 PROJECT COMMUNITY GRIEVANCE FORM

Grievance Registration

Registration Number：_____ Document Date (D/M/Y)：_____

Grievant Name (can be anonymous): _____

Grievant Telephone Number and/or Email: _____

Staff Name: _____

Description of Grievance:

Confirmed by: _____

(Signed by the grievant or the Project staff, if anonymous)

Validity of the Grievance:	Valid, within the scope If invalid, state reasons and the date of communications to the grievant	Yes ( )	No ( )
Grievance Level Assessment:		Reported to the General Manager	Yes ( ) Date: No ( )

Suggested Resolution and Response

Resolution Measures	Estimated Completion Time	Completion Date (D/M/Y)	Responsible Department	Signature

Details of alternative resolution measures, e.g. compensation

Follow-up and Conclusion

Grievant Feedback: Staff Feedback:

Closed Grievance: Signature: Date:

Yes ( ) No ( )

If unclosed within a month from the receipt date, please resubmit with a new registration number

New Grievance Registration Number:

_____

APPENDIX A-3 STAKEHOLDER ENGAGEMENT LOG

S. No.	Date (dd/mm/yyyy)	Location	Description of Engagement Activity	Key Stakeholders Present (Name/Designation)	Discussion Points	Key Takeaways/ Decisions
1.						
2.						
3.						
4.						
5.						

APPENDIX A-4 GRIEVANCE REGISTER TEMPLATE

No.	Date	Name Complainant	Phone Nr.	Community / Team / Contractor	Typology (Information Request, Suggestion or Claim)	Type (Not admissible, Low, Medium, High)	Responsible Person	Delivery date for resolution	Response	Open/ Closed	Closing Date	Closed and Satisfied (Yes/No)	If no, why not?

ERM

ERM is a leading global provider of environmental, health, safety, risk, social consulting services and sustainability related services. We have more than 8,000 people in 35+ countries and territories working out of over 140 offices. ERM is committed to providing a service that is consistent, professional and of the outstanding quality to create value for our clients.

Shanghai Office

Suite 2005A,
Litong Plaza,
No. 1350 Sichuan North Road,
Shanghai 200080 China

T: +86 21 5385 3050

Beijing Office

Unit A, 10th Floor, Tower B,
Gateway Plaza,
No. 18 Xia Guang Li,
North Road East Third Ring,
Chaoyang District,
Beijing 100027 China

T: +86 10 8440 0686

Guangzhou Office

Room 120, 66th Floor,
No. 28 Zhujiang East Road,
Tianhe District,
Guangzhou 510000, China

T: +86 20 6299 5392

www.erm.com

APPENDIX B HUMAN RIGHTS IMPACT ASSESSMENT

Appendix B Human Rights Impact Assessment

Morocco Lithium-Ion Anode Battery Materials Project

PREPARED FOR

BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY

DATE
5 November 2026

REFERENCE
0798554



DOCUMENT DETAILS

DOCUMENT TITLE	Appendix B Human Rights Impact Assessment
DOCUMENT SUBTITLE	Morocco Lithium-Ion Anode Battery Materials Project
PROJECT NUMBER	0798554
Date	5 November 2026
Version	04
Author	Siyan Cheng
Client name	BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY

DOCUMENT HISTORY

				ERM APPROVAL TO ISSUE		
VERSION	REVISION	AUTHOR	REVIEWED BY	NAME	DATE	COMMENTS
01	000	Siyan Cheng	Sabrina Genter	Yang Shen	09.04.2026	Approve to issue
02	001	Siyan Cheng	Minlei Du	Yang Shen	10.15.2026	Updated based on comments
03	002	Siyan Cheng	Minlei Du	Yang Shen	10.29.2026	Updated based on comments
04	003	Siyan Cheng	Minlei Du	Yang Shen	11.05.2026	Updated based on comments

SIGNATURE PAGE

Appendix B Human Rights Impact Assessment

Morocco Lithium-Ion Anode Battery Materials Project

0798554

[Double click to insert signature]

Yang Shen
Partner

ERM (Shanghai) Limited
Litong Plaza, 20th floor, No. 1350 Sichuan North Road
Shanghai, Hongkou District, China

© Copyright 2026 by The ERM International Group Limited and/or its affiliates ('ERM'). All Rights Reserved.
No part of this work may be reproduced or transmitted in any form or by any means, without prior written permission of ERM.

CONTENTS

1. OVERVIEW 1
1.1 INTRODUCTION 1
1.2 OBJECTIVES 1
1.3 LIMITATIONS 1
1.4 DOCUMENT STRUCTURE 2
2. PROJECT DESCRIPTION 3
2.1 PROJECT LOCATION 3
2.2 PROJECT COMPONENTS 5
2.3 PROJECT ACTIVITIES 6
2.3.1 Construction Phase 6
2.3.2 Operation Phase 6
2.4 WORKFORCE REQUIREMENTS 6
3. METHODOLOGY 8
3.1 APPLICABLE STANDARDS 8
3.2 SCREENING AND SCOPING 8
3.3 RIGHTSHOLDER IDENTIFICATION 9
3.4 DIVISION OF THEMES WITH THE SOCIAL IMPACT ASSESSMENT 9
3.5 IMPACT ASSESSMENT 10
3.5.1 Severity 10
3.5.2 Likelihood 11
3.5.3 Salience 11
4. HUMAN RIGHTS FRAMEWORK 12
4.1 APPLICABLE LENDER STANDARDS FOR UNDERTAKING HRIA 12
4.2 OTHER INTERNATIONAL HUMAN RIGHTS INSTRUMENTS RATIFIED BY MOROCCO 14
4.3 FUNDAMENTAL ILO CONVENTIONS 15
4.4 MOROCCAN NATIONAL LEGAL FRAMEWORK 16
4.5 GAPS BETWEEN MOROCCAN LAW AND INTERNATIONAL STANDARDS 16
5. HUMAN RIGHTS BASELINE 18
5.1 LABOUR PRACTICES 20
5.1.1 Child Labour 20
5.1.2 Forced Labour 21
5.1.3 Occupational Health and Safety (OHS) 21
5.1.4 Freedom of Association and the Right to Collective Bargaining 23
5.1.5 Discrimination and Harassment 23
5.2 SUPPLY CHAIN 24
5.3 VULNERABLE GROUPS 25
5.4 GENDER EQUALITY, GENDER-BASED VIOLENCE, HARASSMENT, SEXUAL EXPLOITATION AND ABUSE 25

5.5 LIVELIHOODS AND ECONOMIC ACTIVITIES 27
5.6 COMMUNITY HEALTH AND PUBLIC HEALTH GOVERNANCE CAPACITY 28
5.7 CONFLICT AND SECURITY 29
5.8 ACCESS TO REMEDY 30

6. HUMAN RIGHTS IMPACT ASSESSMENT AND MANAGEMENT 31
6.1 IMPACT ON LABOUR RIGHTS AND WORKING CONDITIONS 31
6.1.1 Baseline Context 31
6.1.2 Project Details 32
6.1.3 Assessment 38
6.1.4 Management of Labour and Working Conditions 39
6.2 IMPACT ON WORKERS' RIGHTS ALONG THE PROJECT SUPPLY CHAIN 41
6.2.1 Baseline Context 41
6.2.2 Project Details 42
6.2.3 Assessment 44
6.2.4 Management of The Project Supply Chain 44
6.3 IMPACTS ON COMMUNITY SECURITY RELATED TO THE PROJECT SECURITY FORCES 45
6.3.1 Baseline Context 45
6.3.2 Project Details 45
6.3.3 Assessment 46
6.3.4 Management of Community Security Associated with the Project Security Forces 47
6.4 GENDER-RELATED CONCERNS RELATED TO PROJECT LABOUR INFLUX 48
6.4.1 Baseline Context 48
6.4.2 Project Details 49
6.4.3 Assessment 50
6.4.4 Management of Gender-Related Human Rights Impacts 51
6.5 ACCESS TO REMEDY 53
6.5.1 Baseline Context 53
6.5.2 Project Details 54
6.5.3 Assessment 54
6.5.4 Management of the Project Grievance Mechanism 56

7. MONITORING AND REPORTING 58
7.1 MONITORING 58
7.2 REPORTING 59

APPENDIX B-1 POTENTIAL HUMAN RIGHTS IMPACTS SCREENING AND SCOPING RESULT

LIST OF TABLES

TABLE 2-1 COMMUNITIES WITHIN THE PROJECT'S SOCIOECONOMIC AOI 3
TABLE 2-2 PROJECT COMPONENTS 5
TABLE 3-1 HUMAN RIGHTS IMPACTS SCREENED IN, BY LEAD STUDY 10
TABLE 4-1 APPLICABLE LENDER STANDARDS FOR UNDERTAKING HRIA 12
TABLE 4-2 CORE INTERNATIONAL AND REGIONAL HUMAN RIGHTS INSTRUMENTS 14
TABLE 4-3 ILO FUNDAMENTAL CONVENTIONS 15
TABLE 4-4 PRINCIPAL GAPS BETWEEN MOROCCAN LAW/PRACTICE AND INTERNATIONAL STANDARDS 17

TABLE 6-1	PROJECT WORKFORCE COMPOSITIONS	34

LIST OF FIGURES

FIGURE 2-1	PROJECT LOCATION AND NEARBY COMMUNITIES	4
FIGURE 6-1	PROJECT WORKFORCE COMPOSITIONS	35
FIGURE 6-2	EPC WORKERS' CAMP LOCATIONS	36

ACRONYMS AND ABBREVIATIONS

Acronyms	Description
AIIB	Asian Infrastructure Investment Bank
AoI	Area of Influence
ASM	Artisanal and Small-Scale Mining
BTR	BTR New Material Group Co., Ltd.
CAT	Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment
CED	International Convention for the Protection of All Persons from Enforced Disappearance
CEDAW	Convention on the Elimination of All Forms of Discrimination against Women
CERD	International Convention on the Elimination of All Forms of Racial Discrimination
CESE	Economic, Social and Environmental Council
CH	Critical Habitat
CNDH	National Human Rights Council
CoC	Code of Conduct
CPI	Corruption Perceptions Index
CRC	Convention on the Rights of the Child
CRPD	Convention on the Rights of Persons with Disabilities
CRI	Regional Investment Centre
EPC	Engineering, Procurement and Construction
EP4	Equator Principles 4
ESF	Environmental and Social Framework
ESG	Environmental, Social and Governance
ESIA	Environmental and Social Impact Assessment
FGD	Focus Group Discussion
FPIC	Free, Prior and Informed Consent

Acronyms	Description
GBV	Gender-Based Violence
GBVH	Gender-Based Violence and Harassment
GMO	General Manager Office
GRM	Grievance Redress Mechanism
HCP	High Commission for Planning
HDI	Human Development Index
HRIA	Human Rights Impact Assessment
IAZ	Industrial Acceleration Zone
IBAT	Integrated Biodiversity Assessment Tool
ICCPR	International Covenant on Civil and Political Rights
ICMW	International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families
ICESCR	International Covenant on Economic, Social and Cultural Rights
IFC PS	International Finance Corporation Performance Standards
ILO	International Labour Organisation
ITUC	International Trade Union Confederation
KBA	Key Biodiversity Area
KII	Key Informant Interview
MPI	Multidimensional Poverty Index
NGO	Non-Governmental Organisation
OECD	Organisation for Economic Co-operation and Development
OHS	Occupational Health and Safety
OHSMP	Occupational Health and Safety Management Plan
PPE	Personal Protective Equipment
SEA	Sexual Exploitation and Abuse
SEAH	Sexual Exploitation, Abuse and Harassment
SEP	Stakeholder Engagement Plan
SH	Sexual Harassment
SIA	Social Impact Assessment
SATT	Société d'Aménagement Tanger Tech
SOP	Standard Operating Procedure
STD	Sexually Transmitted Disease

Acronyms	Description
STI	Sexually Transmitted Infection
TB	Tuberculosis
TMSA	Tangier Med Special Agency
TMU	Tangier Med Utilities
TIP	Trafficking in Persons
UDHR	Universal Declaration of Human Rights
UNDP	United Nations Development Programme
UNGPs	United Nations Guiding Principles on Business and Human Rights
UPR	Universal Periodic Review
WGM	Workers' Grievance Mechanism
WJP	World Justice Project
WMP	Worker Management Plan
WHO	World Health Organisation

1. OVERVIEW

1.1 INTRODUCTION

Founded in 2000, BTR New Material Group Co., Ltd. ("BTR" or the "Headquarters") is a globally prominent integrated battery materials solution leader with a well-established product and industry chain layout. Its main products include anode materials, cathode materials, and advanced materials for lithium-ion batteries.

BTR has resolved to establish a lithium-ion battery anode materials manufacturing project (the "Project") located in Phase I of the Industrial Acceleration Zone (IAZ) in Tangier-Assilah, Morocco. BTR Mediterranean Anode New Material Technology, a wholly owned subsidiary of BTR was established (the "Project Company", the "Client" or "BTR Anode") to operate the Project. The main products of the Project is anode material with an annual capacity of 60,000 tonnes. The Project has completed the regulatory Environmental Impact Assessment (the "Regulatory EIA") and obtained the approval by the competent authority in January 2026.

ERM (Shanghai) Limited (hereinafter as "ERM") has been engaged by the Client to undertake a Supplementary Environmental and Social Impact Assessment ("Supplementary ESIA") for the Project. As part of the ESIA process, this Human Rights Impact Assessment ("HRIA") has been prepared to identify, assess and manage actual and potential adverse human rights impacts associated with the Project throughout its construction and operation phases. The HRIA has been developed to support the Client's human rights due diligence obligations under applicable lender requirements and international good practice standards, and to identify appropriate mitigation measures to avoid, minimise and address adverse human rights impacts associated with the Project.

This assessment focuses on the rights set out in internationally recognised human rights instruments, including the International Bill of Human Rights and the International Labour Organisation (ILO) Declaration on Fundamental Principles and Rights at Work. The HRIA has been undertaken with reference to the United Nations Guiding Principles on Business and Human Rights (UNGPs), Equator Principles 4 (EP4), International Finance Corporation Performance Standards (IFC PS), Asian Infrastructure Investment Bank Environmental and Social Framework (AIIB ESF), and applicable Moroccan laws and regulations.

1.2 OBJECTIVES

The objectives of this HRIA are to:

- Provide an overview of the Project's human rights operating context;
- Provide a high-level screening of potential human rights risks and potential impacts associated with the Project's operations; and
- Provide strategic recommendations to address gaps in the management of human rights risks.

1.3 LIMITATIONS

The findings presented in this HRIA are accurate and complete only to the extent that the information provided to ERM was itself accurate and complete. ERM did not seek to independently validate the information that was provided by the Client, stakeholders engaged or sourced from publicly available sources.

This HRIA seeks to identify potential human rights risks. While it provides an overview of relevant local regulatory framework, it is not intended to serve as a comprehensive legal review.

Owing to confidentiality considerations, only limited information on the Project's supply chain was made available during the assessment. Accordingly, the HRIA focused on assessing the overarching human rights risks commonly associated with the Project's supply chain and reviewing the effectiveness of the Project's supply chain management framework in identifying, assessing, and managing these risks.

1.4 DOCUMENT STRUCTURE

The remainder of the HRIA report is structured as follows:

- Chapter 2: Project Description
- Chapter 3: Methodology
- Chapter 4: Human Rights Framework
- Chapter 5: Human Rights Baseline
- Chapter 6: Human Rights Impact Assessment and Management
- Chapter 7: Monitoring and Reporting Frameworks

2. PROJECT DESCRIPTION

Founded in 2000, BTR New Material Group Co., Ltd. ("BTR" or the "Headquarters") is a globally prominent integrated battery materials solution leader with a well-established product and industry chain layout. Its main products include anode materials, cathode materials, and advanced materials for lithium-ion batteries.

BTR New Material Group Co., Ltd. has resolved to establish a lithium-ion battery anode materials manufacturing project (the "Project") located in industrial park Cité Mohammed VI Tangier Tech, under Phase I of the Industrial Acceleration Zone (IAZ) in Tangier-Assilah, Morocco. BTR Mediterranean Anode New Material Technology (the "Project Company", the "Client" or "BTR Anode"), a wholly owned subsidiary of BTR was established to operate the Project. The main products of the Project is anode material with an annual capacity of 60,000 tonnes. The Project has completed the regulatory Environmental Impact Assessment (the "Regulatory EIA") and obtained the approval by the competent authority in January 2026.

2.1 PROJECT LOCATION

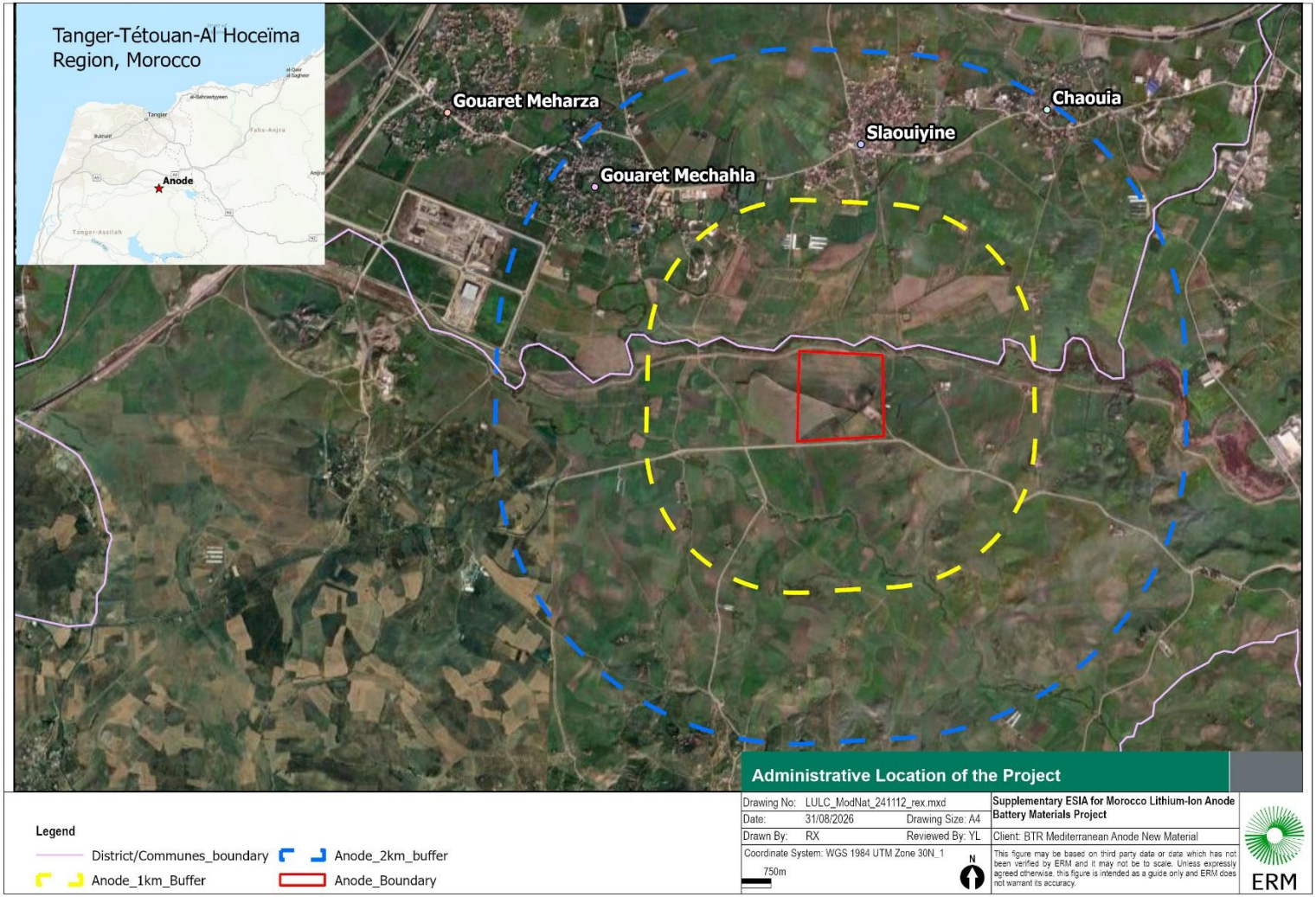
The Project is located within Phase I of the Cité Mohammed VI Tangier Tech, Industrial Acceleration Zone (Zone d'Accélération Industrielle, IAZ), in Tangier-Assilah Prefecture, Tangier-Tétouan-Al Hoceïma Region, Morocco. The Project Site corresponds to Plot No. 59, a serviced vacant land parcel owned by Société d'Aménagement Tangier Tech (SATT). The Project is situated approximately 20 km southeast of city. The location is shown in below in ***Figure*** 2-1.

According to Project screening, the communities included in the Project's socioeconomic Area of Influence (AoI) are presented in the following table:

TABLE 2-1 COMMUNITIES WITHIN THE PROJECT'S SOCIOECONOMIC AOI

Region	Prefecture	Commune	Village
Tangier-Tétouan-Al Hoceïma	Tangier-Assilah	Laaouama Commune	**Slaouiyine**
			Chaouia
			Gouaret Mehara
			Gouaret Mechahla
		Sebt Azzinate Commune	**Bibane**

FIGURE 2-1 PROJECT LOCATION AND NEARBY COMMUNITIES



2.2 PROJECT COMPONENTS

The Project consists of the following sectors as illustrated by ***Table 3-1***.

TABLE 2-2 PROJECT COMPONENTS

Facility Type	Key Components
Production Facilities	Raw Material Workshop
	Coating Workshop
	Granulation Workshop
	Pre-carbonisation Workshop
	Graphitisation Workshop
	Carbonisation Workshop
	Finished Product Workshop
Storage Facilities	Graphite Warehouse
	Packaging Material Warehouse
	Hazardous Waste Storage Area
	LPG Storage Tank
Utilities and Auxiliary Facilities	Substation
	Air Compressor Station
	Nitrogen Generation Station
	Circulating Water Station
	Fire Water Tank and Pump Station
	Wastewater Treatment Station
	Accident Water Pond
	Rainwater Monitoring Pond
	Administrative Building

2.3 PROJECT ACTIVITIES

2.3.1 CONSTRUCTION PHASE

The construction phase primarily includes the following activities:

- Site clearance/exposed surfaces, including topsoil stripping, surface levelling, etc.
- Civil and structural works
- Installation of equipment

The Project construction milestones are listed below:

- Piling and construction: started in May 2025 and scheduled to be completed in October 2026.
- Equipment Installation and Commissioning: started in January 2026 and expected to be completed by December 2026.

During ERM's site visit in August 2026, the Project construction was in the final stage (overall progress at approximately 80%), with site levelling and early works substantially complete and the remaining scope limited to civil and structural finishing, building completion and equipment installation.

2.3.2 OPERATION PHASE

The Project Company plans to commence operation in 2027. The planned and potential unplanned events are as follows:

- Production of artificial graphite anode materials.
- Raw material transport, transfer, handling and storage, exhaust and wastewater treatment, and waste management.
- Routine monitoring and operations, including operation of process control systems, environmental monitoring systems, inspection activities and performance monitoring.
- Preventive maintenance, including routine inspection, maintenance and servicing of production equipment, utilities, environmental protection facilities and safety systems.
- Corrective maintenance, including repairing and replacement of equipment, components and utility systems as required to maintain safe and continuous operation.

Potential unplanned events include:

- Fire and explosion.
- Spills and leaks.

2.4 WORKFORCE REQUIREMENTS

As of the site visit conducted between 10 and 14 August 2026, the Project's construction workforce comprised approximately 850-900 workers, including approximately 750-800 contractor workers and approximately 90-100 direct employees.

Among BTR's direct employees, approximately three quarters were male and one quarter were female. The contractor workforce was also predominantly male, with women primarily employed in management, administration, logistics, occupational health and safety, medical and site-support functions.

Contractor labour accounted for the majority of the workforce during the construction phase, with workers engaged through two EPC contractors and subcontractors. Moroccan nationals accounted for approximately 15-20% of the overall construction workforce.

Given the large non-local workforce, both EPC contractors provide employer-managed accommodation and associated services. Non-local workers are accommodated in dedicated off-site worker camps, with accommodation, meals, transportation, water supply, sanitation and other supporting services provided free of charge. Moroccan workers generally reside in their own homes or rented accommodation in nearby communities and commute to the site, with transportation support provided in some cases.

During the operational phase, the workforce is expected to comprise approximately 1,100-1,150 direct and contracted workers, excluding security personnel. Direct employees are expected to account for the vast majority of the operational workforce, while Moroccan nationals are expected to represent approximately three quarters of the operation workforce. This represents a transition from a construction workforce largely supported by contractor personnel to an operational workforce primarily consisting of locally recruited direct employees.

In terms of security arrangements, less than five outsourced security personnel were deployed at the site during construction. During operation, security services will continue to be outsourced, with approximately 5-10 security personnel expected to provide 24-hour site coverage.

For more detailed workforce arrangements during both phases, refer to ***Section 6.1.2.1*** of this HRIA.

3. METHODOLOGY

This HRIA seeks to assess the potential salient human rights risks associated with the Project. To identify the salient human rights issues, and respect human rights set out in the United Nations Guiding Principles on Business and Human Rights (UNGPs, Principles 17–21), and consistent with the expectation under Equator Principles 4 (Principle 2) that the assessment of a project's adverse human rights impacts be carried out with reference to the UNGPs. In line with that framework, the assessment seeks to identify BTR's actual and potential adverse human rights impacts and, among them, the salient human rights risks — those risks of most severe negative impact on rightsholders so that prevention and mitigation can be prioritised accordingly.

The HRIA follows a five-step process adapted to the Project: (1) a desktop review of BTR's policies, operational information and the relevant context; (2) screening to identify the potentially salient human rights risks (i.e. those that warrant further assessment); (3) establishment of a human rights baseline (Chapter 5); (4) engagements with rightsholders; and (5) the assessment of impacts and the measures needed to prevent, mitigate and/or remediate them (Chapter 6). The assessment distinguishes throughout between current construction and future operations. It is a standalone report but is intended to be read alongside the parallel SIA, which provides the underlying socioeconomic, health and community baseline and is referenced where relevant.

3.1 APPLICABLE STANDARDS

This HRIA is governed by the following standards, which apply throughout the assessment. Specific rights are named within each finding; the international and national legal framework is set out in detail in Chapter 4: *Human Rights Framework*.

- Equator Principles (EP) 4 (2020)
- Guiding Principles on Business and Human Rights: Implementing the United Nations "Protect, Respect and Remedy" Framework (UNGPs, 2011)
- The International Finance Corporation Performance Standards (IFC PS) (2012)
- Asian Infrastructure Investment Bank Environmental and Social Framework (AIIB ESF, 2024)
- BBVA Environmental and Social Framework (April 2026).
- Applicable Moroccan Laws and Regulations

The assessment of human rights risks and impacts has also been informed by relevant international human rights instruments, including the *International Bill of Human Rights* and the *ILO Declaration on Fundamental Principles and Rights at Work (2022)*, which together provide the basis for the rights assessed in this HRIA.

3.2 SCREENING AND SCOPING

Screening is the process used to identify and prioritise the human rights issues that warrant detailed assessment within the HRIA. It is based on whether there is a reasonable link between BTR's activities or business relationships and a potential impact on the enjoyment of a human right, specifically whether that impact is deemed to be salient, when the following criteria are applied.

Issues are prioritised for detailed assessment where there is a plausible pathway through which Project activities could adversely affect rightsholders and where the potential impact is reasonably likely to occur.

Issues are not prioritised for detailed assessment where, after considering the sector context, the Moroccan context, and the nature of BTR's existing and planned activities, the potential impact is assessed not salient, meaning it would be limited in severity and unlikely to occur even in the absence of additional mitigation measures.

Issues are considered separately for the construction and operation phase during screening, as an issue may be of limited relevance to construction phase but material to the operation phase, or vice versa. For topics primarily assessed through the SIA, the relevant SIA findings are reviewed against the HRIA salience criteria before determining whether the issue should be prioritised for detailed assessment.

For the Project's human rights screening and scoping results, refer to ***Appendix A Potential Human Rights Impacts Screening and Scoping Result***

3.3 RIGHTSHOLDER IDENTIFICATION

The following categories of potential rightsholders that may be affected by the Project's outcome and that were identified as the rightsholders under this HRIA.

- BTR direct employees
- Project contractor workers (during both construction and operation phase)
- Project's supply chain workers
- Members of local communities under the Project direct and indirect socio-economic AoI, and those who may interact with the Project, such as with its potential workforce or security forces.
- Vulnerable or marginalised individuals and groups within the workforce and the communities where specific risks may affect them in a disproportionate manner compared to other rightsholders.

For engagement activities conducted with rights holders during the assessment, refer to the Project *Stakeholder Engagement Plan*.

3.4 DIVISION OF THEMES WITH THE SOCIAL IMPACT ASSESSMENT

The SIA and this HRIA are being prepared in parallel for the same Project during both construction and operation phase. The two assessments are complementary and examine the same activities through different analytical lenses.

The SIA primarily assesses changes in socioeconomic, health and environmental conditions affecting workers and communities. The HRIA assesses how those changes, together with BTR's activities and business relationships, may affect the human rights of identifiable rightsholders.

The HRIA leads on themes that principally concern BTR's conduct, and that of its business relationships, towards rightsholders, including labour and working conditions, supply chain impacts, gender equality and gender-based violence, security arrangements, access to information and participation, access to remedy, etc. These issues engage the corporate responsibility to respect human rights and are therefore particularly suited to a rightsholder-centred assessment.

The SIA leads on themes that principally concern changes in social, health and environmental conditions affecting workers and communities, including land acquisition and resettlement, community health, occupational health and safety, public infrastructure and services, vulnerable groups and equal opportunities, and cultural heritage. For these topics, the HRIA does not duplicate SIA's technical analysis. Instead, Chapter 6 assesses the associated human rights implications, drawing on and cross-referencing the relevant SIA findings.

Accordingly, all screened-in issues are considered within the HRIA, either through direct assessment of the issue itself or through assessment of its human rights implications. The allocation of lead responsibility therefore reflects the most appropriate analytical pathway rather than a division of scope. The following table identifies the screened-in issues and the study leading the primary assessment.

TABLE 3-1 HUMAN RIGHTS IMPACTS SCREENED IN, BY LEAD STUDY

Human Rights Impacts Screened In	Lead Study	Section
Labour rights and working conditions of direct, contracted and subcontracted workers	HRIA	6.1
Human rights in the Project supply chain	HRIA	6.2
Human rights impact on right to freedom from discrimination (Focus on gender equality)	HRIA	6.4
Community security rights (Focus on impacts arising from Project security arrangements)	HRIA	6.3
Community security rights (Focus on GBVH/SEA affecting workers and communities)	HRIA	6.4
Access to remedy	HRIA	6.5
Occupational health and safety of direct, contracted and subcontracted workers	SIA	7.2.3
Impacts on community health	SIA	7.2.2
Impacts on equal participation and Project benefits (focus on vulnerable groups)	SIA	Integrated across social impact assessment topics
Impacts on public infrastructure and services	SIA	7.2.4

For a summary of human rights impact screening, scoping and topic distribution between HRIA and SIA, refer to ***Appendix A Potential Human Rights Impacts Screening and Scoping Result***

3.5 IMPACT ASSESSMENT

Each screened-in issue is assessed for severity and likelihood, producing a salience rating of Low, Moderate or Major that determines how the issue is prioritised for prevention and mitigation.

3.5.1 SEVERITY

Severity is rated Low, Medium or High based on scale (the seriousness of the impact for the rightsholder, including vulnerability), scope (the number of rightsholders affected), and irremediability (the degree to which the harm can be undone).

Low: The risk is temporary and minimal, it leads to impacts that result in little or no change in standard of living and/or the health of the affected rightsholders; affects small numbers

of rightsholders, such as a proportion of the workforce or community members; provision of remediation is easy to implement and is deemed to return the affected rightsholders to their initial condition.

Medium: The risk leads to impacts that infringe upon human rights by denying access to or affecting resources needed for basic life necessities (livelihoods, education, health); affects a larger group of stakeholders and rightsholders within the workforce or the community; provision of remediation requires some capacity development for implementation and/or external resources and may return the affected rightsholders to their initial condition.

High: The risk is major and sustained, it leads to impacts that infringe on human rights through significant reduction in quality of life and/or longevity or through loss of life; affects a high number of stakeholders and rightsholders such as the entire workforce and/or entire communities; provision of remediation lacks capacity of implementation and will be difficult or impossible to return the affected rightsholders to their initial condition.

3.5.2 LIKELIHOOD

Likelihood is rated **Unlikely**, **Possible** or **Likely**, informed by the extent to which the issue is relevant to the sector, arises from the national context, is evidenced by BTR's or comparable operators' experience, and persists after taking account of existing controls and committed mitigation.

3.5.3 SALIENCE

Severity and likelihood combine to give salience. Where there is uncertainty as to severity or likelihood, the precautionary principle applies and a higher salience is assigned.

		Likelihood		
		Unlikely	Possible	Likely
Severity	Low	Low	Low	Moderate
	Medium	Low	Moderate	Major
	High	Moderate	Moderate	Major

4. HUMAN RIGHTS FRAMEWORK

Below is a summary of applicable international standards and guidelines for undertaking the HRIA against lenders' human rights framework and other international or national legal standards.

4.1 APPLICABLE LENDER STANDARDS FOR UNDERTAKING HRIA

TABLE 4-1 APPLICABLE LENDER STANDARDS FOR UNDERTAKING HRIA

Standards/Guidelines	Applicable provisions
Equator Principles (EP) 4 (2020)	Principle 2: Environmental and Social Assessment For Category A and, as appropriate, Category B Projects[1], the Assessment Documentation includes an Environmental and Social Impact Assessment (ESIA). One or more specialist studies may also need to be undertaken. The client is expected to include assessments of potential adverse human rights impacts risks as part of the ESIA or other assessment. The client should refer to the UNGPs (Guiding Principles on Business and Human Rights: Implementing the United Nations "Protect, Respect and Remedy" Framework), particularly paragraphs 17–21, when assessing human rights risks and impacts.
Guiding Principles on Business and Human Rights: Implementing the United Nations "Protect, Respect and Remedy" Framework (UNGPs, 2011)	Paragraphs 17-21 of the UNGPs introduces the responsibility of business enterprises to respect human rights. In order to identify, prevent, mitigate and account for how they address their adverse human rights impacts, business enterprises should carry out human rights due diligence. The process should include assessing actual and potential human rights impacts, integrating and acting upon the findings, tracking responses, and communicating how impacts are addressed.
The International Finance Corporation Performance Standards (IFC PS) (2012)	Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts suggests complementing the environmental and social risk and impact identification process with specific human rights assessment in limited high-risk circumstances. It requires business to respect human rights, which means to avoid infringing on the human rights of others and address adverse human rights impacts business may cause or contribute to. Each of the Performance Standards has elements related to human rights dimensions that a project may face in the course of its operations. Due diligence against these Performance Standards will enable the client to address many relevant human rights issues in its project. For example, Performance Standard 2: Labour and Working Conditions defines certain requirements on labour issues, including Working

[1] According to Principle 1: Review and Categorisation of EP4, Projects of Category A are those with potential significant adverse environmental and social risks and/or impacts that are diverse, irreversible or unprecedented, while Category B Projects are those with potential limited adverse environmental and social risks and/or impacts that are few in number, generally site-specific, largely reversible and readily addressed through mitigation measures.

Standards/Guidelines	Applicable provisions
	Conditions and Terms of Employment, Worker's Organisations, Non-discrimination and Equal Opportunity, Retrenchment, Grievance Mechanism, Child Labour, Forced Labour, and Occupational health and Safety. This standard applies to workers directly engaged by the client, workers engaged through third parties, as well as workers engaged by the client's primary suppliers. In addition, one of the objectives of Performance Standard 4: Community Health, Safety, and Security is to ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimises risks to the affected communities.
ILO Declaration on Fundamental Principles and Rights at Work (2022)	The ILO Governing Body had initially identified eight "fundamental" Conventions, covering subjects that were considered to be fundamental principles and rights at work: freedom of association and the effective recognition of the right to collective bargaining; the elimination of all forms of forced or compulsory labour; the effective abolition of child labour; and the elimination of discrimination in respect of employment and occupation. The eleven fundamental instruments are: • Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87); • Right to Organise and Collective Bargaining Convention, 1949 (No. 98); • Forced Labour Convention, 1930 (No. 29); • Abolition of Forced Labour Convention, 1957 (No. 105); • Minimum Age Convention, 1973 (No. 138); • Worst Forms of Child Labour Convention, 1999 (No. 182); • Equal Remuneration Convention, 1951 (No. 100); • Discrimination (Employment and Occupation) Convention, 1958 (No. 111); • Occupational Safety and Health Convention, 1981 (No. 155); and • Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187).
Asian Infrastructure Investment Bank Environmental and Social Framework (AIIB ESF, 2024)	ESS1 requires the identification and management of environmental and social risks and impacts, including labour and working conditions, community health and safety, stakeholder engagement, grievance mechanisms, vulnerable groups, non-discrimination and gender considerations. ESS2 establishes requirements for land acquisition, compensation and livelihood restoration. ESS3 provides protections for Indigenous Peoples, including culturally appropriate consultation and FPIC in specified circumstances. Together, these standards provide an important framework for assessing human rights risks and impacts associated with the Project.

4.2 OTHER INTERNATIONAL HUMAN RIGHTS INSTRUMENTS RATIFIED BY MOROCCO

Morocco is party to a broad range of international human rights instruments. At the international level, Morocco has ratified the International Covenant on Civil and Political Rights (ICCPR) and the International Covenant on Economic, Social and Cultural Rights (ICESCR), which together establish fundamental protections relating to civil, political, economic, social and cultural rights. Morocco is also a State Party to the principal thematic human rights conventions, including the International Convention on the Elimination of All Forms of Racial Discrimination (CERD), the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), the Convention against Torture (CAT), the Convention on the Rights of the Child (CRC), the International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families (ICMW), the Convention on the Rights of Persons with Disabilities (CRPD), and the International Convention for the Protection of All Persons from Enforced Disappearance (CED).

TABLE 4-2 CORE INTERNATIONAL AND REGIONAL HUMAN RIGHTS INSTRUMENTS

Instrument	Ratified by Morocco	Relevance to this HRIA
International Covenant on Civil and Political Rights (ICCPR)	Yes (1979)	Protects civil and political rights including life, liberty, security of person, freedom of expression, association, assembly, participation, and access to remedy. Relevant to stakeholder engagement, security arrangements, community relations and grievance processes.
International Covenant on Economic, Social and Cultural Rights (ICESCR)	Yes (1979)	Protects rights relating to work, just and favourable working conditions, health, education, housing, and an adequate standard of living. Relevant to labour conditions, occupational health and safety, livelihoods, and community well-being.
International Convention on the Elimination of All Forms of Racial Discrimination (CERD)	Yes (1970)	Prohibits discrimination based on race, ethnicity, colour, descent or national origin. Relevant to equal treatment of workers, migrant populations, vulnerable groups and minority communities.
Convention on the Elimination of All Forms of Discrimination against Women (CEDAW)	Yes (1993)	Establishes protections against discrimination and promotes gender equality. Relevant to women's employment, equal opportunity, gender-based violence (GBV) risks, and participation in consultation processes.
Convention on the Rights of the Child (CRC)	Yes (1993)	Relevant to child labour prevention, protection of young workers, education, community health and safety, and project impacts on children.
Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment (CAT)	Yes (1993)	Relevant to security personnel conduct, disciplinary practices, treatment of workers, and prevention of abuse or excessive use of force.
Convention on the Rights of Persons with Disabilities (CRPD)	Yes (2009)	Relevant to non-discrimination, workplace accessibility, inclusive engagement and equal access to employment and grievance mechanisms.
International Convention on the Protection of the Rights	Yes (1993)	Relevant to recruitment practices, equal treatment, working conditions, access to remedy,

Instrument	Ratified by Morocco	Relevance to this HRIA
of All Migrant Workers and Members of Their Families (ICMW)		and protection of migrant workers from exploitation and abuse.
African Union Constitutive Act	Member State (Morocco rejoined AU in 2017)	Provides a regional framework promoting human rights, democratic governance, rule of law and sustainable development. Relevant for understanding Morocco's regional human rights commitments.
African Charter on Human and Peoples' Rights	Not Ratified	Although not legally binding on Morocco, the Charter remains an important regional benchmark covering civil, political, economic, social, cultural and collective rights and may provide useful contextual reference for the HRIA.

4.3 FUNDAMENTAL ILO CONVENTIONS

The ILO's fundamental Conventions cover the four categories of fundamental principles and rights at work: freedom of association and collective bargaining, the elimination of forced labour, the abolition of child labour, and the elimination of discrimination in employment, as well as occupational safety and health. Morocco has partially ratified these core conventions apart from the C87 and C155. This may indicate potential gaps between the Moroccan legal framework and internationally recognised labour standards, particularly in relation to workers' ability to establish and join organisations of their choosing without restriction and the adoption of a comprehensive OSH management framework consistent with international best practice. Accordingly, these issues remain relevant considerations for assessing the Project's alignment with international human rights and labour standards.

TABLE 4-3 ILO FUNDAMENTAL CONVENTIONS

Convention	Subject	Ratified by Morocco
C29 & C105	Forced and compulsory labour	Ratified
C87	Protects workers' rights to establish and join organisations of their own choosing without interference.	Not Ratified
C98	Protects workers against anti-union discrimination and promotes collective bargaining.	Ratified
C100 & C111	Equal remuneration; non-discrimination in employment	Ratified
C138 & C182	Minimum age; worst forms of child labour	Ratified
C155	Establishes a national framework for the prevention of occupational accidents and work-related illnesses. (OHS is assessed in the ESIA; see Section 7.3.3)	Not Ratified
C187	Promotes continuous improvement of national occupational safety and health systems and performance.	Ratified

4.4 MOROCCAN NATIONAL LEGAL FRAMEWORK

The Constitution of the Kingdom of Morocco (2011) guarantees a broad range of civil, political, economic, social and cultural rights. The Constitution also provides that duly ratified international treaties take precedence over domestic legislation, subject to conformity with the Constitution and national law. Together, these constitutional provisions establish the overarching framework for the protection of human rights in Morocco.

- **Labour Code (Law No. 65-99)** governs employment contracts, working hours and overtime, wages, leave and rest periods, termination, collective labour relations, and the recruitment of workers through temporary employment agencies; it is the principal legal instrument for the labour and working conditions assessment.
- **Constitution of Morocco (2011), Articles 19 and 31**, together with **the Labour Code**, prohibit discrimination and establish principles of equality in employment and access to social and economic rights.
- **Law No. 103-13 on Combating Violence against Women** establishes protections against gender-based violence, sexual harassment and other forms of abuse, and is relevant to the gender, GBV and workplace conduct assessment.
- **Labour Code (Law No. 65-99)** contains Morocco's principal occupational health and safety requirements, including employer duties relating to workplace safety, accident prevention and worker protection; *occupational health impacts are assessed in greater detail through the SIA*.
- **Constitution of Morocco (2011)** and **Organic Law No. 97.15 on the Right to Strike** govern freedom of association, trade union activities, collective bargaining and industrial action.
- **The Constitution of Morocco (2011)** recognises Morocco's cultural and linguistic diversity, including Amazigh as an official language, and provides the constitutional basis for protection of minority identities, language rights and cultural heritage.
- Relevant provisions of the **Labour Code (Articles 516-521)** govern residence permits, work authorisations and the employment of foreign nationals, and are therefore directly relevant to the migrant worker assessment.
- **Framework Law No. 11-03 on the Protection and Enhancement of the Environment**, together with related environmental legislation, provides the legal basis for environmental protection, pollution control and environmental impact assessment, and is relevant to the right to health and community-environment dimensions assessed through the SIA.

4.5 GAPS BETWEEN MOROCCAN LAW AND INTERNATIONAL STANDARDS

Morocco has ratified most of the core international human rights treaties and has established a relatively comprehensive legal framework governing labour rights, non-discrimination, occupational health and safety, migrant workers, and environmental protection. However, several gaps remain between Moroccan law and international standards, particularly in relation to freedom of association, occupational health and safety, business and human rights due diligence, and the implementation of labour protections in practice. These gaps do not necessarily indicate non-compliance by the Project but provide the basis for assessing project

performance against international standards and lender expectations, including the UNGPs, EP4, IFC Performance Standards, and relevant ILO Conventions.

TABLE 4-4 PRINCIPAL GAPS BETWEEN MOROCCAN LAW/PRACTICE AND INTERNATIONAL STANDARDS

Right / Theme	International Standard	Gap in Law or Practice
Labour Rights and Working Conditions (Freedom of Association)	ICCPR; ILO Convention C87; IFC PS2	Morocco has ratified ILO Convention C98 but has not ratified Convention C87 on Freedom of Association. Restrictions and practical barriers to trade union activities have also been raised by international observers.
Labour Rights and Working Conditions (Occupational Health and Safety)	ICESCR; ILO Convention C155; IFC PS2	Morocco has not ratified ILO Convention C155, although domestic OHS requirements are established through the Labour Code and related regulations.
Labour Rights and Working Conditions (Migrant Workers)	ICMW; IFC PS2	Morocco has ratified the ICMW, providing a relatively strong legal framework for migrant workers; however, implementation and recruitment practices may vary across sectors.
Human Rights Due Diligence	UNGPs; OECD Guidelines for Multinational Enterprises	Moroccan legislation does not impose comprehensive human rights due diligence requirements equivalent to the UNGPs or OECD Guidelines.
Human rights in the Project supply chain	OECD Guidelines; UNGPs	Moroccan law focuses primarily on direct employment relationships and provides limited requirements regarding human rights risks in upstream supply chains.
Human rights impact on right to freedom from discrimination (Focus on gender equality) Community security rights (Focus on GBVH/SEA affecting workers and communities)	CEDAW; IFC PS2 and PS4	Morocco has adopted legal protections, including Law 103-13 on violence against women; however, workplace harassment and gender-related barriers may persist in practice.
Stakeholder Engagement	UNGPs; IFC PS1	Moroccan legislation requires public consultation and disclosure in specified regulatory processes, including environmental impact assessment procedures. However, it does not generally require the preparation and implementation of a project-wide Stakeholder Engagement Plan (SEP), ongoing stakeholder engagement throughout the project lifecycle, or project-level grievance mechanisms consistent with IFC PS1.
Access to Remedy	UNGPs Principle 29-31; IFC PS1 and PS2	While legal complaint mechanisms exist, Moroccan law does not require operational-level grievance mechanisms meeting UNGP effectiveness criteria.

5. HUMAN RIGHTS BASELINE

This chapter describes the conditions in which rightsholders in Tangier-Assilah live and work — the existing situation against which the Project impacts are later assessed in Chapter 6. It draws substantially on the SIA baseline and is presented thematically, organised around the rights and rightsholder groups assessed in this HRIA, so that each impact in Chapter 7 can be read against the corresponding starting condition. The country-level legal framework is set out in Chapter 3 and is not repeated here.

Globally recognised indices can be used to assess the state or nature of a country's human rights risks. The following indices provide an indication of the human rights situation in Morocco, and are summarised as follows:

- **Labour Rights Index (LRI):** According to the Labour Rights Index 2024, which covers 145 economies and assesses labour protections throughout the employment lifecycle, Morocco received an overall score of 77 out of 100, the highest score among countries in the Middle East and North Africa (MENA) region.[2] Morocco performs relatively well in areas such as working hours, employment security, social security, and child and forced labour protections. However, lower scores were recorded in relation to freedom of association, collective bargaining, family responsibilities, and fair treatment in employment, reflecting ongoing challenges in the effective realization of certain labour rights.[3]
- **Corruption Perception Index (CPI):** According to Transparency International's Corruption Perceptions Index 2024, Morocco received a score of 37 out of 100 and ranked 99th out of 180 countries and territories. The index uses a scale from 0 ("highly corrupt") to 100 ("very clean"). Morocco's score declined by one point compared to the previous year and continues a broader downward trend observed since 2018.[4] While the Government has implemented anti-corruption measures and institutional reforms, corruption remains a significant governance challenge affecting public trust and service delivery.[5]
- **Trafficking in Persons (TIP) Report:** According to the 2025 U.S. Department of State Trafficking in Persons Report, Morocco is classified as a Tier 2 country.[6] This indicates that the Government of Morocco does not fully meet the minimum standards for the elimination of trafficking but is making significant efforts to do so. Recent efforts include increased investigations and prosecutions of trafficking crimes, improved victim identification measures, and the establishment of specialist support services and shelters. Nevertheless, challenges remain regarding the consistent identification and referral of trafficking victims, protection of vulnerable migrant populations, and the resourcing of national anti-trafficking

[2] Centre for Labour Research (CLR). (2024). *Labour Rights Index 2024: Morocco profile*. https://clr.org.pk/labour-rights-index/2024/Morocco
[3] Centre for Labour Research (CLR). (2024). *Morocco: Freedom of association indicator, Labour Rights Index 2024*. https://clr.org.pk/tudb-2024/morocco/
[4] Transparency Maroc. (2025). *Press release on the Corruption Perceptions Index 2024: Morocco continues to struggle with systemic corruption*. https://transparencymaroc.ma/wp-content/uploads/2025/07/Press-Release-TM-Corruption-Perceptions-Index-for-2024.pdf
[5] Transparency International. (2025). *Corruption Perceptions Index 2024*. https://www.transparency.org/en/cpi/2024
[6] U.S. Department of State. (2025). *2025 Trafficking in Persons Report: Morocco*. Office to Monitor and Combat Trafficking in Persons. https://www.state.gov/reports/2025-trafficking-in-persons-report/morocco/

institutions. Morocco remains both a destination and transit country for migrants vulnerable to labour and sexual exploitation.[7]

- **Human Development Index (HDI):** the Human Development Index (HDI) is a composite measure of life expectancy, education, and income. Morocco's HDI value for 2023 was 0.710, placing the country in the High Human Development category and ranking it 120th out of 193 countries and territories.[8] Morocco's ranking improved compared with previous years, reflecting gradual progress in education, health outcomes, and economic development. However, significant disparities persist between urban and rural populations, as well as across gender and socioeconomic groups.
- **Free House Ranking:** In Freedom House's Freedom in the World 2024 assessment, Morocco received a score of 37 out of 100 and was classified as "Partly Free."[9] The report notes that while Morocco holds regular multiparty elections and maintains a degree of political pluralism, political power remains highly centralized around the monarchy. Constraints on freedom of expression, association, assembly, and media freedoms continue to be reported by international observers.
- **Global Gender Gap Index (GGGI):** The World Economic Forum's Global Gender Gap Index measures gender-based disparities across four dimensions: economic participation and opportunity, educational attainment, health and survival, and political empowerment. Morocco continues to rank among the lower-performing countries globally, reflecting persistent gender disparities in labour force participation, income levels, political representation, and economic opportunity.[10] While improvements have been made in girls' access to education and legal protections for women, challenges remain regarding women's economic participation, representation in decision-making positions, and protection from gender-based violence. These issues are particularly relevant to employment-related human rights risks and community-level gender impacts associated with large-scale development projects.
- **World Justice Project (WJP) Rule of Law Index:** The WJP Rule of Law Index evaluates countries across factors including constraints on government powers, absence of corruption, open government, fundamental rights, order and security, regulatory enforcement, civil justice, and criminal justice. Morocco's performance reflects ongoing efforts to strengthen governance and judicial institutions, while continuing challenges remain in relation to judicial independence, civic freedoms, regulatory enforcement, and access to effective remedies.[11] From a human rights perspective, these factors are relevant because they influence the extent to which affected stakeholders can access information, participate in decision-making processes, raise grievances, and seek redress when rights are adversely affected by public or private sector activities.

[7] Ibid.
[8] United Nations Development Programme (UNDP). (2025). *Human development data center: Morocco*. https://data.undp.org/countries-and-territories/MAR
[9] Freedom House. (2024). *Freedom in the World 2024: Morocco*. https://freedomhouse.org/country/morocco/freedom-world/2024
[10] World Economic Forum. (2025). *Global Gender Gap Report 2025*. Geneva: World Economic Forum. https://www.weforum.org/reports/global-gender-gap-report-2025
[11] World Justice Project. (2025). *Rule of Law Index 2025: Morocco*. Washington, DC: World Justice Project. https://worldjusticeproject.org/rule-of-law-index

- **Universal Periodic Review (UPR):** Morocco underwent its Fourth Cycle Universal Periodic Review (UPR) before the UN Human Rights Council in November 2022.[12] During the review, Morocco received recommendations covering a range of issues, including freedom of expression and association, gender equality, violence against women, labour rights, migrant rights, trafficking, disability inclusion, judicial independence, and access to education and healthcare. The review acknowledged progress in areas such as institutional human rights reforms and women's political participation, while identifying continuing challenges regarding civil liberties, discrimination, and vulnerable groups.

5.1 LABOUR PRACTICES

5.1.1 CHILD LABOUR

Child labour has declined significantly in Morocco over the past decade, but it remains present, particularly in rural areas and the informal economy. Government data indicate that children continue to work in agriculture, domestic service, artisanal workshops, small-scale manufacturing, repair services, and other informal sectors. International assessments have identified the worst forms of child labour in Morocco, including commercial sexual exploitation, forced domestic work, forced begging, and forced labour in sectors such as construction, mechanics, artisanal production, and textiles. Although Morocco has strengthened labour inspections and adopted a national roadmap to eliminate child labour by 2030, barriers to education, poverty, and rural economic vulnerabilities continue to contribute to child labour risks. These risks are particularly relevant in relation to agricultural production, contractors, informal suppliers, and lower-tier supply chains.[13]

According to Morocco's High Commission for Planning (HCP), approximately 101,000 children aged 7-17 years were engaged in economic activity in 2024, representing 1.3% of all children in this age group. Although this reflects a reduction of nearly 60% compared with 2017, child labour remains concentrated in rural areas, where the prevalence rate (2.5%) is five times higher than in urban areas (0.5%). Approximately 77% of working children live in rural areas, 85% are boys, and almost 90% are aged 15-17 years.[14]

The nature of child labour also raises significant health and safety concerns. HCP estimates indicate that approximately 62,000 children were engaged in hazardous work in 2024, representing around 62% of all working children.[15] Hazardous child labour is particularly prevalent in agriculture, construction, manufacturing, repair services, and other informal-sector activities where children may be exposed to dangerous machinery, chemicals, excessive physical demands, or unsafe working conditions. More than 87% of working children are no longer attending school, illustrating the close relationship between child labour, educational exclusion, and poverty.[16]

[12] United Nations Human Rights Council. (2023). *Report of the Working Group on the Universal Periodic Review: Morocco (Fourth Cycle)*. United Nations. https://undocs.org
[13] U.S. Department of Labour. (2025). *2024 findings on the worst forms of child labour: Morocco*. Bureau of International Labour Affairs. https://www.dol.gov/agencies/ilab/resources/reports/child-labour/morocco
[14] High Commission for Planning (HCP). (2025). *National Employment Survey 2024: Child labour indicators* (as reported by Hespress). Hespress. https://en.hespress.com/113551-over-62000-moroccan-children-still-in-hazardous-work-national-report-finds.html
[15] Ibid.
[16] Ibid.

At a Project level, interviews with Moroccan and Chinese workers employed on the BTR construction site, including workers employed by contractors and subcontractors, consistently indicated that workers under the age of 18 were not present on site. Worker interviews further indicated that identity documentation was checked as part of recruitment procedures. Similarly, community members participating in focus group discussions (FGDs) in Gouaret, Slaouiyine, Chaouia and Bibane did not identify child labour associated with the Project or existing construction activities.

5.1.2 FORCED LABOUR

Morocco is currently classified as a Tier 2 country in the U.S. Department of State's Trafficking in Persons Report, indicating that the government is making efforts to combat trafficking but does not yet fully meet minimum international standards.[17] The Global Slavery Index 2023 estimated that approximately 490,000 people in Morocco were living in conditions of modern slavery in 2021, equivalent to approximately 12.9 victims per 1,000 population.[18] Vulnerable groups include migrant workers, undocumented migrants, women working in domestic service, and informal-sector workers. Morocco serves as both a destination and transit country for migrants from Sub-Saharan Africa, some of whom face elevated risks of labour exploitation, debt bondage, withholding of wages, restrictions on movement, and human trafficking. Morocco has strengthened its legal and institutional framework to address trafficking in persons, including implementation of *Law No. 27-14 on Combating Trafficking in Human Beings* and continued efforts under the *National Strategy on Immigration and Asylum*.[19] Nevertheless, international observers continue to identify challenges relating to victim identification, prosecution outcomes, access to support services, and labour inspection coverage within informal sectors. Consequently, risks of forced labour and trafficking remain most relevant for vulnerable worker populations and supply chain actors operating outside formal employment arrangements.

5.1.3 OCCUPATIONAL HEALTH AND SAFETY (OHS)

Occupational health and safety remains an important labour rights concern in Morocco, particularly in construction, manufacturing, mining, agriculture, and logistics sectors. While Moroccan labour legislation establishes OHS obligations for employers and labour inspection mechanisms, workplace accidents continue to occur, often associated with subcontracting arrangements, informal employment, insufficient training, and inconsistent implementation of safety measures.[20] International organisations have identified the need for continued improvements in workplace safety management, worker training, labour inspection capacity, and protection of vulnerable workers. Recent estimates indicate that approximately 45,000 occupational accidents are reported annually in Morocco, resulting in around 2,000 work-

[17] U.S. Department of State. (2025). *2025 trafficking in persons report: Morocco*. Office to Monitor and Combat Trafficking in Persons. https://www.state.gov/reports/2025-trafficking-in-persons-report/morocco/
[18] Walk Free. (2023). *Global slavery index 2023*. Walk Free Foundation. https://www.walkfree.org/global-slavery-index/
[19] U.S. Department of State. (2025). *2025 trafficking in persons report: Morocco*. Office to Monitor and Combat Trafficking in Persons. https://www.state.gov/reports/2025-trafficking-in-persons-report/morocco/
[20] International Labour Organisation. (2026). *Promoting safe and healthy workplaces in the Southern Mediterranean*. https://www.ilo.org

related fatalities each year, including fatalities associated with occupational diseases.[21] The economic cost of occupational accidents and diseases has been estimated at approximately 4.5% of GDP,[22] highlighting the broader social and economic implications of inadequate workplace safety management. National stakeholders continue to identify gaps in OHS implementation and oversight. Morocco's Economic, Social and Environmental Council (CESE) has reported that only 17% of companies maintain a health and safety committee, while occupational health services remain limited across many sectors.[23] The CESE has also noted weaknesses in safety culture, labour inspection effectiveness, and preventive risk management, prompting ongoing discussions regarding institutional reforms and strengthened national OHS governance arrangements.

As industrial development and infrastructure investment continue to expand, compliance with OHS requirements remains a key consideration for employers operating in higher-risk sectors.[24] From a sector-specific perspective, the most significant OHS risks are expected to be associated with exposure to graphite and petroleum coke dust during raw material handling, conveying, milling, and product processing activities. Prolonged exposure to respirable graphite dust may lead to respiratory irritation, decreased pulmonary function, and chronic lung disease.[25]

Additional OHS risks are associated with the high-temperature carbonisation and graphitisation processes. Potential hazards include thermal burns, heat stress, exposure to process emissions and volatile compounds, and fire incidents resulting from process upsets.[26] The handling of combustible carbonaceous materials, including graphite dust, petroleum coke and pitch, may also create fire and dust explosion hazards where combustible dust accumulates and suitable ignition sources are present. (For details on fire and explosion risks, see the ***Unplanned Events***)

The Project is also expected to involve high-powered electrical systems and furnace equipment that may present risks of electric shock, arc flash, and equipment-related injuries. In addition, use of inert gases (e.g., nitrogen or argon) during graphitisation processes may create oxygen-deficient atmospheres in confined or poorly ventilated areas, resulting in potential asphyxiation hazards.[27]

---

[21] International Labour Organisation (ILO). (2026). *Morocco country profile*. International Labour Organisation. https://www.ilo.org/regions-and-countries/africa/morocco

[22] Organisation Démocratique du Travail (ODT), as reported by Morocco World News. (2024, April 29). *Morocco's concerning toll: Over 2,000 lives lost annually to workplace accidents and occupational diseases*. Morocco World News. https://en.walaw.press/articles/morocco_s_concerning_toll_over_2000_lives_lost_annually_to_workplace_accidents_and_occupational_diseases/GLFSMMQFGGXG

[23] Conseil Économique, Social et Environnemental (CESE). (2024). *Health and safety at work: An important source of support for economic and social development* (English summary). Kingdom of Morocco. https://www.cese.ma/en/docs/sante-et-securite-au-travail-un-appui-essentiel-au-developpement-economique-et-social/

[24] Centre for Labour Research. (2024). *Labour Rights Index 2024: Morocco profile*. https://clr.org.pk/labour-rights-index/2024/Morocco

[25] Centers for Disease Control and Prevention (CDC). (2019a). *NIOSH pocket guide to chemical hazards: Graphite (synthetic)*. National Institute for Occupational Safety and Health. https://www.cdc.gov/niosh/npg/npgd0307.html

[26] Occupational Safety and Health Administration (OSHA). (n.d.). *Coal tar pitch volatiles: Hazard recognition*. U.S. Department of Labor. https://www.osha.gov/coal-tar-pitch-volatiles/hazards

[27] Carbolite Gero. (n.d.). *Graphitisation furnaces*. Retrieved 3 September 2026, from https://www.carbolite.com/products/graphitisation-furnace/

Effective industrial hygiene monitoring, hazardous materials management, emergency preparedness and response, and contractor management are therefore particularly important for anode battery materials manufacturing facilities.

For OHS risks, existing controls and mitigation measures of the Project, refer to ***Section 7.3.3*** of ***ESIA.***

5.1.4 FREEDOM OF ASSOCIATION AND THE RIGHT TO COLLECTIVE BARGAINING

Freedom of association and collective bargaining rights are recognised under Moroccan law; however, international assessments continue to identify practical challenges in the effective exercise of these rights. Morocco has ratified ILO Convention No. 98 on collective bargaining but has not ratified Convention No. 87 on freedom of association.[28] Trade union density and collective bargaining coverage remain relatively low, while labour organisations and international observers have reported constraints affecting union activities, collective bargaining processes, and strike actions in certain sectors. According to the International Trade Union Confederation (ITUC) Global Rights Index 2025, Morocco received a rating of 4 out of 5, indicating systematic violations of workers' rights. Under the ITUC methodology, a rating of 4 signifies that workers have reported serious and recurring infringements of rights, including restrictions on freedom of association, collective bargaining, and the right to strike. The rating suggests that although labour rights protections exist in law, workers may face significant challenges in exercising these rights in practice.[29] These issues are particularly relevant for large projects employing significant numbers of workers through contractors and subcontractors, where worker representation and engagement mechanisms play an important role in preventing labour disputes and ensuring access to remedy.[30]

During the site-visit, BTR's employee representation is currently facilitated through elected personnel delegates, which is the more common practice in Morocco. The Project is planning to conduct delegate elections by the end of the year as its workforce expands. In the absence of a trade union presence, these elected delegates act as the primary channel for worker representation and dialogue with management. In addition, interviews with workers further indicated that their concerns or needs are typically raised through supervisors, line managers or direct workplace discussions.

5.1.5 DISCRIMINATION AND HARASSMENT

Morocco has made progress in strengthening legal protections against discrimination and promoting equal access to employment and public services. However, international assessments continue to identify unequal labour market outcomes, barriers to economic participation, and underrepresentation of vulnerable groups in leadership and decision-making positions.

Gender inequality remains a notable challenge in Morocco's labour market. The World Economic Forum's Global Gender Gap Report 2025 ranked Morocco 137th out of 148 countries

[28] Centre for Labour Research. (2024). *Morocco freedom of association indicator: Labour Rights Index 2024*. https://clr.org.pk/tudb-2024/morocco/
[29] International Trade Union Confederation. (2025). *2025 ITUC Global Rights Index: The world's worst countries for workers*. Brussels, Belgium: International Trade Union Confederation. https://www.ituc-csi.org/global-rights-index-2025-28814
[30] International Labour Organisation. (2026). *NORMLEX country profile: Morocco*. https://www.ilo.org

globally, with particularly low performance in the category of economic participation and opportunity (143rd).[31] Female labour force participation in Morocco remains among the lowest globally, estimated at approximately 19.7% in 2025, compared with 68.1% for men, reflecting a gender participation gap of nearly 48 percentage points.[32] Women also account for only approximately 22.4% of the total labour force, demonstrating continued underrepresentation in economic activity.[33]

Women continue to experience lower labour force participation rates and are underrepresented in senior leadership and decision-making positions.[34] Reports also indicate ongoing concerns related to workplace harassment, gender stereotypes, and unequal economic opportunities. These disparities may increase vulnerability to adverse human rights impacts, particularly among low-skilled workers, women, persons with disabilities, and migrant populations.[35]

At a Project level, Moroccan workers employed by contractors and subcontractors consistently indicated no reported discrimination on the basis of nationality, religion, ethnicity or trade union membership. While language and cultural differences exist between Chinese and Moroccan workers, workers reported generally positive working relationships, no evidence of discrimination, harassment, unequal treatment, or workplace conflict based on nationality, gender, ethnicity, religion, was identified during the workers' FGDs.

5.2 SUPPLY CHAIN

The most material human rights risks associated with the Project's upstream petroleum coke supply chains are occupational health and safety impacts arising from petroleum refining, delayed coking, petroleum coke handling and calcination operations. Workers may face exposure to catastrophic process safety incidents, fires, explosions, hazardous chemicals, combustible dust and respiratory hazards associated with petroleum coke handling.[36] Recent incidents, including the 2023 Marathon Martinez refinery fire investigated by the U.S. Chemical Safety Board, demonstrate the severe consequences of deficiencies in process safety management and contractor protection.[37] While direct child labour risks are generally limited in highly industrialized petroleum coke production, forced labour and labour rights concerns may arise through migrant labour and contractor workforces, particularly in high-risk jurisdictions.[38]

[31] World Bank. (2026). *Morocco gender data portal*. World Bank. https://genderdata.worldbank.org/en/economies/morocco
[32] World Bank. (2026). *Labour force, female (% of total labour force) - Morocco*. World Development Indicators. https://data.worldbank.org/indicator/SL.TLF.TOTL.FE.ZS?locations=MA
[33] World Economic Forum. (2025). *Global gender gap report 2025*. World Economic Forum. https://www.weforum.org/publications/global-gender-gap-report-2025/
[34] United Nations Committee on the Elimination of Discrimination against Women. (2022). *Concluding observations on the fifth periodic report of Morocco (CEDAW/C/MAR/CO/5)*. United Nations. https://tbinternet.ohchr.org
[35] *Human development data center: Morocco*. https://data.undp.org/countries-and-territories/MAR World Economic Forum. (2025).
[36] International Labour Organisation (ILO). (2015). *Occupational safety and health in the oil and gas production and oil refining sector*. Geneva, Switzerland: International Labour Organisation. https
[37] U.S. Chemical Safety and Hazard Investigation Board. (2025, March 13). *Final report: Fire at the Marathon Martinez Renewables facility, Martinez, California*. U.S. Chemical Safety and Hazard Investigation Board. https://www.csb.gov/us-chemical-safety-board-issues-final-report-/
[38] International Labour Organisation (ILO). (2019). *Ending child labour, forced labour and human trafficking in global supply chains*. Geneva, Switzerland: International Labour Organisation. https://www.ilo.org/publications/ending-child-labour-forced-labour-and-human-trafficking-global-supply

5.3 VULNERABLE GROUPS

While Moroccan legislation does not establish a single overarching legal definition of "vulnerable groups", the Constitution and sector-specific laws provide particular protections for certain population groups, including women, children, persons with disabilities, and older persons. In addition, national social protection and poverty reduction programmes target economically disadvantaged households and other populations at heightened risk of social exclusion. According to data published by Morocco's High Commission for Planning (HCP), poverty and socioeconomic vulnerability continue to affect segments of the population despite significant improvements over the past decade. HCP data indicate that the multidimensional poverty rate declined from 11.9% in 2014 to 6.8% in 2024, while approximately 8.1% of the population remained vulnerable to poverty.[39] According to the 2024 Global Multidimensional Poverty Index published by UNDP and the Oxford Poverty and Human Development Initiative, Morocco recorded an MPI value of 0.027, with 6.4% of the population classified as multidimensionally poor and a further 42.0% considered vulnerable to multidimensional poverty.[40] The data also demonstrate significant disparities between urban and rural areas: while multidimensional poverty affects only 1.4% of the urban population, the rate increases to 14.3% in rural areas.[41] These findings indicate that socioeconomic vulnerabilities and unequal access to opportunities remain material, particularly in rural communities in Morocco. Detailed and more comprehensive socioeconomic indicators and vulnerability statistics relevant to the Project are presented in ***Section 5.2.3.2*** of ***ESIA***.

From a human rights perspective, Morocco's expanding social protection system further highlights population groups considered to require additional support. These groups may face heightened vulnerability to Project-related impacts where access to information, employment opportunities, compensation mechanisms, or grievance processes are constrained. The identified vulnerable groups for this Project are listed below:

- People who face poverty or economic vulnerability (whose average annual expenditure is between relative poverty line and 1.5 times that line);
- People who receive benefit from the official Social Benefit Program;
- Female-headed Household;
- Elderly (Pensioners); and
- Disabled People.

5.4 GENDER EQUALITY, GENDER-BASED VIOLENCE, HARASSMENT, SEXUAL EXPLOITATION AND ABUSE

Morocco has undertaken reforms to promote gender equality, including improvements in women's political representation, labour rights protections, and social inclusion policies. However, gender disparities remain significant, particularly in economic participation and employment. Female labour force participation remains substantially below that of men, and

[39] Haut-Commissariat au Plan. (2025). *Cartographie de la pauvreté multidimensionnelle, paysage territorial et dynamique*. Government of the Kingdom of Morocco. https://www.hcp.ma/Publications-Pauvrete-vulnerabilite_r495.html
[40] United Nations Development Programme (UNDP) & Oxford Poverty and Human Development Initiative (OPHI). (2024). *Global Multidimensional Poverty Index 2024: Country briefing, Morocco*. United Nations Development Programme. https://hdr.undp.org/sites/default/files/Country-Profiles/MPI2024/MAR.pdf
[41] Ibid.

women continue to face barriers related to access to employment, leadership positions, and income-generating opportunities.

In addition, gender-based violence remains a recognised human rights concern, including domestic violence, sexual harassment, and workplace harassment. International observers have highlighted the importance of strengthening protection mechanisms, victim support services, access to justice, and measures to combat discrimination and violence against women and girls.[42] According to Morocco's High Commission for Planning (HCP), approximately 57% of women aged 15-74 years, equivalent to more than 7.6 million women, experienced at least one form of violence during the 12 months preceding the 2019 national survey.[43] Psychological violence was the most commonly reported form of violence (49%), followed by economic violence (15%), sexual violence (14%), and physical violence (13%). Domestic and intimate partner violence remains particularly prevalent, affecting approximately 52% of women, while sexual harassment and cyber-violence have also been identified as growing concerns.[44]

Existing surveys in Morocco indicate that younger women, unemployed women, women with lower socioeconomic status, women with disabilities, and women living in other vulnerable circumstances may face elevated exposure to violence and barriers to seeking assistance. Social stigma, fear of retaliation, dependence on family members or partners, and limited awareness of available support services may further constrain women's access to justice and remedy.[45] International human rights mechanisms, including Morocco's Universal Periodic Review process, have continued to emphasise the importance of strengthening implementation of legal protections, victim support services, prevention measures, and access to effective remedies for survivors of gender-based violence.[46]

From a Project perspective, risks may arise where women face barriers to recruitment, promotion, equal pay, skills development, leadership opportunities, or participation in stakeholder engagement processes. Construction and manufacturing sectors, including battery materials manufacturing, have historically been male dominated, which may increase the risk of workplace discrimination, sexual harassment, exclusion from employment opportunities, and unequal access to project benefits if appropriate safeguards are not implemented.

Gender-segregated FGDs undertaken with women from several communities identified gender gaps affecting access to employment, income generation and participation in community decision-making. Women reported that economic opportunities are generally concentrated in sewing, handicrafts, petty trade and informal service activities.

Women's FGD participants reported that women working outside traditional gender roles may face social stigma and community judgment. Participants noted that women employed in Chinese-owned restaurants and businesses can experience reputational pressure from the local

[42] Office of the United Nations High Commissioner for Human Rights. (2022). *Universal Periodic Review: Morocco (Fourth Cycle)*. https://www.ohchr.org/en/hr-bodies/upr/ma-index
[43] Conseil Économique, Social et Environnemental (CESE). (2020). *Eliminating violence against women and girls: A national emergency*. Kingdom of Morocco. https://www.cese.ma/en/docs/eliminer-la-violence-a-legard-des-filles-et-des-femmes-une-urgence-nationale/
[44] Ibid.
[45] Ibid.
[46] UN Women. (2020). *Civil society 'listeners' team up with enumerators to track violence against women in Morocco*. UN Women Data Hub. https://data.unwomen.org/features/civil-society-listeners-team-enumerators-track-violence-against-women-morocco

community. Similar social scrutiny was reported for foreign women and local women who do not conform to prevailing social expectations regarding appearance and behaviour. Women also reported restrictions on mobility and freedom of movement, particularly when male household members are absent. Participants from other two FGDs identified early marriage as a factor contributing to girls' school dropout and reduced educational attainment. Women reported that family expectations and social norms can result in girls leaving school early, with some becoming engaged before the age of 18. These gender norms may limit women's access to education, employment, grievance mechanisms and support services. Although these issues do not always constitute direct violence, they reflect gender-based discrimination and restrictive social norms that may limit women's participation in economic opportunities and public life.

Community members also raised concerns regarding the presence of sex work in nearby villages, which they associated with labour influx in the local area. However, it could not be verified whether the individuals involved were relevant to the BTR Project or by other Chinese companies operating within the wider industrial zone.

Further, women participating in focus group discussions identified domestic violence as an existing community issue. During one women's FGD, participants reported that domestic violence is "relatively frequent" and that some incidents occur publicly. Women noted that affected women may report incidents to the Royal Gendarmerie, where remedial actions can be taken. These discussions suggest that domestic violence remains a relevant gender-based violence concern within the local area. Participants also cited harassment as a challenge faced by women and noted that the absence of public street lighting contributes to safety concerns, particularly at night, despite that the community generally being perceived as safe. The interviewed women did not attribute these safety risks with the presence of Chinese workforce, yet these findings suggest that women's mobility and access to public spaces may be constrained by safety concerns.

5.5 LIVELIHOODS AND ECONOMIC ACTIVITIES

Morocco has experienced steady economic growth and industrial diversification, supported by investments in manufacturing, logistics, renewable energy, automotive production, and export-oriented industries. Nevertheless, unemployment, underemployment, regional inequalities, and informal employment remain significant socioeconomic challenges. Youth unemployment is particularly pronounced, while economic opportunities tend to be concentrated around key urban and industrial centres.[47] Rural communities remain more dependent on agriculture and may face higher levels of poverty and economic vulnerability. Access to stable employment, skills development, and local procurement opportunities therefore remain an important factor influencing community wellbeing and livelihoods.[48]

At the local level, community FGDs undertaken in Gouaret, Slaouiyine, Chaouia and Bibane indicated that agriculture and livestock previously represented the primary sources of household income prior to the development of the Industrial Acceleration Zone (IAZ). Community members described a substantial reduction in agricultural activity following land acquisition and industrial development. Participants in Gouaret, Bibane and Slaouiyine stated

[47] World Bank. (2025). *Morocco overview*. https://www.worldbank.org/en/country/morocco
[48] United Nations Development Programme. (2025). *Human development data center: Morocco*. https://data.undp.org/countries-and-territories/MAR

that livestock raising, once common across the community, is now practiced by only a small number of families.

Employment associated with industrial development was identified as the principal expected Project benefit. The community livelihood is therefore characterised by an ongoing economic transition, declining reliance on agriculture, and strong community expectations regarding local employment, training and economic participation.

For detailed profile on livelihoods and economic activities within the Project social-economic AoI and the economic profile of the nearby community members, refer to ***Section 5.2.9*** of ***ESIA***.

5.6 COMMUNITY HEALTH AND PUBLIC HEALTH GOVERNANCE CAPACITY

Health-related human rights outcomes in Morocco have improved substantially over recent decades.

According to the World Bank, life expectancy at birth increased from approximately 67 years in 2000 to 75 years in 2024, reflecting substantial progress in access to healthcare, disease prevention and living standards. The current life expectancy is comparable to Algeria (76 years) and exceeds that of Egypt (72 years) but remains below Tunisia (77 years) and many OECD countries where life expectancy commonly exceeds 80 years.[49] The overall increase in life expectancy indicates continued improvement in the realization of the right to health; however, disparities in healthcare access and socioeconomic conditions continue to affect health outcomes for some population groups, particularly in rural areas and lower-income communities.[50]

Maternal health outcomes have improved markedly in Morocco over the last two decades. The maternal mortality ratio declined from approximately 227 deaths per 100,000 live births in 2004 to 72.6 deaths per 100,000 live births in 2020,[51] according to Morocco's Ministry of Health, while the World Bank estimates a further decline to approximately 70 deaths per 100,000 live births in 2023.[52] Despite these improvements, significant inequalities persist. National surveys indicate that maternal mortality in rural areas (111.1 deaths per 100,000 live births) was approximately twice the level observed in urban areas (44.6 deaths per 100,000 live births) during the 2018-2020 period.[53] The infant mortality rate declined from approximately 63 deaths per 1,000 live births in 2000 to 15 deaths per 1,000 live births in 2024.[54] Morocco's infant mortality rate is lower than that of Algeria (20 per 1,000) and Egypt (21 per 1,000), and is broadly comparable to Tunisia (12 per 1,000).[55] Nonetheless, national surveys continue to report higher mortality and poorer health outcomes among children living

[49] World Bank. (2025). *Life expectancy at birth, total (years) - Morocco*. World Development Indicators. https://data.worldbank.org/indicator/SP.DYN.LE00.IN?locations=MA
World Bank. (2025). *Life expectancy at birth, total (years)*. World Development Indicators. https://data.worldbank.org/indicator/SP.DYN.LE00.IN
[50] United Nations Development Programme. (2025). *Human development data center: Morocco*. https://data.undp.org/countries-and-territories/MAR
[51] Ministry of Health and Social Protection. (2022). *Santé en chiffres 2022* [Health statistics 2022]. Kingdom of Morocco, Ministry of Health and Social Protection. https://www.sante.gov.ma
[52] World Bank. (2025). *Mortality rate, infant (per 1,000 live births) - Morocco*. World Development Indicators. https://data.worldbank.org/indicator/SP.DYN.IMRT.IN?locations=MA
[53] Ibid.
[54] Ibid.
[55] World Bank. (2025). *Mortality rate, infant (per 1,000 live births)*. World Development Indicators. https://data.worldbank.org/indicator/SP.DYN.IMRT.IN

in rural, low-income and geographically isolated communities, highlighting ongoing disparities in the enjoyment of children's right to health.

These findings suggest that access to quality maternal healthcare remains uneven and that rural women may face heightened vulnerability regarding the realization of the right to health and safe motherhood.

In terms of public health, Morocco has generally maintained a relatively stable profile. However, the country has recently experienced a significant measles outbreak, highlighting ongoing challenges in disease prevention and immunization coverage. According to the WHO, a nationwide measles outbreak began in late 2023 and spread across all 12 regions of Morocco. Between October 2023 and April 2025, more than 25,000 suspected cases were reported, including 13,706 laboratory-confirmed cases and 184 deaths.[56] Children and unvaccinated individuals were disproportionately affected, with approximately 68% of cases occurring among persons under 18 years of age and nearly half of all reported cases occurring among unvaccinated individuals.[57]

The concentration of cases among unvaccinated populations suggests that gaps in vaccine uptake, healthcare access, awareness, or service delivery may persist among certain communities. WHO reported that Moroccan authorities activated the National Centre for Public Health Emergency Operations, implemented nationwide vaccination campaigns, strengthened epidemiological surveillance systems, enhanced case management procedures, and expanded public health risk communication measures.[58] By April 2025, vaccination status had reportedly been verified for over 10.7 million children, and national vaccination coverage had reached approximately 98.5%,[59] demonstrating a good public health mobilisation capacity. The ability of public authorities to rapidly implement catch-up vaccination campaigns and strengthen disease surveillance also reflects the state's obligation to protect public health and ensure access to essential healthcare services.

Detailed information on local healthcare infrastructure, community services, and health vulnerability within the Project Area of Influence is provided in ***Section 5.2.8*** of ***ESIA*** and is therefore not repeated in this HRIA.

5.7 CONFLICT AND SECURITY

Morocco is generally considered a politically stable country compared with many regional peers. Security-related risks in the context of private sector projects are generally more likely to arise from interactions between security personnel, workers, and communities than from broader instability. Nevertheless, observers continue to identify concerns relating to civic freedoms, freedom of expression, freedom of association, and public demonstrations.[60]

Human Rights Watch reported that Moroccan authorities continued to prosecute or investigate journalists, bloggers, and activists in connection with public criticism of government

[56] World Health Organisation. (2025, May 13). *Measles - Morocco: Disease outbreak news*. https://www.who.int/emergencies/disease-outbreak-news/item/2025-DON568
[57] Ibid.
[58] World Health Organisation. (2025). *WHO results report 2024-2025: Morocco*. https://www.who.int/about/accountability/results/who-results-report-2024-2025/region-EMRO/2024/morocco
[59] Ibid.
[60] World Justice Project. (2025). *Rule of Law Index 2025: Morocco*. https://worldjusticeproject.org/rule-of-law-index

institutions and policies. Examples cited during 2024 included legal proceedings against journalist Hamid El Mahdaoui, the arrest and prosecution of activist Fouad Abdelmoumni, and criminal cases involving bloggers who had published critical social media content.[61] Human Rights Watch also reported instances where peaceful demonstrations were dispersed by security forces, including protests organised by healthcare workers and disability rights groups. Reporters Without Borders (RSF) noted that several journalists continued to face criminal proceedings, fines, or imprisonment in connection with their reporting and public commentary, despite the release of several high-profile journalists through royal pardons in 2024.[62]

These issues are relevant from a human rights perspective because restrictions on civic space may affect the ability of workers, community members, and civil society actors to voice concerns, participate in consultations, organise collectively, or access remedy where rights-related impacts occur.

5.8 ACCESS TO REMEDY

Access to remedy is protected through Morocco's judicial system, labour administration framework, administrative dispute mechanisms, and national human rights institutions. The Moroccan Constitution recognises access to justice and legal protection,[63] while the Labour Code establishes procedures for the resolution of both individual and collective labour disputes. Workers may submit complaints through employers' internal processes, labour inspectors, trade unions, mediation and conciliation procedures, labour courts, and administrative authorities. The Labour Code also assigns labour inspectors a role in receiving complaints, investigating alleged violations, conducting workplace inspections, and facilitating conciliation between employers and workers.[64]

Morocco also maintains several state-based mechanisms relevant to remedy and accountability, including the judicial system, the Institution of the Ombudsman (Médiateur du Royaume), and the National Human Rights Council (Conseil National des Droits de l'Homme, CNDH).[65] The CNDH is mandated to receive and investigate complaints relating to human rights violations and to make recommendations to public authorities.

From a practical perspective, however, international human rights bodies and civil society organisations have noted ongoing challenges affecting access to remedy. These include lengthy judicial procedures, limited public awareness of available complaint mechanisms, resource constraints within administrative institutions, and barriers faced by vulnerable populations in navigating formal legal processes.[66] Workers employed in informal sectors, migrant workers,

[61] Human Rights Watch. (2025). *World report 2025: Morocco and Western Sahara*. Human Rights Watch. https://www.hrw.org/world-report/2025/country-chapters/morocco-and-western-sahara
[62] Reporters Without Borders. (2025, June 30). *Morocco: One year after royal pardon, press still under attack*. https://rsf.org/en/morocco-one-year-after-royal-pardon-press-still-under-attack
[63] Kingdom of Morocco. (2011). *Constitution of the Kingdom of Morocco.* General Secretariat of the Government.
[64] Kingdom of Morocco Ministry of Economic Inclusion, Small Business, Employment and Skills. (n.d.). *Labour inspection system*. https://miepeec.gov.ma/en/mtip-espace-travail/mtip-inspection-travail-portail-travail/
[65] National Human Rights Council (CNDH). (n.d.). *Mandate and missions of the National Human Rights Council*. Conseil National des Droits de l'Homme. https://www.cndh.ma
[66] Office of the United Nations High Commissioner for Human Rights. (2022). Universal Periodic Review: Morocco (Fourth Cycle).

women, rural populations, and low-income individuals may encounter particular difficulties accessing legal representation, filing complaints, or pursuing claims through courts.[67]

At a community level, members mainly rely on existing local administrative and governance structures to raise complaints and concerns. The most referenced channel is the Caïdat, the local administrative authority representing the Ministry of Interior, which receives complaints from community members and may refer them to relevant government bodies. FGDs with Gouaret women reported that complaints could be raised during designated reception days at the Caïdat. Women from Chaouia and Slaouiyine indicated that they felt comfortable submitting complaints through this channel, although concerns were raised regarding the lack of response to some issues.

Another local grievance mechanism is the Mokadem, a government-appointed local representative who acts as an intermediary between residents and authorities. Community members may convey concerns to the Mokadem, who can escalate them to the Caïdat or other competent authorities. In rural communities, the Mokadem is often the most accessible point of contact for residents wishing to raise local issues.

In addition to these formal administrative channels, some community members reported using informal meetings with local authorities to voice concerns. FGD participants from Bibane referred to meetings with representatives of TMSA (Tangier Med Special Agency) and local officials concerning road access and industrial zone impacts. However, participants indicated that follow-up on concerns and feedback on outcomes is often unclear.

For security-related issues, including cases of domestic violence, community members may also seek assistance through the Royal Gendarmerie, Morocco's national law enforcement agency for rural areas. While this is not a project grievance channel, it constitutes an existing mechanism through which community members can formally report grievances relating to safety and security.

6. HUMAN RIGHTS IMPACT ASSESSMENT AND MANAGEMENT

This chapter presents the findings of the assessment of potential human rights impacts for the Project. Building on the human rights baseline described in Chapter 5, the assessment evaluates the Project's potential adverse and beneficial impacts on affected stakeholders throughout the construction and operation phases.

The findings are organised by key human rights impacts identified as illustrated in Chapter 3. For each human rights impact theme, the assessment provides: (i) the relevant baseline context, (ii) Project context and management systems, (iii) assessment of potential human rights impacts, and (iv) human rights risk management measures where required.

6.1 IMPACT ON LABOUR RIGHTS AND WORKING CONDITIONS

6.1.1 BASELINE CONTEXT

According to labour rights baseline under ***Section 5.1***, Morocco has established a relatively comprehensive legal framework governing labour rights, employment conditions, non-discrimination and occupational health and safety. National labour conditions have improved in recent years, reflected by relatively strong performance in areas such as working hours, social

[67] Ibid.

security and protections against child and forced labour. Nevertheless, several labour-rights challenges remain in practice, particularly within informal sectors and subcontracting arrangements. Key concerns include the persistence of child labour in rural and informal economic activities, risks of labour exploitation affecting vulnerable workers (such as migrant workers), weaknesses in occupational health and safety implementation, constraints on the effective exercise of free association and collective bargaining rights, and continuing gender disparities in employment and economic participation. These contextual labour-rights challenges provide the baseline against which the Project's potential impacts on workers and working conditions are assessed. From a Project perspective, labour-rights challenges remain in sectors that rely heavily on subcontracting and temporary labour, including construction. Relevant risks include excessive working hours, inconsistent implementation of occupational health and safety requirements, barriers to effective worker representation and collective bargaining, risks affecting migrant workers, and gender disparities in employment.

At the local level under the Project's socioeconomic AoI, community members participated in FGDs in Slaouiyine and Chaouia reported that some locally recruited workers who were previously employed to do construction work for the BTR project experienced delayed payment, underpayment, or non-payment of wages through labour intermediaries or subcontractors. These accounts indicate some residue or existing risks regarding labour brokers and subcontractor oversight.

6.1.2 PROJECT DETAILS

6.1.2.1 WORKFORCE PROFILE

As of the date of site visit from 10th Aug to 14th Aug 2026, the Project's construction workforce comprises ~850-900 workers, including ~755-805 contractor workers (88-90%) and ~90-100 direct employees (10-12%). The workforce is predominantly composed of Chinese nationals, who account for ~676-765 workers (~80-85%), while ~127-180 workers (~15-20%) are Moroccan nationals. Most personnel are employed through contractors, including ~600-680 Chinese and ~113-160 Moroccan contractor workers, while BTR directly employs ~72-85 Chinese and ~14-20 Moroccan employees. The contractor workers are arranged by two EPC Packages.

The construction workforce is divided between two EPC contractors with distinct scopes of work. EPC Package 1 is responsible for the construction of the administrative building, general production workshop, utility workshop, associated guardhouses, wastewater treatment station, and external works. Its workforce includes workers engaged in civil and building construction activities, such as rebar installation, carpentry, masonry, electrical works, plumbing works, welding, steel structure installation, interior finishing, painting and related trades. Chinese workers primarily undertake skilled technical positions, including electricians, plumbers and welders, while Moroccan workers are mainly employed in supporting and general construction roles, although both nationalities are represented across several trades.

Peak construction workforce figures varied across the two EPC packages. EPC Package 1 reported a peak workforce of approximately 300-350 workers in April 2026, while EPC Package 2 reported that the workforce of 450-500 workers presents during the assessment represented peak staffing levels. Both EPC Packages commenced construction activities in September 2025. EPC Package 1 is expected to complete construction in September 2026, while EPC Package 2

is expected to complete works in November 2026, with certain maintenance and demobilisation activities continuing thereafter.

As of the assessment period, EPC Package 1 employed approximately 300 workers, including around 260 Chinese workers and more than 40 Moroccan workers, while EPC Package 2 employed approximately 450-500 workers, including ~80%-85% Chinese workers and ~15%-20% Moroccan workers.

EPC Package 2 is responsible for building the graphitisation workshop and its associated auxiliary facilities, including supporting buildings, wastewater and reclaimed water ponds, guardhouses and related infrastructure. The workforce is engaged in civil works, steel structure installation, electromechanical installation, utilities construction and supporting construction activities. Similar to EPC Package 1, the workforce consists predominantly of Chinese skilled workers supported by Moroccan workers across construction and site support functions. The EPC also manages an extensive subcontracting network to deliver specialised construction activities.

Overall, the construction phase is characterised by a strong reliance on contractor labour and expatriate personnel, with Chinese workers accounting for more than 80% of the total workforce.

In terms of gender, the construction workforce is predominantly male. Among BTR's direct employees, 77% workers are male, and23%workers are female. Contractor workforces are almost entirely male, with one construction package reporting 99.7% male workers and the other reporting an entirely male workforce. Within EPC Package 2, approximately 10-20 female workers were reported across the workforce. Moroccan women are mainly employed in occupational health and safety, medical and logistics functions, including two Moroccan female safety officers and personnel supporting the site clinic and administrative services. Chinese female workers are primarily engaged in management, administration and logistics roles, although a small number also work on site.

Both EPC contractors have established supporting arrangements to accommodate their predominantly migrant non-local workforce. Non-local workers employed by EPC Package 1 reside in a dedicated contractor-built camp comprising containerised accommodation units located between Gouaret Mecharza and Gouaret Mechahla on leased land. For EPC 2, non-local workers are accommodated at the Utopia Camp. Accommodation is provided free of charge and is supported by ancillary services including catering facilities, kitchens, dining areas, water supply and worker transportation. ***Figure*** 6-2 illustrates the location of EPC workers' camps.

Each subcontractor under EPC Package 1 operates its own kitchen and employs dedicated cooks to provide meals for workers. Under EPC Package 2, workers' FGDs reported access to canteen facilities, kitchens, air-conditioned dormitories, cleaning services, sanitary facilities and dedicated female accommodation areas. Shuttle buses are also provided for commuting between camps and the construction site, while some Moroccan workers receive transportation allowances or commute independently from nearby communities. Most Moroccan workers reside in their family homes or rented accommodation in neighbouring settlements rather than in the worker camps.

During the operational phase, the workforce profile is expected to change substantively. The Project is forecast to employ approximately 1,060-1,170 workers, comprising 1,000-1,100 direct employees (94%-95%) and 60-70 contractor workers (5%-6%). In contrast to the

construction phase, the operational workforce is expected to be predominantly Moroccan, with ~825-960 Moroccan workers (75%-80%) and ~220-300 Chinese workers (20%-25%). Direct employees will form the vast majority of the workforce, including ~750-880 Moroccan and ~200-275 Chinese employees, while contractor personnel will comprise ~39-49 Moroccan and ~18-25 Chinese workers. This transition reflects a shift from a construction workforce largely supported by expatriate contractors to an operational workforce primarily consisting of locally recruited direct employees.

During both the construction and operational phases, no worker accommodation facilities are permitted within the Cité Mohammed VI Tangier Tech as regulated by the Société d'Aménagement Tangier Tech (SATT). Instead, BTR provides company-managed accommodation off-site and transportation arrangements for both direct employees and contractor personnel.

During the operational phase, the Project will provide both accommodation and dining facilities for its workforce. Company-managed accommodation will be provided for Chinese employees, together with supporting accommodation management and logistical services.

The Project will also operate an on-site employee canteen serving both Chinese expatriate and Moroccan employees. The canteen is planned to have a dining capacity of approximately 1,000 personnel by 2027. To support the Project's shift-based production arrangements, including rotating shift systems and provide flexible meal services and maintain nightshift catering arrangements. This is intended to ensure that employees working across all shifts have timely access to hot meals and appropriate catering support.

Table 6-1 and ***Figure*** 6-1 illustrate the profile of Project workforce.

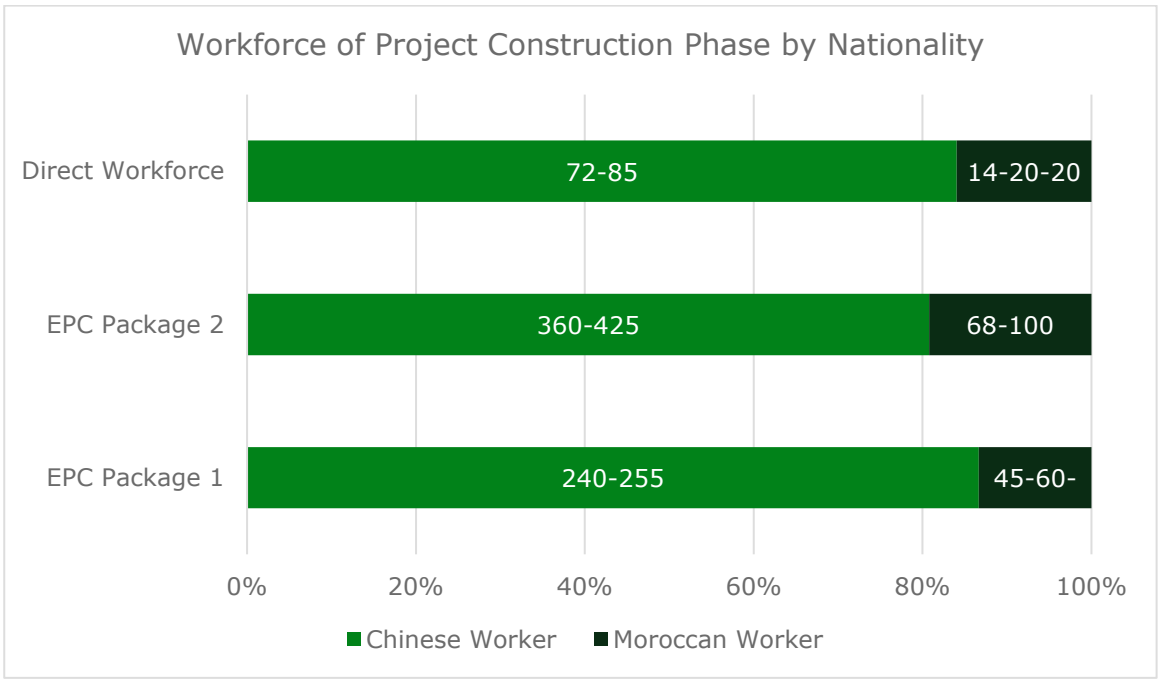
TABLE 6-1 PROJECT WORKFORCE COMPOSITIONS[68]

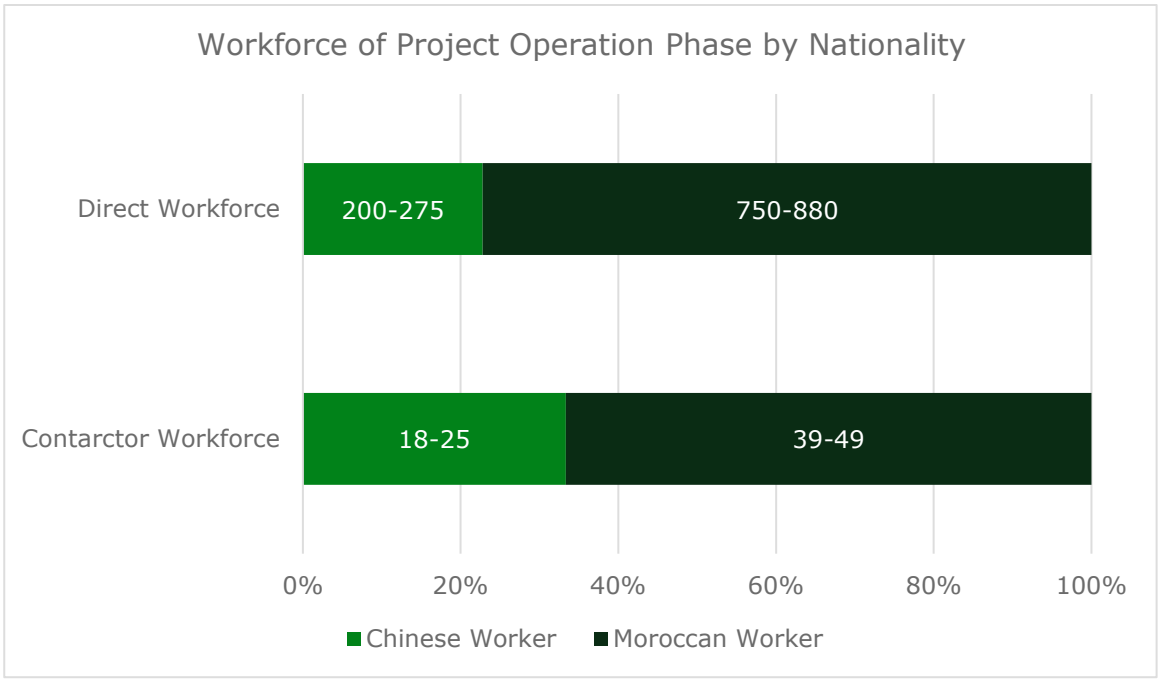
<table>
<tr><th rowspan="3"></th><th colspan="4">Project Workforce</th></tr>
<tr><th colspan="2">Construction Phase</th><th colspan="2">Operation Phase</th></tr>
<tr><th>Number of Chinese Worker</th><th>Number of Moroccan Worker</th><th>Number of Chinese Worker</th><th>Number of Moroccan Worker</th></tr>
<tr><td rowspan="2">Contractor Workforce</td><td>240-255
(EPC Package 1)</td><td>45-60
(EPC Package 1)</td><td rowspan="2">18-25</td><td rowspan="2">39-49</td></tr>
<tr><td>~360-425
(EPC Package 2)</td><td>68-100
(EPC Package 2)</td></tr>
<tr><td rowspan="2">Total Contractor Workforce</td><td>600-680</td><td>113-160</td><td colspan="2" rowspan="2">60-70</td></tr>
<tr><td colspan="2">750-800</td></tr>
<tr><td>Direct Workforce</td><td>72-85</td><td>14-20</td><td>200-275</td><td>750-880</td></tr>
<tr><td>Total Direct Workforce</td><td colspan="2">90-100</td><td colspan="2">1,000-1,100</td></tr>
</table>

[68] Based on interview with Project's construction contractor company managers on 10 August 2026.

	Project Workforce			
	Construction Phase		Operation Phase	
	Number of Chinese Worker	Number of Moroccan Worker	Number of Chinese Worker	Number of Moroccan Worker
Total Workforce on site	**850-900**		**1,060-1,170**	

FIGURE 6-1 PROJECT WORKFORCE COMPOSITIONS

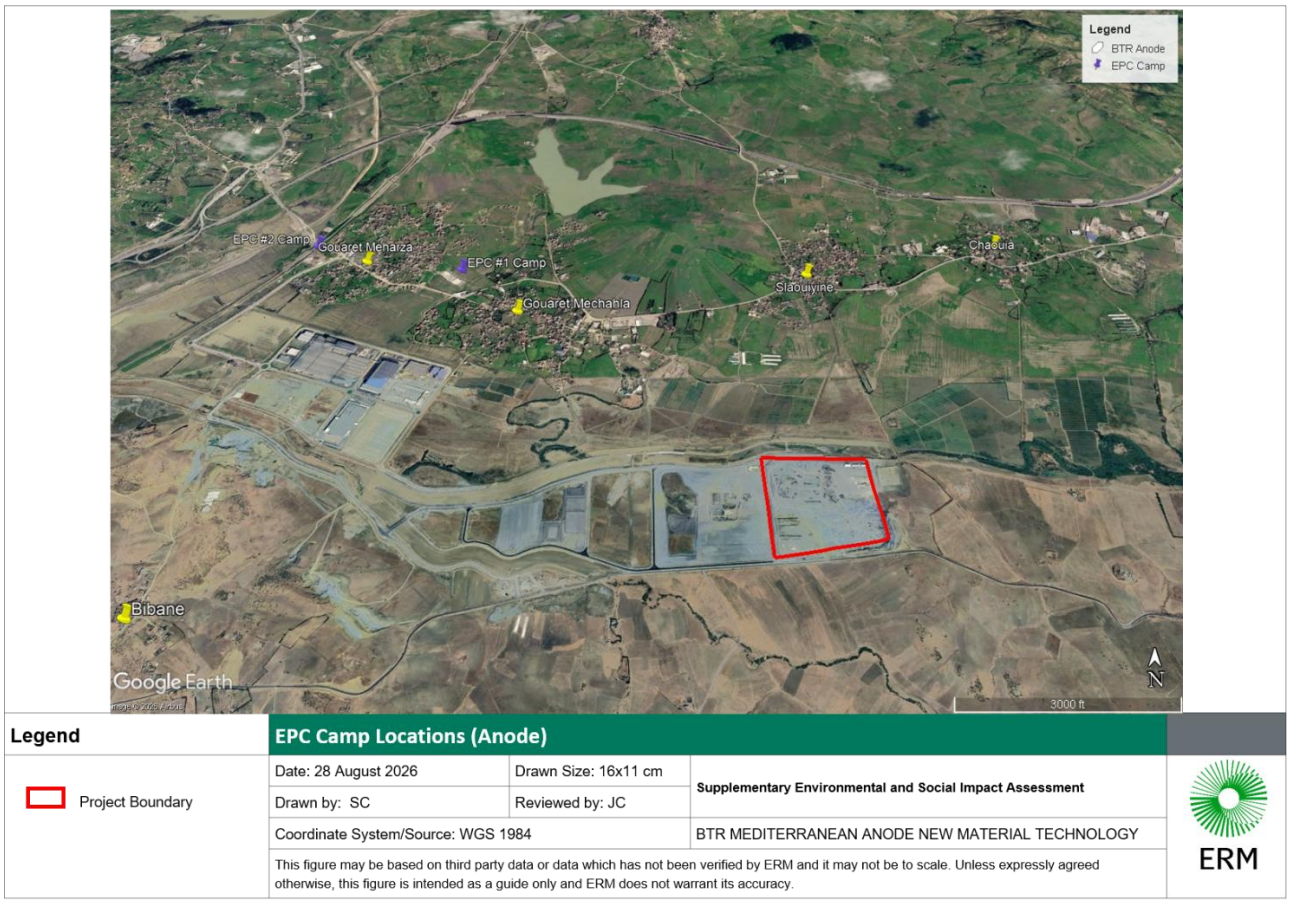




In addition to the labour above, less than five outsourced security workers are currently deployed on site, working to maintain access control, patrol activities and protect Project

properties. During operation, site security will continue to be provided by an outsourced security company. Approximately 5-10 security personnel are expected to be required to provide 24-hour site coverage during the operation phase.

FIGURE 6-2 EPC WORKERS' CAMP LOCATIONS



Legend	EPC Camp Locations (Anode)		
Project Boundary	Date: 28 August 2026	Drawn Size: 16x11 cm	Supplementary Environmental and Social Impact Assessment
	Drawn by: SC	Reviewed by: JC	
	Coordinate System/Source: WGS 1984		BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY
	This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.		

6.1.2.2 DIRECT WORKFORCE MANAGEMENT BASELINE

BTR has established a management framework for its direct workforce through a combination of corporate human rights commitments, employee engagement mechanisms, and grievance channels. The *BTR Code of Business Conduct* (May 2026) commits the company to respecting internationally recognised human rights, prohibiting forced labour, child labour and human trafficking, promoting equal employment opportunities, preventing discrimination and harassment, and providing a safe and healthy working environment for all employees; it provides the overarching framework for workforce management.

At the operational level, BTR implements various employee engagement and communication mechanisms to identify workforce concerns and support continuous improvement. Evidence reviewed indicates that the Project Company regularly conducts employee satisfaction surveys covering all employees and uses the results to identify workplace issues and develop corrective actions. Survey findings are reviewed by the Human Resources and Administration Department, improvement measures are communicated to employees, and implementation is subsequently monitored. The surveys are conducted anonymously and are intended to improve workplace, administrative and support services.

In addition, BTR has established workforce consultation mechanisms through regular employee dialogue and workshop-style "Tea Meeting" sessions, where employees collectively identify

workplace concerns, discuss solutions, and provide feedback directly to management. Topics discussed include payroll arrangements, training, communication barriers, translation support, inter-departmental coordination, and employee development opportunities. Proposed actions are reviewed by management and tracked through follow-up processes, reflecting an effort to maintain worker participation in workplace decision-making and continuous improvement.

6.1.2.3 CONTRACTOR WORKFORCE MANAGEMENT BASELINE

BTR has established a number of contractor management measures. At the corporate level, the *BTR Code of Business Conduct* (May 2026) applies to BTR and its subsidiaries and explicitly extends expectations to its business partners. *BTR Code of Business Conduct* commits BTR to respecting internationally recognised human rights and prohibits human trafficking, child labour and forced labour across its operations. *BTR Code of Business Conduct* requires contractors and other business partners to comply with applicable laws and BTR's ethical requirements, with non-compliance potentially resulting in termination of business relationships. In addition, the *BTR Code of Business Conduct* establishes compliance governance arrangements, regular compliance training for employees and suppliers, periodic audits and inspections.

At the Project level, contractor performance is governed through the *Contractor Safety Management Agreement*. Under this agreement, contractors are required to provide evidence of relevant qualifications and licences for review by BTR before commencing work. BTR retains the right to supervise and inspect contractor activities before, during and after construction works and may require corrective actions, suspend works, or terminate contractor activities in cases of non-compliance with legal requirements, Project rules or contractual obligations. Contractors are required to ensure that all workers hold relevant qualifications, receive lawful employment arrangements and social insurance coverage, and are provided with appropriate personal protective equipment (PPE) and safety training. Site visit confirmed that BTR audits contractors monthly and subcontractor performance is checked periodically.

Management interviews with EPCs indicated that worker recruitment is conducted through formal subcontracting arrangements and employment contracts are signed prior to mobilisation. Chinese workers are additionally required to undergo identity verification procedures and provide evidence of insurance coverage. No evidence of underage workers was identified during management interviews, worker consultations, or site observations. Chinese and Moroccan workers are both provided written contracts in appropriate languages. The interviews also indicated that Moroccan workers are required to be enrolled in social security schemes

Workers' FGD confirmed age-verification during pre-employment procedures are in place, no indications of underage employment emerged during worker interviews, management interviews, or site observations.

The interviews reported that workers generally retain possession of their own passports and identity documents. While passports had reportedly been collected temporarily in the past for visa-renewal purposes, management stated that this practice has ceased and passports are now retained by workers themselves.

With respect to working hours, EPC Package 1 managers reported that Chinese workers typically work approximately nine hours per day and six days per week, which exceeds

Morocco's legal 44-hour workweek and therefore relies on overtime arrangements.[69] During peak construction phases, workers may work continuously with rest days limited to public holidays. Management emphasised that overtime is compensated and that overtime is voluntary, and workers confirmed these arrangements during site engagements.

Evidence collected from both EPC Package 2 management interviews and worker interviews also suggests comparatively strong controls regarding recruitment and forced labour prevention. EPC Package 2 workers are recruited without intermediary recruitment fees, and all workers are employed under formal contractual arrangements. Management also reported that contracts are reviewed by the main contractor and that insurance coverage is provided for workers.

Similarly, EPC Package 2 management stated that overtime is voluntary and compensated. This was corroborated during the workers' FGD, where the worker explained that overtime work receives additional payment of approximately 30% above the normal rate and that workers are not compelled to work overtime. While this exceeds the statutory 25% premium applicable to daytime overtime on regular working days, the assessment could not verify whether higher premiums required under Moroccan law for night-time, rest-day, or public holiday overtime are also applied.[70] The workers further noted that workers are generally able to take leave when desired and that no restrictions on movement were imposed outside working hours.

On the issue of worker's grievance mechanisms, EPC Package 1 Management stated that workers generally raise complaints through subcontractor management or the EPC contractor and that grievances most commonly relate to wage payments. However, management confirmed that no anonymous grievance channel was available.

6.1.3 ASSESSMENT

During construction, many contextual factors could bring potential labour and human rights risks, including:

- A sizeable migrant workforce.
- Peak-period working schedules involving extended working hours and reduced rest days
- Extensive subcontracting and presence of wage delay records
- Language and cultural barriers between Chinese and Moroccan workers
- Limited worker awareness of grievance management processes

If management controls are not consistently implemented and if effective monitoring is not in place, the likelihood of adverse human rights impacts is **Possible**, and the severity **Medium**, resulting in an overall **Moderate** Salience rating.

[69] Morocco's *Labour Code* establishes a normal working time of 44 hours per week (2,288 hours per year) for non-agricultural activities. The *Labour Code* also provides for a weekly rest period of at least 24 consecutive hours. *(For legal regulation details, refer to: Kingdom of Morocco. (2003). Law No. 65-99 relating to the Labour Code (promulgated by Dahir No. 1-03-194 of 11 September 2003 at: https://www.wipo.int/wipolex/en/legislation/details/7371))*

[70] Morocco's *Labour Code* mandates that overtime performed between 06:00 and 21:00 on normal working days is subject to a minimum premium of 25%, while overtime performed between 21:00 and 06:00 is subject to a minimum premium of 50%. Higher premiums apply where overtime is performed on weekly rest days or public holidays.

The operational workforce directly managed by BTR and long-term service providers is expected to operate under a more established management systems, including BTR's *Human Rights Policy, Code of Business Conduct*, workforce consultation mechanisms, and employee satisfaction survey processes. The transition from a highly subcontracted construction workforce to a more stable and directly managed workforce is expected to reduce risks associated with labour recruitment within the extensive subcontracting mechanisms, excessive overtime, and contractor oversight. However, residual labour rights risks remain relevant, including potential gaps in worker awareness of grievance mechanisms, risk of workplace harassment or discrimination, cross-cultural communication challenges between expatriate and local workers, and the need to ensure workers' freedom of association commitments. Therefore, adverse impacts are considered less likely to occur, but still **Possible**. The impact severity is therefore assessed as **Low** and, resulting in an overall **Low** Salience rating.

Impact	Phase	Rightsholders	Severity	Likelihood	Salience
Impact on Labour Rights and Working Conditions of the Project workers	Construction	Project workers	Medium	Possible	**Moderate**
	Operation	Project workers	Low	Possible	**Low**

6.1.4 MANAGEMENT OF LABOUR AND WORKING CONDITIONS

Risk/Impact	Phase	Salience	Existing Management Measures	Responsible Parties
Impact on Labour Rights and Working Conditions of the Project workers	Construction	**Moderate**	• BTR Code of Business Conduct • Contractor Safety Management Agreement	• HR and Administration Department • Project Construction Department • ESG and Legal Compliance Department
	Operation	**Low**		

To further reduce labour rights risks associated with contractor management, workforce welfare, worker representation and other labour rights issues, the Project Company is required to strengthen its labour management framework during both construction and operation phases with the following measures:

- Avoid using external and informal labour brokers or recruitment agencies to minimize risks of delayed wages, recruitment fees or debt, and the emergence of other forced labour risks.
- Proactively engage with the relevant authorities to facilitate the timely processing of visas and work permits for migrant workers.

  - Undertake forward workforce planning, engage with relevant authorities, maintain transparent communication with workers regarding working visa application status.
  - For visa renewal scenarios, implement an early renewal tracking system. Maintain a centralized database tracking the expiry dates of all work permits, with automatic alerts issued at least 3-6 months before expiry. Given reported government processing constraints, renewal applications should be prepared and submitted as early as legally permissible to avoid workers falling into irregular status due to administrative delays.
- In addition to BTR's corporate level *Code of Business Conduct*, develop and implement a Project level Worker Management Plan (WMP) applicable to all Project workforce, including direct employees, contractor workers, subcontractors, migrant workers, etc. The WMP should:
  - State clearly the prohibition of child labour, forced labour and human trafficking.
  - State non-discrimination and equal opportunity requirements.
  - State the prohibition of working without a legitimate working visa or permit
  - Illustrate working hours and overtime management requirements.
  - Confirm freedom of association commitments.
  - State worker accommodation and welfare requirements.
  - Clarify worker induction and training requirements, including training on labour rights, health and safety, code of conduct, grievance channels, etc.
  - Describe Project-level contractor workforce management requirements.
- Develop and implement a *Contractor Management Plan* that oversees the labour practices of all contractors onsite and cascade down the Project's Worker Grievance Mechanism, Project workers accommodation requirements, Project workforce CoC, EHS Plan, BTR policies to the contractor workers. Particular focus should be paid on prohibition of child labour and forced labour, voluntary overtime and excessive working hours and different treatment between Moroccan workers and migrant workers. The *Contractor Management Plan* should introduce a monitoring system to periodically review any potential breaches of contractor's labour practice against the contractor management system requirements. Detailed elements to achieve the abovementioned goals can include:
  - Require all contractors and subcontractors to formally acknowledge and comply with the *BTR Code of Business Conduct*, applicable labour and employment legislation, and relevant international labour standards as a condition of engagement.
  - Mandate the training for all contractors and labour-rights awareness sessions for all contracted workers. The training and the labour-rights awareness sessions should introduce the Project labour rights and human rights statements, the Project worker's *Code of Conduct* (as illustrated under ***Section 6.4.4***), the *Code of Business Conduct* applicable to contractor companies, the mandates under Moroccan labour laws and ILO convention requirements, with particular attention on forced labour, child labour, occupational health and safety, freedom of association and collective bargaining, and non-discrimination and harassment.
  - Establish a contractor labour-rights monitoring programme that includes periodic document reviews, worker interviews, workplace inspections, and accommodation inspections (where applicable) to verify:
    - Age-verification procedures and the absence of child labour;

  - Prohibition of forced labour and retention of identity documents;
  - Obtainment of legal working visa or permits
  - Working hours, overtime practices, and weekly rest arrangements;
  - Wage payments (including payment frequencies and dates), overtime compensation, payroll records, and deductions;
  - Enrolment in legally required social security and insurance schemes;
  - Provision of written contracts in a language understood by workers;
  - Non-discrimination and equal treatment of local and migrant workers; and
  - Accessibility of worker grievance mechanisms.
- Introduce a monitoring system to periodically review any potential breaches of contractor's labour practice against the Project's labour policies and procedures.
- Ensure all workers (including those of contractors and subcontractors) on the Project site are provided with a written Employee Agreement/Contract in a language is understood by workers.

- Develop and implement the *Workers' Grievance Mechanism* for both direct workforce and contracted workforce. Specific details can be found under ***Section 6.5.4***. Clearly state that the Project's Grievances Mechanism is applicable to all contracted workers. Require EPC contractors to communicate and establish awareness of the mechanism through worker inductions, training, noticeboards, and other workforce engagement activities.

6.2 IMPACT ON WORKERS' RIGHTS ALONG THE PROJECT SUPPLY CHAIN

6.2.1 BASELINE CONTEXT

The upstream petroleum coke supply chain presents several human rights risks, with OHS issues representing the most significant area of concern. Petroleum coke is produced through petroleum refining and delayed coking processes, which involve high-temperature operations, hazardous chemicals, combustible materials, and complex industrial equipment. Workers employed by refineries, petroleum coke handling facilities, and calcination plants may be exposed to risks including fires, explosions, process safety failures, hazardous substance exposure, dust inhalation, and serious workplace injuries.

In addition to worker health and safety risks, labour rights concerns may arise within contractor and migrant worker populations that are commonly engaged across the petroleum refining sector. Potential concerns include excessive working hours during maintenance shutdowns, inadequate contractor oversight, recruitment-related risks, and indicators of forced labour in jurisdictions with weaker labour protections. While direct child labour risks are generally considered low within large-scale, industrialized petroleum coke production facilities, they cannot be entirely excluded from lower tiers of the supply chain, particularly where crude oil originates from regions with elevated labour rights risks or where informal subcontracting arrangements exist.

Consequently, robust supply chain due diligence and responsible sourcing practices have become essential expectations for battery material manufacturers and downstream users.

6.2.2 PROJECT DETAILS

During construction, the Project's supply chain will primarily consist of construction material and equipment manufacturers, logistics providers, and other service providers supporting site establishment and facility construction. At the time of assessment, detailed information regarding construction suppliers is not available.

During operation, the Project will manufacture lithium-ion battery anode materials and therefore depend upon a more extensive supply chain that may include suppliers of graphite feedstock, chemical reagents, consumables, spare parts, packaging materials and other battery-sector inputs.

According to the Project Company, The Project's principal raw materials are petroleum coke (coke) and asphalt/pitch, which are used in the manufacture of graphite anode materials for lithium-ion batteries. Based on information provided by BTR, petroleum coke is expected to be sourced from suppliers located in Europe and North America, while asphalt/pitch is expected to be sourced from Europe.

BTR has established corporate-level sustainable procurement and supplier management requirements through its sustainability-related procurement policies, supplier code of conduct, and supplier assessment processes. These frameworks set expectations for suppliers in relation to labour and human rights, occupational health and safety, environmental management, business ethics, responsible sourcing, and supply chain transparency, while also providing mechanisms for supplier screening, ESG risk assessment, performance evaluation, corrective action tracking, and ongoing monitoring.

At a corporate level, BTR’s Human Rights Policy commits the company to conduct human rights due diligence in accordance with the OECD Due Diligence Guidance and the UN Guiding Principles on Business and Human Rights, including periodic identification and assessment of human rights risks within both its operations and supply chain. The policy also establishes commitments regarding prohibition of forced labour, child labour, discrimination and harassment, protection of freedom of association, occupational health and safety, and human rights grievance mechanisms.

In addition, the corporate *Sustainable Procurement Policy* establishes BTR's commitments to integrating environmental, health, safety, and sustainability considerations into its procurement and supply chain management activities. This policy sets commitments relating to climate change mitigation, energy efficiency, water stewardship, pollution prevention, chemical management, circular economy principles, biodiversity protection, occupational health and safety, and supply chain environmental risk management. The policy requires a strengthened supplier review and qualification processes and seeks to extend environmental and sustainability expectations throughout the supply chain to reduce adverse impacts on communities, the environment, and natural resources. The policy requires supplier qualification, background investigations conducted through third-party channels, supplier information collection, multi-disciplinary supplier evaluations, risk assessments, performance evaluations, annual reviews, supplier grading, and supplier lifecycle management. Supplier assessments consider factors including legal compliance, business integrity, product quality, technical capability, environmental performance, safety performance, social responsibility, operational performance, and supplier reputation. Suppliers that fail to meet BTR's requirements may be subject to corrective actions, downgrading, removal from the approved supplier list, or blacklisting.

The policy is implemented through BTR's corporate EHS governance structure and certified management systems, including ISO 14001, ISO 50001, and ISO 45001 frameworks.

The corporation also has a *Supplier Code of Conduct [BTR-2024-A-PU01-01]*, which further establishes requirements applicable to suppliers relating to:

- Prohibition of child labour and forced labour;
- Fair wages and working hours;
- Freedom of association;
- Anti-discrimination requirements;
- Occupational health and safety management;
- Grievance and whistleblower protections;
- Environmental protection;
- Responsible mineral sourcing;
- Supply chain traceability;
- Supplier self-assessments; and
- Management of upstream suppliers.

The *Supplier Code of Conduct* specifically requires suppliers to establish responsible sourcing procedures for risk minerals, including cobalt, lithium and graphite, undertake due diligence consistent with OECD guidance, support supply chain traceability, and provide supporting due diligence information upon request.

In addition, BTR's *Procurement Management System [BTR-2024-A-PU01-01]* establishes supplier qualification procedures, supplier background investigations, supplier performance assessments, annual supplier reviews, supplier risk assessment processes, and supplier blacklisting mechanisms where significant non-compliance is identified. Supplier evaluations include consideration of social responsibility, safety, environmental performance, legality, compliance, and business integrity.

BTR has also developed a *Social Responsibility and Occupational Health and Safety Assessment Template for New Suppliers [QMP.11-04F-A/2]*, covering occupational health and safety management systems, workforce injury records, emergency preparedness and response, and legal compliance requirements. This assessment tool provides an initial basis for new supplier evaluation and screening.

The documents mentioned above establishes minimum conduct requirements for suppliers and provides the basis for supplier performance reviews and ESG-related assessments for BTR’s all wholly owned and controlled subsidiaries. According to BTR, suppliers are required to sign commitment letters covering key labour and human rights issues such as forced labour, child labour and other concerns. Supplier performance is assessed annually, and serious non-compliance may result in measures such as temporary suspension of business relationships or supplier blacklisting.

In summary, key raw material suppliers are selected and managed directly by BTR at corporate level. BTR Mediterranean Anode New Material Technology, as the Project company, is expected to ensure that suppliers engaged for Project activities comply with the standards and requirements established under BTR’s corporate procurement, sustainability, and supplier management framework.

6.2.3 ASSESSMENT

BTR has adopted corporate policies addressing human rights, supplier conduct, responsible sourcing, procurement governance, supplier monitoring, and whistleblower protections. Although human rights impacts related to OHS, child labour, forced labour, unsafe working conditions, excessive working hours, exploitation of vulnerable workers, restrictions on freedom of association, and limited access to effective remedy may still arise within upstream business relationships, BTR has adopted a range of supply chain management measures at the corporate level, which provide the basis for supplier oversight and management by the Project Company.

During construction, procurement relationships are expected to be relatively short-term and generally associated with lower-risk goods and services. In addition, BTR has established procurement controls that include supplier qualification procedures, third-party background investigations, supplier risk assessments, multi-disciplinary supplier evaluations, annual supplier reviews, and supplier performance monitoring. The severity is therefore considered **Medium**, while the likelihood is considered **Unlikely**. Accordingly, the overall salience during this stage is assessed as **Low**.

During operation, the Project's dependence on petroleum raw materials increases exposure to higher-risk upstream supply chains. The operational-phase supply chain assessment has been refined to focus specifically on the sourcing regions such as Europe and North America. Although specific supplier identities were not available, the identified sourcing regions are generally characterized by established regulatory frameworks governing labour conditions, occupational health and safety, environmental protection, and business conduct.

Considering BTR has established supply chain management measures, including the *Sustainable Procurement Policy*, *Supplier Code of Conduct*, supplier qualification processes, supplier risk assessments, annual supplier reviews, and responsible sourcing requirements, the impact severity is considered **Medium**, while the likelihood is considered **Unlikely**. The overall salience is also assessed as **Low** during operation.

Impact	Phase	Rightsholders	Severity	Likelihood	Salience
Impacts On Workers' Rights Along the Project's Supply Chain	Construction	Workers along Supply chain	Medium	Unlikely	**Low**
Impacts On Workers' Rights Along the Project's Supply Chain	Operation	Workers along Supply Chain	Medium	Possible	**Low**

6.2.4 MANAGEMENT OF THE PROJECT SUPPLY CHAIN

The Project's existing supply chain human rights risks and management systems is presented in the following table:

Risk/Impact	Phase	Salience	Existing Management Measures	Responsible Parties
Impacts on Workers' Rights along the Project Supply Chain	Construction	**Low**	• Sustainable Procurement Policy • Supplier Code of Conduct [BTR-2024-A-PU01-01] • Procurement Management System [BTR-2024-A-PU01-01] • Social Responsibility and Occupational Health and Safety Assessment Template for New Suppliers [QMP.11-04F-A/2]	Purchase Department
	Operation	**Low**		

In accordance with the identified human rights risks in the Project supply chain, the following mitigation measures are proposed.

- Strengthen supplier monitoring during Project implementation. While supplier qualification and approval are managed by BTR at the corporate level, the Project Company is recommended to regularly verify supplier compliance with BTR's requirements relating to labour rights, OHS, environmental management, and business ethics.
- Establish clear escalation and reporting channels. The Project Company should promptly report any supplier non-compliance, labour grievances, serious incidents, or alleged human rights violations to BTR corporate functions and ensure that corrective actions are implemented and tracked to closure.
- Finalise and implement the Project grievance mechanism. The Project Company should communicate available grievance channels to its suppliers to strengthen information transparency for workers along the supply chain and monitor any relevant grievances.

6.3 IMPACTS ON COMMUNITY SECURITY RELATED TO THE PROJECT SECURITY FORCES

6.3.1 BASELINE CONTEXT

At the time of the assessment, no evidence was identified of Project-related security incidents, community unrest, unauthorized community access to the Project site, or other circumstances requiring a significant security response. Similarly, stakeholder engagement activities, management interviews, and site observations did not identify any security-related concerns associated with the Project or its surrounding area.

The primary human rights consideration for the Project is therefore the manner in which security arrangements are implemented and managed. In particular, any interactions between security personnel, workers, and community members should be conducted in a manner that respects human rights, provides appropriate channels for raising concerns, and ensures that grievances can be reported and addressed without fear of retaliation.

6.3.2 PROJECT DETAILS

The Project is located within the Cité Mohammed VI Tangier Tech, which maintains controlled access arrangements, including perimeter fencing, security gates, and entry screening procedures for visitors and vehicles. As a result, interactions between Project security

personnel and community members are expected to be limited and generally confined to access-control or visitor-management activities.

During construction, site security will be provided by an outsourced private security company. At the time of assessment, less than five security personnel had been deployed on site. Security personnel are unarmed and are responsible primarily for access control, patrol activities and protection of Project property.

During operation, site security will continue to be provided by an outsourced security company. Approximately 5-10 security personnel are expected to be required to provide 24-hour site coverage. No weapons are expected to be carried by security personnel. Security personnel will continue to be managed through the Project Company's security management arrangements, including training, communication procedures, designated responsibilities and supervision mechanisms.

According to the Project Company, security personnel receive training in accordance with the Project Company's annual emergency drill programme and security management procedures. However, a formal security management plan is not provided at this stage.

6.3.3 ASSESSMENT

Potential human rights impacts associated with project security personnel may arise if security staff engage in inappropriate conduct towards workers, contractors, visitors or community members. Examples could include inappropriate restrictions on movement, verbal harassment, discriminatory treatment, excessive use of force, unreasonable searches, or failure to properly respond to grievances. Such impacts could affect rights associated with personal dignity, security of person and freedom of movement.

The construction phase will involve a relatively small security presence. Security personnel are expected to undertake routine security functions and are unlikely to have frequent interactions with surrounding communities beyond normal access-control activities. In addition, the absence of weapons reduces the potential severity of security-related incidents. The severity of potential impacts is therefore considered **Low**, while the likelihood is considered **Unlikely**. Accordingly, the overall impact rank is assessed as Low during construction.

During operation, the number of security personnel will increase to approximately nine individuals to support continuous site security. As with construction, security personnel are expected to be unarmed and primarily responsible for routine monitoring and access control. The increased security presence may marginally increase interactions with workers, contractors, transport operators and visitors. However, given the absence of armed personnel, the limited anticipated interaction with community members, and the existence of management and supervision arrangements, the likelihood of significant adverse human rights impacts remains **Unlikely**. The severity is considered **Low**. The overall salience is assessed as **Low** during operation.

Impact	Phase	Rightsholders	Severity	Likelihood	Salience
Impact on community safety	Construction	Nearby community members	Low	Unlikely	**Low**

Impact	Phase	Rightsholders	Severity	Likelihood	Salience
associated with employment of security personnel	Operation	Nearby community members	Low	Unlikely	**Low**

6.3.4 MANAGEMENT OF COMMUNITY SECURITY ASSOCIATED WITH THE PROJECT SECURITY FORCES

The Project's existing human rights salience level and management entities related to its use of security forces is presented in the following table:

Risk/Impact	Phase	Salience	Existing Management Measures	Responsible Parties
Impact on community safety associated with employment of security personnel	Construction	**Low**	Not Identified	
	Operation	**Low**		

Based on the impact assessment above, risks relating to employment of security personnel calls for strengthened management framework as demonstrated below.

The Project Company should develop and implement a **Security Management Plan** covering both construction and operation phases. The Plan should establish the Project's expectations and management requirements for all outsourced security personnel.

The Security Management Plan should include the following elements:

- Security personnel standards and conduct
  - Define expected standards of professional conduct for all security personnel.
  - Require security personnel to respect human rights, human dignity, and the rights of workers, contractors, visitors, and community members.
  - Prohibit harassment, discrimination, intimidation, abusive behaviour, and the unnecessary use of force.
  - Define responsibilities relating to confidentiality, privacy protection, and respectful interactions with rightsholders.
- Conduct induction training for security personnel on:
  - Human rights principles;
  - Appropriate interactions with workers and community members;
  - Conflict de-escalation;
  - Non-discrimination;
  - Emergency response; and
  - Incident reporting requirements.

- Monitoring and Reporting
  - Maintain a register of all security-related incidents, complaints, grievances, community interactions leading to disputes, and disciplinary actions involving security personnel.
  - Conduct annual audits and performance reviews of security contractors to verify compliance with Project requirements, human rights commitments, and applicable legal obligations.

6.4 GENDER-RELATED CONCERNS RELATED TO PROJECT LABOUR INFLUX

6.4.1 BASELINE CONTEXT

Morocco has made progress in strengthening gender equality through legal and policy reforms; however, significant gender disparities remain in economic participation, employment, and access to leadership opportunities. Women continue to experience lower labour force participation rates than men and face barriers to employment, income generation, skills development, and decision-making roles. According to the baseline information, gender-based violence (GBV) remains a significant national human rights challenge in Morocco, with psychological violence, domestic violence, economic violence, and sexual violence being the most commonly reported forms.

Women and girls in vulnerable circumstances, including those with lower incomes, disabilities, or limited social support, may face heightened risks of violence and barriers to accessing justice, support services, and effective remedies. International human rights bodies continue to encourage Morocco to strengthen implementation of legal protections, survivor support mechanisms, and prevention measures to address persistent GBV risks.

At the local level, stakeholder engagement identified gender-related constraints affecting women's access to employment, education, mobility, and participation in community life. Women reported that economic opportunities are largely concentrated in traditional sectors such as sewing, handicrafts, petty trade, and informal services, while social norms may discourage women from pursuing non-traditional employment. Participants also highlighted restrictions on women's mobility, social stigma associated with certain forms of employment, and the continued occurrence of early marriage, which may contribute to school dropout and reduced educational attainment among girls. Both the construction sector and the manufacturing industry are traditionally male-dominated work environments. As a result, female workers may face barriers to equal employment opportunities, including underrepresentation in technical and operational roles, limited access to career advancement and leadership positions, gender bias in recruitment and promotion processes, and increased risks of workplace harassment or exclusion from informal workplace networks. These factors may contribute to discriminatory outcomes and hinder women's full and meaningful participation in the workforce. and meaningful participation in the workforce.

Consultations further identified domestic violence and harassment as existing concerns within project-affected communities. Women reported that domestic violence occurs within some households, while harassment and inadequate public lighting may limit women's sense of safety and access to public spaces, particularly at night. Community feedback indicates that workforce influx may contribute to changes in local social dynamics, including the occurrence of informal transactional relationships and associated public health concerns. These findings

suggest that restrictive gender norms, GBVH/SEA risks, and unequal access to economic opportunities remain relevant human rights considerations in the local context.

From a Project perspective, key gender-related risks include unequal access to employment and training opportunities, workplace discrimination and harassment, barriers to information grievance mechanisms, sexual harassment and exploitations, and the potential exclusion of women from Project benefits. These risks may be particularly relevant in construction and manufacturing sectors, which have traditionally been male dominated.

6.4.2 PROJECT DETAILS

The Project's construction workforce exhibits several characteristics relevant to the assessment of gender-related human rights risks. First, the current construction workforce is heavily male-dominated, comprising 862 workers, the majority of whom are contractor personnel and migrant Chinese workers. Among BTR's direct workforce, 77% are male and 23% are female, while the contractor workforce is almost entirely male, with one EPC Package reporting a 99.7% male workforce and the other reporting an entirely male workforce, except for approximately 10 to 20 female personnel. Overall, female representation within the construction workforce is limited and concentrated in a small number of roles.

Female workers are primarily employed in administrative, management, logistics, occupational health and safety, medical, and support functions. Interviews indicated that Moroccan women are mainly engaged in occupational health and safety, clinic, medical, and logistics roles, including female safety officers, while Chinese women are predominantly employed in management and administrative positions, with only a small number undertaking site-based roles. This workforce composition reflects a degree of occupational segregation by gender and the underrepresentation of women in core construction positions.

The Project also relies heavily on a migrant workforce during construction. Approximately 83% of the construction workforce comprises Chinese workers, most of whom are accommodated in worker camps separate from nearby communities. The combination of a predominantly male workforce, worker accommodation arrangements, and the presence of a sizable expatriate labour force are factors commonly considered in assessments of gender-related risks, including workplace harassment, discrimination, and potential GBVH/SEA concerns, particularly where interactions may occur between workers and local communities.

The assessment identified some workforce arrangements intended to support female workers. For example, EPC Package 2 reported the availability of dedicated female accommodation areas within worker housing facilities. In addition, BTR's Code of Business Conduct includes commitments relating to equal employment opportunities and the prevention of discrimination and harassment. However, no project-specific gender management plan, GBVH/SEA procedure, or dedicated workplace harassment grievance mechanism was identified during the assessment.

For more information on the Project workforce context, refer to ***Section 6.1.2***.

BTR's corporate *Human Rights Policy* includes commitments relating to the protection of local communities. The policy states that it “respects and protects the legitimate rights, interests and cultural traditions of local communities in areas where it operates”. The policy commits the company to comply with applicable laws, respect local culture and lifestyles, engage in

communication and consultation, avoid adverse impacts, and promote mutually beneficial community development through cooperation and public welfare initiatives.

6.4.3 ASSESSMENT

From a gender perspective, the Project's construction workforce is predominantly male and includes a substantial number of non-local workers accommodated in worker camps and off-site accommodation facilities. The workforce itself also includes a relatively small number of female workers, primarily employed in management, administration, logistics, occupational health and safety, and medical support roles. As a result, gender-related risks may affect both female workers and women and girls in neighbouring communities through workplace interactions, daily commuting, accommodation arrangements, commercial activities, and other off-site engagements. Workforce influx therefore represents an inherent contextual risk commonly associated with large-scale industrial construction projects.

The company's *Human Rights Policy* confirmed its commitment to respect local community customs. However, the policy does not specifically address gender-related risks such as gender-based violence and harassment (GBVH), sexual exploitation and abuse (SEA), workplace harassment, discrimination, or other inappropriate behaviours that may affect female workers or women and girls in neighbouring communities..

In terms of grievance and remedy of GBVH/SEA incidents, the Project's grievance mechanism has not yet been communicated specifically to women and girls in neighbouring communities, or to female workers, or that survivor-centred procedures, referral pathways, confidentiality protocols for GBVH cases, or gender-sensitive complaint handling arrangements have been established.

At the time of the assessment, no formal Worker Management Plan (WMP) or Project-specific Workers' Code of Conduct (CoC) was provided. The assessment did not identify a consolidated document that defines required standards of worker behaviour when interacting with local communities, including expectations regarding respectful conduct, non-discrimination, prohibition of sexual exploitation and abuse, gender-based violence, harassment. Consequently, both female workers and women and girls in neighbouring communities may be exposed to gender-related risks associated with workforce interactions and labour influx.

As no Project level workforce behaviour management or monitoring system is present, the likelihood of gender-related human rights incidents is **Possible** for both construction and operation phase. The severity is considered **High**. Therefore, the overall salience is assessed as **Moderate** during both project phases.

Impact	Phase	Rightsholders	Severity	Likelihood	Salience
GBVH/SEA risks related to labour influx and a predominantly male workforce	Construction	Nearby community members, particularly women and girls.	High	Possible	**Moderate**
		Female Project workers (both direct and contracted)			**Moderate**

Impact	Phase	Rightsholders	Severity	Likelihood	Salience
	Operation	Nearby community members, particularly women and girls.	High	Possible	**Moderate**
		Female Project workers (both direct and contracted)			**Moderate**

6.4.4 MANAGEMENT OF GENDER-RELATED HUMAN RIGHTS IMPACTS

The Project's existing management measures related to GBVH/SEA risks are presented in the following table.

Risk/Impact	Phase	Salience	Existing Management Measures	Responsible Parties
GBVH/SEA risks related to labour influx and a predominantly male workforce	Construction	**Moderate**	• Human Rights Policy • Complaint and Whistleblowing Implementation Guidelines [BTR-2021-C-AU02-02]	HR and Administration Department
	Operation	**Moderate**		

The following recommendations are provided for the Project company to prevent and remedy the potential GVBH/SEA-related human rights impacts:

- Assess safety considerations when planning Project-related infrastructure, traffic routes, transport arrangements, and worker accommodation, including the following key aspects:
  - Separate accommodation arrangements for female workers where applicable.
  - Establish safe and secure sanitation and washing facilities.
  - Ensure adequate safety measures are in place, including lighting and privacy safeguards.
  - Establish safe transportation arrangements for Project workers, particularly women.
- Develop and implement a *Worker's Code of Conduct* applicable to all workers and contractors. The Code of Conduct should:
  - Explicitly prohibit sexual exploitation and abuse of community members.
  - Explicitly prohibit irrespective behaviours against local customs and require respectful interactions with local communities and adherence to local cultural norms.
  - Stress the Project Company's commitment to gender equality and non-discrimination in recruitment, employment, remuneration, promotion, training, benefits, and termination processes.

- Establish clear expectations for appropriate workplace and community conduct, including respectful interactions with co-workers and local community members.
- Define and prohibit unacceptable behaviours, including:
  - Sexual harassment, unwelcome sexual advances, requests for sexual favours, verbal abuse, discrimination, bullying, intimidation, and retaliation in the workplace.
  - Sexual exploitation and abuse.
  - Exchange of money, gifts, services, employment opportunities, or other benefits for sexual activity.
  - Harassment of local residents, abuse of authority, inappropriate public behaviour, and violence against women and girls.
- Define disciplinary consequences for non-compliance, including dismissal and contractor sanctions.
- Include a gender-sensitive grievance mechanism, including a survivor-centred response procedure. Applicable measures include:
  - Explicitly recognise GBVH/SEA and gender discrimination complaints as a reportable category.
  - Provide confidential and anonymous complaints reporting channels.
  - Establish appropriate focal points for receiving GBVH/SEA grievances.
  - Clarify the escalation channels for any GBVH/SEA allegations.
  - Establish a survivor-centred GBVH/SEA response protocol consistent with international good practice.

    The protocol should:
    - Prioritise survivor safety, confidentiality and informed consent.
    - Avoid disclosure of survivor identities.
    - Prevent retaliation against complainants.
    - Avoid re-traumatisation during investigations.
    - Establish procedures for referral to appropriate support services. Where feasible, the Project should map available local service providers, including healthcare providers, psychosocial support services, women's support organisations and relevant authorities, and establish referral pathways before incidents occur.

- The grievance mechanism under the *Worker's Code of Conduct* should be available in accessible languages including Arabic, Chinese and French, rightsholders including both workers and community members should be informed about the *Worker's Code of Conduct* in appropriate and accessible forms. This grievance mechanism under the *Worker's Code of Conduct* may be implemented by leveraging any existing local resources and/or procedures.
- Communicate grievance channels through community engagement activities.
- Disclose information on grievance channels in nearby communities, worker accommodation facilities and other accessible locations and languages (Arabic/ Chinese/French).

- Keep records of signatures of all workers, including subcontractor workers and security personnel to the *Worker's Code of Conduct*.
- Provide mandatory awareness trainings for all Project workers, contractors and security personnel should and provide periodic refresher trainings, the trainings should include but is not limited to the following:
  - Definitions and examples of GBVH/SEA and discriminative actions.
  - Expected standards of behaviour.
  - Respectful interactions with community members.
  - Gender equality and non-discrimination principles.
  - Consequences of violations.
  - Reporting obligations and available grievance channels.

  These training should be culturally appropriate and delivered in languages understood by the workforce, including Chinese and Arabic/French where relevant.
- Keep records of the gender awareness training sessions.
- Establish monitoring indicators to evaluate the effectiveness of GBVH/SEA and discrimination prevention measures, indicator can include:
  - Percentage of workers receiving gender awareness training.
  - Number of gender-related grievances received.
  - Percentage of grievances addressed within established timeframes.
  - Number of disciplinary actions related to *Workers' Code of Conduct* violations.
- To achieve best practices in diminishing GBVH/SEA in the Project area, the following suggestions are raised to the Project Company, for consideration as part of the community development and investment program:
  - Engage and work with local authorities and communities to improve lighting in areas identified as unsafe for women and girls.
  - Engage local government or NGOs to deliver awareness programmes addressing domestic violence, gender equality, respectful relationships, and provide assistance to available support services.
  - Engage community leaders, religious leaders, men, and boys as partners in prevention initiatives.

6.5 ACCESS TO REMEDY

6.5.1 BASELINE CONTEXT

Access to remedy in Morocco is supported by a range of formal mechanisms, including labour inspection authorities, labour courts, administrative institutions, the Ombudsman, and the National Human Rights Council (CNDH). Workers can raise grievances through labour inspectors, trade unions, mediation processes, and judicial channels.

While these mechanisms provide multiple avenues for seeking remedy, their effectiveness may be constrained in practice by factors such as procedural complexity, resource limitations, delays in investigations and judicial proceedings, and challenges in the consistent enforcement

of outcomes.[71] Recent human rights assessments have also noted concerns regarding the transparency and timeliness of certain complaint and investigation processes.[72]

At the community level, complaints are commonly raised through local administrative structures, particularly the Caïdat and Mokadem, which serve as key interfaces between residents and government authorities. However, at a community level, stakeholders consulted noted concerns regarding limited follow-up and feedback on submitted complaints.

More broadly, challenges to effective access to remedy remain, including lengthy legal procedures, limited awareness of available mechanisms, and barriers faced by vulnerable groups such as women, migrant workers, rural populations, and low-income individuals.

6.5.2 PROJECT DETAILS

6.5.2.1 EXTERNAL GRIEVANCE MECHANISM

A *Grievance Mechanism* has been developed as part of the Project *Stakeholder Engagement Plan*, for engaging external stakeholders and receiving and resolving external grievances.

The Project-level Grievance Mechanism for local communities has been developed to define clear and predictable processes for how grievances or complaints get addressed. The grievance mechanism encompasses a monitoring process to ensure that any grievance handling is conducted in a fair, impartial, and timely manner.

6.5.2.2 INTERNAL GRIEVANCE MECHANISM

BTR has established several internal channels through which employees can raise workplace concerns, complaints, and employment-related disputes. Evidence reviewed includes employee satisfaction surveys and regular "Tea Meeting" sessions, during which employees from different departments participate in brainstorming exercises to identify workplace issues and propose solutions. Records indicate that concerns raised through these forums are analysed, categorised by priority, and tracked through follow-up actions, reflecting a degree of workforce consultation and management responsiveness.

For Project's contractor workers, no evidence of a formal Grievance Mechanism was found during the ESIA assessment.

6.5.3 ASSESSMENT

The Project's existing external Grievance Mechanism includes culturally appropriate approaches tailored to the local context of the Grievance Mechanism are defined. Approach to anonymous submission of grievance is provided. Anti-retaliation safeguards are included. Procedures for the escalation of the complaints or grievances are also defined.

Gender dynamics are considered in the Grievance Mechanism. GM includes provisions to address GBV-related complaints, ensuring appropriate capacity and support for victims. However, no clearly defined sensitive grievance reception personnel, survivor protection policy or referral pathway is provided. Grievances for highly sensitive cases, such as GBVH and SEA,

[71] National Human Rights Council of Morocco (CNDH). (2022). Fourth cycle of the Universal Periodic Review report of the National Human Rights Council of Morocco. https://www.cndh.ma/sites/default/files/inline-files/cndh_report_upr_0.pdf
[72] U.S. Department of State. (2025). 2024 Country Reports on Human Rights Practices: Morocco. https://www.state.gov/wp-content/uploads/2025/07/624521_MOROCCO-2024-HUMAN-RIGHTS-REPORT.pdf

if not handled properly, will adversely impede the rightsholder's access to remedy. In addition, the GM does not explicitly address potential discrimination-related grievances such as those relevant to Project employments.

Project's existing internal grievance mechanism is not considered aligned with IFC PS2, ILO guidance, and the UNGP effectiveness criteria. the existing "Team Meeting" system appears more focused on communication and employment administration than on a comprehensive worker grievance management. In addition, the existing internal grievance and dispute management channels primarily focus on direct employees, particularly Chinese staff; applicability to local workers and contractor workers was not present.

This lack of access to remedy will constrain the rightsholders' ability to raise concerns and for complaints to get solved. Strengthening confidentiality protections, non-retaliation commitments, anonymous reporting options, grievance tracking, and accessibility for all categories of workers would help align the system more closely with ILO and the UNGP effectiveness criteria for grievance mechanisms.

For Project workers, the severity of impacts associated with inadequate access to remedy is assessed as **Medium**. In the absence of a formal and accessible Worker Grievance Mechanism applicable to all worker categories, unresolved concerns may adversely affect workers' ability to seek remedy, raise grievances safely, and have complaints addressed in a timely and consistent manner.

For nearby communities, the severity of impacts associated with inadequate access to remedy is also assessed as **Medium**, as community members may experience constraints in raising concerns relating to Project impacts or obtaining effective resolution if grievances are not appropriately managed.

For nearby communities, the Project has established an external Grievance Mechanism and affected stakeholders also retain access to existing public administrative grievance channels, such as the Caïdat and Mokadem. As a result, the likelihood of community members experiencing barriers to remedy is considered **Unlikely**.

For Project workers, although workforce communication and complaint channels have been established, the absence of a formal and documented Worker Grievance Mechanism creates a greater risk that concerns may not be raised, managed, escalated, and resolved consistently. This is particularly relevant for contractor and subcontractor workers. Consequently, the likelihood of Project workers experiencing barriers to remedy is considered **Likely**.

Overall, the salience of rightsholders' inability to access remedy is assessed as below:

Impact	Phase	Rightsholders	Severity	Likelihood	Salience
Inability to Access Remedy	Construction	Project workers	Medium	Likely	**Moderate**
		Nearby communities		Unlikely	**Low**
	Operation	Project workers		Likely	**Moderate**

Impact	Phase	Rightsholders	Severity	Likelihood	Salience
		Nearby communities		Unlikely	**Low**

6.5.4 MANAGEMENT OF THE PROJECT GRIEVANCE MECHANISM

The Project's existing management measures related to remedy access risks are presented in the following table.

Risk/Impact	Phase	Salience	Existing Management Measures	Responsible Parties
Inability to Access Remedy	Construction	**Moderate** (for Project workers)	• Project Grievance Mechanism (external)	• HR and Administration Department • Project Construction Department • ESG and Legal Compliance Department
		Low (for nearby communities)		
	Operation	**Moderate** (for Project workers)		
		Low (for nearby communities)		

In accordance with the identified human rights risks in rightsholders' in accessing remedy, the following mitigation measures are proposed to develop a more comprehensive and differentiated grievance mechanism for both internal workers and external communities:

- Develop, disclose and implement a formal Workers' Grievance Mechanism (WGM) applicable to all Project workers, the WGM should:
  - Be available in languages commonly spoken by the workforce, including Chinese, Arabic and French.
  - Permit anonymous grievance submission.
  - Include clear non-retaliation commitments.
  - Cover labour-related grievances including but not limited to:
    - wages and benefits;
    - working hours and overtime;
    - discrimination and harassment;
    - accommodation and welfare conditions;
    - recruitment practices;
    - freedom of association;

    - occupational health and safety concerns; and
    - Gender-related complaints.
  - Establish a grievance register for internal grievance tracking, closure confirmations and future monitoring. The register should include appropriate confidentiality, data protection, and access-control measures to ensure that sensitive information is only accessible to authorised personnel.
  - Ensure contractor workers have equal access to the mechanism.
- Develop and implement the grievance mechanisms under the Project *Worker's Code of Conduct* as defined in ***Section 6.4.4***
- Finalise and implement the Project external Grievance Mechanism as defined in the Project *Stakeholder Engagement Plan*.

7. MONITORING AND REPORTING

As this HRIA represents a point-in-time assessment, it should be viewed as part of an ongoing human rights due diligence process rather than a standalone exercise. Continuous monitoring and periodic review are necessary to assess whether mitigation measures are being effectively implemented, evaluate changes in the Project's human rights risk profile, and identify any actual or emerging impacts on affected stakeholders. This chapter outlines the monitoring and reporting framework for BTR to support the effective management of Project-related human rights risks and impacts over time.

7.1 MONITORING

The identified human rights impacts and corresponding management measures should be monitored and reviewed by the Project Company throughout the Project lifecycle. The objectives of monitoring are to:

- Verify the human rights risks and issues identified in the assessment;
- Confirm that management and mitigation measures are being implemented as intended;
- Evaluate the effectiveness of these measures in preventing, minimising, or addressing adverse impacts; and
- Generate information to support internal reporting and management decision-making.

Monitoring should be implemented as an ongoing process involving the regular collection, analysis, and review of relevant information. The results of monitoring should enable BTR to identify emerging concerns at an early stage and support the continuous improvement of human rights risk management practices. Monitoring data should be collected on a routine basis and used to assess the performance and effectiveness of mitigation and management measures. Specific monitoring and evaluation frequencies should be defined within the relevant management plans. As a minimum, BTR should undertake an annual review of human rights performance and update management measures, where necessary, based on the outcomes of the review.

Independent third-party review or verification may be considered where warranted by Project circumstances, including in the event of serious human rights incidents, recurring grievances, significant stakeholder concerns, lender requirements, material non-compliances, or where additional assurance is required to strengthen transparency and stakeholder confidence. Such oversight may be particularly beneficial where human rights impacts are severe, stakeholder trust is limited, or the Project is subject to heightened scrutiny from external stakeholders, including civil society organisations and advocacy groups.

To support effective human rights monitoring, the following measures are to be implemented:

- Engage affected communities, workers, duty bearers, and other relevant stakeholders in monitoring the implementation and effectiveness of impact management measures;
- Strengthen the capacity of affected stakeholders to facilitate meaningful participation in monitoring processes;
- Assess the accessibility and acceptability of mitigation and management measures from the perspective of affected rightsholders;

- Consider gender-related factors, the needs of vulnerable or disadvantaged groups, and potential barriers relating to language, literacy, technology, or physical accessibility;
- Establish clear procedures for the timely escalation of information relating to significant actual or potential human rights impacts to appropriate levels of Project management; and
- Promote transparency and proactive communication to reduce the risk of misinformation and maintain stakeholder confidence.

Monitoring activities should also be responsive to material changes in the Project, regulatory developments, and evolving local conditions. The outcomes of monitoring should be communicated to stakeholders in a timely manner through appropriate and accessible channels tailored to different stakeholder groups, such as community meetings, printed materials, digital platforms, or worker communication mechanisms.

The following monitoring activities are proposed for the Project:

- Conduct an annual review of salient human rights impacts against established indicators, led by BTR's HR and/or ESG function, with participation from worker representatives, community representatives, and other relevant rightsholders.
- Conduct periodic monitoring according to specific indicators, responsibilities, and frequencies as presented in Chapter 6 of this HRIA.

7.2 REPORTING

Any human rights-related incidents and issues should be reported immediately to the Project General Manager. This involves recording the details of the incident or issue and corrective actions taken. Rights holders should be consulted and informed about the proposed corrective actions.

If there is increasing pressure on Project management to manage their potential human rights risks, further reporting may be required by external parties, including government agencies and lenders. This should be monitored to ensure the Project remains compliant with reporting requirements.

APPENDIX B-1 POTENTIAL HUMAN RIGHTS IMPACTS SCREENING AND SCOPING RESULT

Impacts	Rightsholders	Human Rights at Risk	Construction Phase	Operation Phase
Potential impacts on labour rights and working conditions of Project workers	The workforce directly employed by the Project, contracted workers and subcontracted workers that construct and support the operation of Project	**UDHR** **Article 3:** Right to Life **Article 4:** Right not to be subjected to slavery, servitude or forced labour **Article 7:** Right to equality before the law, equal protection of the law **Article 8:** Right to access effective remedies **Article 13:** Right to Freedom of Movement **Article 20:** Right to freedom of Association **Article 22:** Right to social security and insurance **Article 23:** Right to Work **Article 24:** Right to Rest and Leisure **Article 25:** Right to Adequate Standard of Living **ICESCR** **Article 6:** Right to work **Article 7:** Right to just and favourable conditions of work **Article 8:** Right to form and join trade unions **Article 9:** Right to social security **Article 10:** Protection of the family and young workers **Article 11:** Right to an adequate standard of living **Article 12:** Right to the highest attainable standard of health **ILO Core Conventions** **ILO C029** Forced Labour **ILO C087** Freedom of Association and the Right to Organise **ILO C098** Right to Organise and Collective Bargaining **ILO C100** Equal Remuneration **ILO C105** Abolition of Forced Labour **ILO C111** Discrimination in Employment and Occupation **ILO C138** Minimum Age	Scope-in and will assess in this HRIA	Scope-in and will assess in this HRIA

Impacts	Rightsholders	Human Rights at Risk	Construction Phase	Operation Phase
		ILO C182 Worst Forms of Child Labour		
Potential Impacts on Project workers' occupational health and living standards through the provision of accommodation	Project workforce	**UDHR** **Article 2:** Principle of Non-discrimination **Article 25:** Right to a standard of living adequate for health and well-being **ICESCR** **Article 12:** Right to the enjoyment of highest attainable standard of physical and mental health **ILO Core Conventions** **ILO C155** Occupational Safety and Health Convention **ILO C187** Promotional Framework for Occupational Safety and Health Convention	Scope-in and will assess in this HRIA	Scope-in and will assess in this HRIA
Potential impacts on workers' rights along the Project's supply chain	The workforce involved in the wider Project supply chain	**UDHR** **Article 3:** Right to Life **Article 4:** Right not to be subjected to slavery, servitude or forced labour **Article 7:** Right to equality before the law, equal protection of the law **Article 8:** Right to access effective remedies **Article 13:** Right to Freedom of Movement **Article 20:** Right to freedom of Association **Article 22:** Right to social security and insurance **Article 23:** Right to Work **Article 24:** Right to Rest and Leisure **Article 25:** Right to Adequate Standard of Living **ICESCR** Article 7: Right to Just and Favourable Conditions of Work	Scope-in and will assess in this HRIA	Scope-in and will assess in this HRIA

Impacts	Rightsholders	Human Rights at Risk	Construction Phase	Operation Phase
		Article 8: Right to Form and Join Trade Unions Article 12: Right to the Highest Attainable Standard of Physical and Mental Health **<u>ILO Core Conventions</u>** **ILO C029** Forced Labour **ILO C087** Freedom of Association and the Right to Organise **ILO C098** Right to Organise and Collective Bargaining **ILO C100** Equal Remuneration **ILO C105** Abolition of Forced Labour **ILO C111** Discrimination in Employment and Occupation **ILO C138** Minimum Age **ILO C182** Worst Forms of Child Labour **ILO C155** Occupational Safety and Health Convention **ILO C187** Promotional Framework for Occupational Safety and Health Convention		
Potential impacts on community safety associated with employment of security personnel	The residents of nearby communities	**<u>UDHR</u>** **Article 3:** Right to Life **Article 5:** Freedom from Torture **Article 9:** Right to free from arbitrary arrest, detention or exile **<u>ICCPR</u>** **Article 6:** Right to Life **Article 7:** Freedom from Torture or Cruel, Inhuman or Degrading Treatment **Article 9:** Right to Liberty and Security of Person **Article 12:** Freedom of Movement **Article 26:** Equality Before the Law and Non-Discrimination	Scope-in and will assess in this HRIA	Scope-in and will assess in this HRIA

Impacts	Rightsholders	Human Rights at Risk	Construction Phase	Operation Phase
Potential gender discrimination; GBVH/SEA risks associated with the presence of Project workforce	The residents of nearby communities, particularly women and girls	**UDHR** **Article 2:** Freedom from discrimination **Article 3:** Right to life, liberty and security of person **Article 5:** Freedom from torture and cruel, inhuman or degrading treatment **Article 8:** Right to an effective remedy **CEDAW** **Article 2:** Elimination of Discrimination Against Women **Article 3:** Enjoyment of Human Rights and Fundamental Freedoms on a Basis of Equality **Article 5:** Elimination of Gender Stereotypes and Practices Leading to Discrimination	Scope-in and will assess in this HRIA	Scope-in and will assess in this HRIA
Potential inability of rightsholders to participate and/or access remedy	The residents residing in nearby communities, the workforce directly employed by the Project, contracted workers and subcontracted workers that construct and support the operation of Project	**UDHR** **Article 19:** Freedom of Opinion and Expression **Article 20:** Freedom of Assembly and Association	Scope-in and will assess in this HRIA	Scope-in and will assess in this HRIA
Potential impacts on health and safety of nearby communes from the Project environmental emissions and disturbance	Local communities	**UDHR** **Article 3:** Right to life, liberty and security of person **Article 25:** Right to a standard of living adequate for health and well-being	Will not assess in this HRIA as already assessed in Section 7.3.2.2 of ESIA	Will not assess in this HRIA as already assessed in Section 7.3.2.2 of ESIA

Impacts	Rightsholders	Human Rights at Risk	Construction Phase	Operation Phase
Potential impacts on public infrastructure, such as utilities and services	Local communities	**CESCR** **Gen Comment 14:** Right to the highest attainable standard of health **Gen Comment 15:** Right to water **UDHR** **Article 25:** Right to health and health services **Article 13**: Right to freedom of movement	Will not assess in this HRIA as already assessed in Section 7.3.4 of ESIA	Will not assess in this HRIA as already assessed in Section 7.3.4 of ESIA
Potential pressure added to the local medical infrastructure due to the Project-induced labour influx	Local communities Project workforce	**ICESCR:** **Article 12**: Right to the enjoyment of the highest attainable standard of physical and mental health **ICCPR:** **Article 6**: Right to Life	Will not assess in this HRIA as already assessed in Section 7.3.4 of ESIA	Will not assess in this HRIA as already assessed in Section 7.3.4 of ESIA
Potential Impacts on the health and safety of the Project workforce due to the Project construction and operation activities Occupational Health and Safety risks	Project workforce	**ICESCR** **Article 7:** Right to the enjoyment of just and favourable conditions of work **UDHR** **Article 23:** Right to work, equal pay and participation in a trade union **Article 24**: Right to safe and healthy working conditions **ICCPR** **Article 6:** Right to life **Article 9:** Right to liberty and security of person	Will not assess in this HRIA as already assessed in Section 7.3.3 of ESIA	Will not assess in this HRIA as already assessed in Section 7.3.3 of ESIA
Potential impacts on local traffic and road safety due to the	Local communities	**ICESCR:** **Article 12:** Right to health	Will not assess in this HRIA as already assessed	Will not assess in this HRIA as already assessed

Impacts	Rightsholders	Human Rights at Risk	Construction Phase	Operation Phase
increase of traffic volume entailed by the Project	Nearby companies and farms	**UDHR:** **Article 13:** Freedom of movement **Article 8:** Right to remedy	in Section 2.2.4 of ESIA	in Section 2.2.4 of ESIA
Potential impacts on livelihoods among former land users of the Project land within the Industrial Acceleration Zone (IAZ)	Previous landowners and users of the Project land	**UDHR** **Article 23:** Right to Work **Article 25:** Right to Adequate Standard of Living **Article 17:** Right to property	As the Project site was acquired by the Moroccan government in 2015, eight years before BTR purchased the land within the industrial zone in 2023. The land acquisition process was undertaken independently of the Project and cannot be directly attributed to BTR. Accordingly, impacts related to land acquisition, physical displacement, or economic displacement were not assessed as Project-related impacts within the scope of this HRIA or the SIA.	
Potential damage or destruction to known or unknown cultural heritage sites and values	NA	**ICESCR:** **Article 15:** Right to "take part in cultural life" **UDHR:** **Article 27:** Right to participate in the cultural life of the community **ICCPR:** **Article 27:** Right of ethnic, religious, or linguistic minorities to enjoy their own culture, which is deeply tied to their specific cultural heritage.	Scope-out because there are not known tangible cultural heritage and intangible cultural heritage resources present in the Project area based on desktop research and stakeholder engagement. The Project has previously enquired with the local government and local communities about the planned land	

Impacts	Rightsholders	Human Rights at Risk	Construction Phase	Operation Phase
			use areas and understands impacts on cultural heritage are unlikely.	
Potential adverse impacts on indigenous peoples	NA	**ICCPR:** **Article 27:** Right to enjoy their own culture, to profess and practice their own religion, or to use their own language **ICESCR:** **Article 1:** Right of self-determination **Article 15:** Right to take part in cultural life	Scope-out because there are no Indigenous Peoples identified in the Project area of influence.	

APPENDIX C CLIMATE CHANGE RISK ASSESSMENT

Appendix C Climate Change Risk Assessment

Morocco Lithium-Ion Anode Battery Materials Project

PREPARED FOR

BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY

DATE
05 November 2026

REFERENCE
0798554



DOCUMENT DETAILS

DOCUMENT TITLE	Appendix C Climate Change Risk Assessment
DOCUMENT SUBTITLE	Morocco Lithium-Ion Anode Battery Materials Project
PROJECT NUMBER	0798554
Date	05 November 2026
Version	03
Author	Charlotte Huang, Duo Ma
Client name	BTR MEDITERRANEAN ANODE NEW MATERIAL TECHNOLOGY

DOCUMENT HISTORY

				ERM APPROVAL TO ISSUE		
VERSION	REVISION	AUTHOR	REVIEWED BY	NAME	DATE	COMMENTS
01	000	Charlotte Huang, Duo Ma	Hoffman Cheung	Yang Shen	09.04.2026	Approve to issue
02	001	Charlotte Huang	Duo Ma	Yang Shen	10.15.2026	Updated based on comments
03	002	Charlotte Huang	Duo Ma	Yang Shen	11.05.2026	Updated based on comments

SIGNATURE PAGE

Appendix C Climate Change Risk Assessment

Morocco Lithium-Ion Anode Battery Materials Project

Yang Shen

Partner

ERM (Shanghai) Limited

Litong Plaza, 20th floor, No. 1350 Sichuan North Road

Shanghai, Hongkou District, China

© Copyright 2026 by The ERM International Group Limited and/or its affiliates ('ERM'). All Rights Reserved.
No part of this work may be reproduced or transmitted in any form or by any means, without prior written permission of ERM.

CONTENTS

1. INTRODUCTION 1
1.1 BACKGROUND 1
1.2 PROJECT OVERVIEW AND LOCATION 2
1.3 PROJECT COMPONENTS 4
1.4 RESOURCE REQUIREMENT 5
1.4.1 Water Supply and Discharge 5
1.4.2 Power Supply 5
1.5 PROJECT SPECIFICATIONS OF CCRA 6

2. METHODOLOGY 8
2.1 PHYSICAL CCRA METHODOLOGY 8
2.2 TRANSITION CCRA METHODOLOGY 11

3. PHYSICAL CLIMATE CHANGE RISK ASSESSMENT 18
3.1 OVERVIEW OF CLIMATE DATA, SCENARIOS AND TIME HORIZONS 18
3.1.1 Baseline and Projections Data 18
3.1.2 Climate Scenarios 18
3.1.3 Time Horizons 19
3.1.4 Risk Area 20
3.2 CCRA LIMITATIONS AND ASSUMPTIONS 22
3.3 CLIMATE RISK SCREENING 22
3.3.1 Climate in Mohammed and Morocco 22
3.3.2 Potential Climate Hazards 23
3.4 CLIMATE RISK REVIEW 28
3.4.1 Extreme Heat 29
3.4.2 Extreme Cold 39
3.4.3 Flooding 47
3.4.4 Extreme Winds 60
3.4.5 Wildfires 69
3.4.6 Water Stress and Drought 76
3.5 SUMMARIES AND CONCLUSIONS 85

4. TRANSITION CLIMATE CHANGE RISK ASSESSMENT 88
4.1 ASSESSMENT SCOPE AND SCENARIO FRAMEWORK 88
4.1.1 Assessment Boundary 88
4.1.2 Geographies 88
4.1.3 Transition Scenarios 88
4.1.4 Time Horizons 89
4.2 TRANSITION RISK AND OPPORTUNITY IDENTIFICATION AND SCREENING 89
4.2.1 Identification of Potential Transition Climate Risk and Opportunity Drivers 91
4.2.2 Screening Results 95
4.3 RISK AND OPPORTUNITY REVIEW AND RECOMMENDATIONS 98
4.3.1 Product Carbon-Footprint and GHG Requirements 98
4.3.2 Potential Substitution of Selected Battery Applications by Hydrogen Fuel-Cell Technologies 102
4.3.3 Access to Renewable and Lower-Carbon Electricity 105
4.3.4 Increasing Demand for Lithium-ion Batteries for Electric Mobility 109

4.3.5 Increasing Demand for Battery Energy Storage 112

5. CLIMATE CHANGE RISK MANAGEMENT PLAN 117

5.1 DEFINED ROLES AND RESPONSIBILITIES 117

5.2 GHG STRATEGY, POLICIES AND MANAGEMENT PROCEDURES 119

5.2.1 GHG Reduction Strategy 119
5.2.2 Climate and GHG Policy 120
5.2.3 Management Approach and Procedures 120

5.3 MONITORING METRICS AND APPROACH TO SUPPORT IMPLEMENTATION 124

5.3.1 Key Performance Indicators (KPIs) 124
5.3.2 Data Collection and Reporting 125
5.3.3 Internal Reporting and Escalation 126
5.3.4 Continuous Improvement 126

5.4 PROJECT-SPECIFIC MITIGATION AND RESILIENCE MEASURES 126

5.4.1 Climate Change Mitigation Measures 126
5.4.2 Climate Resilience Measures 127

5.5 EXTERNAL REPORTING AND CCRMP REVIEW 129

6. COMPATIBILITY WITH NATIONAL CLIMATE COMMITMENTS 130

6.1 ALIGNMENT WITH MITIGATION GOALS 131

6.2 ALIGNMENT WITH ADAPTATION AND CLIMATE-RESILIENCE GOALS 132

6.3 OVERALL CONCLUSION 134

APPENDIX A-1 DEFINITIONS OF ALL CLIMATE HAZARDS INCLUDED WITHIN THIS ASSESSMENT

APPENDIX A-2 KEY CONSIDERATIONS AND SUPPORTING QUESTIONS WHEN CONDUCTING PHYSICAL CCRA'S – AS PER EP4 GUIDANCE

LIST OF TABLES

TABLE 1-1 PROJECT PRODUCTION CAPACITY 2

TABLE 1-2 PROJECT COMPONENTS 4

TABLE 1-3 POWER CONSUMPTION AND SOURCES 5

TABLE 2-1 RISK MATERIALITY CATEGORIES 9

TABLE 2-2 NEXT STEPS FOR CCRA 10

TABLE 2-3 TRA METHODOLOGY OVERVIEW 11

TABLE 3-1 CLIMATE SCENARIOS USED IN THIS PHYSICAL CCRA 19

TABLE 3-2 TIME HORIZONS SELECTED FOR INCLUSION WITHIN THIS PHYSICAL CCRA 20

TABLE 3-3 DEFINITIONS OF THE POTENTIAL RISK AREAS TO THE PROJECT 20

TABLE 3-4 BASELINE AND PROJECTED EXTREME HEAT CLIMATE DATA 29

TABLE 3-5 HUMAN HEAT STRESS DAYS AND HIGHEST DAILY MAXIMUM TEMPERATURE 29

TABLE 3-6 POTENTIAL RISK AREAS AT THE START AND END OF OPERATIONS ASSOCIATED WITH THE PROJECT FOR THE EXTREME HEAT HAZARD GROUPING 31

TABLE 3-7 RECOMMENDED NEXT STEPS FOR EACH RISK AREA IDENTIFIED AS BEING 'LIKELY MATERIAL' WITHIN THE RISK REVIEW SECTION FOR THE EXTREME HEAT HAZARD GROUPING 37

TABLE 3-8 BASELINE AND PROJECTED EXTREME COLD CLIMATE DATA 39

TABLE 3-9 POTENTIAL RISK AREAS AT THE START AND END OF OPERATIONS ASSOCIATED WITH THE PROJECT FOR THE EXTREME COLD HAZARD GROUPING 40

TABLE 3-10 RECOMMENDED NEXT STEPS FOR EACH RISK AREA IDENTIFIED AS BEING 'LOW' WITHIN THE RISK REVIEW SECTION FOR THE EXTREME COLD HAZARD GROUPING 46

TABLE 3-11 BASELINE AND PROJECTED EXTREME RAINFALL FLOODING DATA 48

TABLE 3-12 POTENTIAL RISK AREAS AT THE START AND END OF OPERATIONS ASSOCIATED WITH THE PROJECT FOR THE EXTREME RAINFALL FLOODING HAZARD GROUPING 51

TABLE 3-13 RECOMMENDED NEXT STEPS FOR EACH RISK AREA IDENTIFIED AS BEING 'LIKELY MATERIAL' WITHIN THE RISK REVIEW SECTION FOR THE EXTREME RAINFALL FLOODING HAZARD GROUPING 58

TABLE 3-14 POTENTIAL RISK AREAS AT THE START AND END OF OPERATIONS ASSOCIATED WITH THE PROJECT FOR THE EXTREME WINDS HAZARD GROUPING 62

TABLE 3-15 RECOMMENDED NEXT STEPS FOR EACH RISK AREA IDENTIFIED AS BEING 'LIKELY MATERIAL' WITHIN THE RISK REVIEW SECTION FOR THE EXTREME WINDS HAZARD GROUPING 68

TABLE 3-16 BASELINE AND PROJECTED WILDFIRE CLIMATE DATA 69

TABLE 3-17 POTENTIAL RISK AREAS AT THE START AND END OF OPERATIONS ASSOCIATED WITH THE PROJECT FOR THE WILDFIRES HAZARD GROUPING 70

TABLE 3-18 RECOMMENDED NEXT STEPS FOR EACH RISK AREA IDENTIFIED AS BEING 'LIKELY MATERIAL' WITHIN THE RISK REVIEW SECTION FOR THE EXTREME WILDFIRES HAZARD GROUPING 74

TABLE 3-19 BASELINE AND PROJECTED WATER STRESS AND DROUGHT CLIMATE DATA 76

TABLE 3-20 POTENTIAL RISK AREAS AT THE START AND END OF OPERATIONS ASSOCIATED WITH THE PROJECT FOR THE WATER STRESS AND DROUGHT HAZARD GROUPING 77

TABLE 3-21 RECOMMENDED NEXT STEPS FOR EACH RISK AREA IDENTIFIED AS BEING 'LIKELY MATERIAL' WITHIN THE RISK REVIEW SECTION FOR THE WATER STRESS AND DROUGHT HAZARD GROUPING 83

TABLE 4-1 TCFD TRANSITION CLIMATE RISK CATEGORIES 89

TABLE 4-2 IDENTIFIED POTENTIAL TRANSITION CLIMATE RISK DRIVERS AND RATIONALE 92

TABLE 4-3 CLIMATE RISK AND OPPORTUNITY SCORE 95

TABLE 4-4 CLIMATE SCORES FOR THE TRANSITION SCENARIO SCREEN 96

TABLE 4-5 RISK RATING FOR PRODUCT CARBON-FOOTPRINT AND GHG REQUIREMENTS 99

TABLE 4-6 RECOMMENDATIONS TO MITIGATE THE RISK 100

TABLE 4-7 RISK RATING FOR POTENTIAL SUBSTITUTION OF SELECTED BATTERY APPLICATIONS BY HYDROGEN FUEL-CELL TECHNOLOGIES 102

TABLE 4-8 RECOMMENDATIONS TO MITIGATE THE RISK 104

TABLE 4-9 ACCESS TO RENEWABLE AND LOWER-CARBON ELECTRICITY 106

TABLE 4-10 RECOMMENDATIONS TO ENHANCE THE OPPORTUNITY 108

TABLE 4-11 INCREASING DEMAND FOR LITHIUM-ION BATTERIES FOR ELECTRIC MOBILITY 110

TABLE 4-12 RECOMMENDATIONS TO ENHANCE THE OPPORTUNITY	111
TABLE 4-13 INCREASING DEMAND FOR BATTERY ENERGY STORAGE	113
TABLE 4-14 RECOMMENDATIONS TO ENHANCE THE OPPORTUNITY	115
TABLE 5-1 ROLES AND RESPONSIBILITIES	117
TABLE 5-2 RISK RESPONSES METHODOLOGY	121

LIST OF FIGURES

FIGURE 1-1 PROJECT LOCATION	3
FIGURE 1-2 PROJECT SURROUNDINGS	3
FIGURE 2-1 A SUMMARY OF THE FOUR KEY STEPS OF PHYSICAL CCRA	8

ACRONYMS AND ABBREVIATIONS

Acronyms	Description
AIIB	Asian Infrastructure Investment Bank
AIIB ESF	Asian Infrastructure Investment Bank Environmental and Social Framework
AR	Assessment Report
AR5	Fifth Assessment Report
AR6	Sixth Assessment Report
BAU	Business as Usual
BESS	Battery Energy Storage System
BTR	BTR New Material Group Co., Ltd.
CAPEX	Capital Expenditure
CCKP	Climate Change Knowledge Portal
CCRA	Climate Change Risk Assessment
CCRMP	Climate Change Risk Management Plan
CEMS	Continuous Emissions Monitoring System
CMIP	Coupled Model Intercomparison Project
CMIP5	Coupled Model Intercomparison Project Phase 5
CMIP6	Coupled Model Intercomparison Project Phase 6
CMD	Climate Model Data
CO_2	Carbon Dioxide

Acronyms	Description
CPS	Current Policies Scenario
E&S	Environmental and Social
ECMWF	European Centre for Medium-Range Weather Forecasts
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EP4	Equator Principles 4
EPC	Engineering, Procurement and Construction
ERA5	Fifth-Generation ECMWF Atmospheric Reanalysis
ERP	Emergency Response Plan
ESA	European Space Agency
ESIA	Environmental and Social Impact Assessment
ESMS	Environmental and Social Management System
ESS1	Environmental and Social Standard 1
EU	European Union
FFDI	Forest Fire Danger Index
GCM	Global Climate Model
GEV	Generalized Extreme Value
GHG	Greenhouse Gas
GIIP	Good International Industry Practice
GJ	Gigajoule
GW	Gigawatt
GWh	Gigawatt-Hour
GWL	Global Warming Level
GWP	Global Warming Potential
IAZ	Industrial Acceleration Zone
IBTrACS	International Best Track Archive for Climate Stewardship
IEA	International Energy Agency
IFC	International Finance Corporation

Acronyms	Description
IFC PS	International Finance Corporation Performance Standards
IFC PS3	International Finance Corporation Performance Standard 3
IPCC	Intergovernmental Panel on Climate Change
KPI	Key Performance Indicator
LPG	Liquefied Petroleum Gas
MCC	Motor Control Centre
MWh	Megawatt-Hour
NDC	Nationally Determined Contribution
ND-GAIN	Notre Dame Global Adaptation Initiative
NGFS	Network for Greening the Financial System
NOAA	National Oceanic and Atmospheric Administration
NPV	Net Present Value *(未明确出现，已排除)*
NZE	Net Zero Emissions by 2050 Scenario
OHS	Occupational Health and Safety
OPEX	Operating Expenditure
PPE	Personal Protective Equipment
PPP	Purchasing Power Parity
PRA	Physical Climate Change Risk Assessment
PS	Performance Standard
PV	Photovoltaic
RCP	Representative Concentration Pathway
RILI	Rainfall-Induced Landslide Index
RTO	Regenerative Thermal Oxidiser
SATT	Société d'Aménagement Tanger Tech
Scope 1	Direct GHG Emissions from Sources Owned or Controlled by the Reporting Entity
Scope 2	Indirect GHG Emissions from Purchased Energy
Scope 3	Other Indirect GHG Emissions in the Value Chain
SSP	Shared Socioeconomic Pathway

Acronyms	Description
SSP1-2.6	Shared Socioeconomic Pathway 1-2.6
SSP5-8.5	Shared Socioeconomic Pathway 5-8.5
TCFD	Task Force on Climate-related Financial Disclosures
TCO	Total Cost of Ownership
TMU	Tanger Med Utilities
TRA	Transition Climate Change Risk Assessment
tCO_2e	Tonnes of Carbon Dioxide Equivalent
TWh	Terawatt-Hour
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar
UV	Ultraviolet
VFD	Variable Frequency Drive
WMO	World Meteorological Organisation
WRI	World Resources Institute
WSDI	Warm Spell Duration Index
WWTP	Wastewater Treatment Plant

1. INTRODUCTION

1.1 BACKGROUND

Founded in 2000, BTR New Material Group Co., Ltd. ("BTR" or the "Headquarters") is a globally recognised provider of integrated battery material solutions with a well-established product and industry chain layout. Its main products include lithium-ion battery anode materials, cathode materials, and other advanced battery materials.

BTR has resolved to establish a lithium-ion battery anode material manufacturing project (the "Project") located in Phase I of the Industrial Acceleration Zone (IAZ) in Tangier-Assilah, Morocco. BTR Mediterranean Anode New Material Technology, a wholly owned subsidiary of BTR was established (the "Project Company", the "Client" or "BTR Anode") to develop and operate the Project. The Project will produce lithium-ion battery anode materials with a planned annual production capacity of 60,000 tonnes. The Project has completed a regulatory Environmental Impact Assessment (the "Regulatory EIA") and obtained approval from the competent authority in January 2026.

ERM (Shanghai) Limited ("ERM") has been engaged by the Client to undertake a Supplementary Environmental and Social Impact Assessment ("Supplementary ESIA") for the project. ERM's approach aligns with the applicable requirements of the AIIB Environmental and Social Framework ("AIIB ESF", 2024), Equator Principles 4 ("EP4"), IFC Performance Standards ("IFC PS", 2012) and national legislation, as applicable.

AIIB ESS1 requires a climate change risk assessment ("CCRA") to evaluate both the potential effects of climate change on the Project and the Project's contribution to climate change. The CCRA should identify relevant current and projected physical climate hazards and assess the Project's exposure, sensitivity, vulnerability and resilience over its anticipated lifetime. It should also evaluate the potential implications of these hazards for the Project's assets, infrastructure and operations, and identify technically and financially feasible adaptation and resilience measures for integration into the Project's design and implementation. In relation to climate change mitigation, the assessment should estimate material Project-related greenhouse gas ("GHG") emissions using internationally recognised methodologies, evaluate feasible opportunities to avoid or reduce such emissions, and consider reasonable lower-carbon alternatives relating to the Project's location, design, technology, energy sources, materials and operating practices. The assessment should also consider the Project's alignment with Morocco's Nationally Determined Contribution ("NDC") and other applicable national climate policies and commitments.

Under EP4, a Physical Climate Change Risk Assessment ("PRA") is required for all Category A projects and, as appropriate, Category B projects. The PRA should assess relevant acute and chronic physical climate risks, as defined in the Recommendations of the Task Force on Climate-related Financial Disclosures ("TCFD"), and consider their potential implications for the Project and its operations under appropriate climate scenarios and over relevant time horizons.

EP4 also requires a Transition Climate Change Risk Assessment ("TRA") where combined Scope 1 and Scope 2 GHG emissions are expected to exceed 100,000 tonnes of carbon dioxide equivalent ("tCO_2e") annually. The TRA should evaluate technically and financially feasible lower-GHG alternatives and emission-reduction opportunities for the design, construction and operation of the Project, as also required under IFC Performance Standard 3 ("IFC PS3"). The

selected alternative should balance GHG intensity, economic viability and other environmental and social ("E&S") considerations, taking into account the relevant World Bank Group Environmental, Health and Safety ("EHS") Guidelines and other Good International Industry Practice ("GIIP"), as appropriate. The EP4 Guidance Note further recommends that the CCRA assess the Client's arrangements for managing identified physical and transition climate risks and review the Project's compatibility with the host country's commitments under the Paris Agreement and other relevant national climate commitments.

1.2 PROJECT OVERVIEW AND LOCATION

The project is located within Phase I of the Industrial Acceleration Zone (Zone d'Accélération Industrielle, IAZ) of the Cité Mohammed VI Tanger Tech, in Tangier-Assilah Prefecture, Tanger-Tétouan-Al Hoceïma Region, Morocco. The Project Site corresponds to Plot No. 59, a serviced vacant land parcel owned by Société d'Aménagement Tanger Tech (SATT). The Project is situated approximately 20 km southeast of Tangier city. The Project location is shown in ***Figure*** 1-1, and the production capacity is summarised in ***TABLE*** 1-1***.***

The Project Site can be accessed from Tangier via Provincial Road P4608. The proposed Project is being developed on a 29.9-hectare plot, which forms part of the total land that the Project Company purchased for this Project for the current development as well as future expansion phases. The Project will have a total building area of approximately 154,652 m².

According to Google Earth Pro imagery and ERM's site visit in August 2026, surroundings of the Project are summarised as below and in ***Figure*** 1-2***.***

- *North*: Immediately bounded by an access road. Further north is a drainage channel associated with the Industrial Acceleration Zone ;
- *South*: Immediately bounded by an access road. Further south, are undeveloped vacant land beyond the Industrial Acceleration Zone boundary;
- *West*: Immediately bounded by an access road and the Hailiang Morocco site (a copper processing and new energy materials manufacturing facility). The surrounding area is characterised by ongoing industrial development within the Industrial Acceleration Zone;
- *East*: Immediately bounded by a hillside area and a substation. Further east are undeveloped bare land beyond the Industrial Acceleration Zone boundary.

TABLE 1-1 PROJECT PRODUCTION CAPACITY

Product	Capacity	Destination
Artificial Graphite Anode Materials	60,000 t/a	For sale

FIGURE 1-1 PROJECT LOCATION

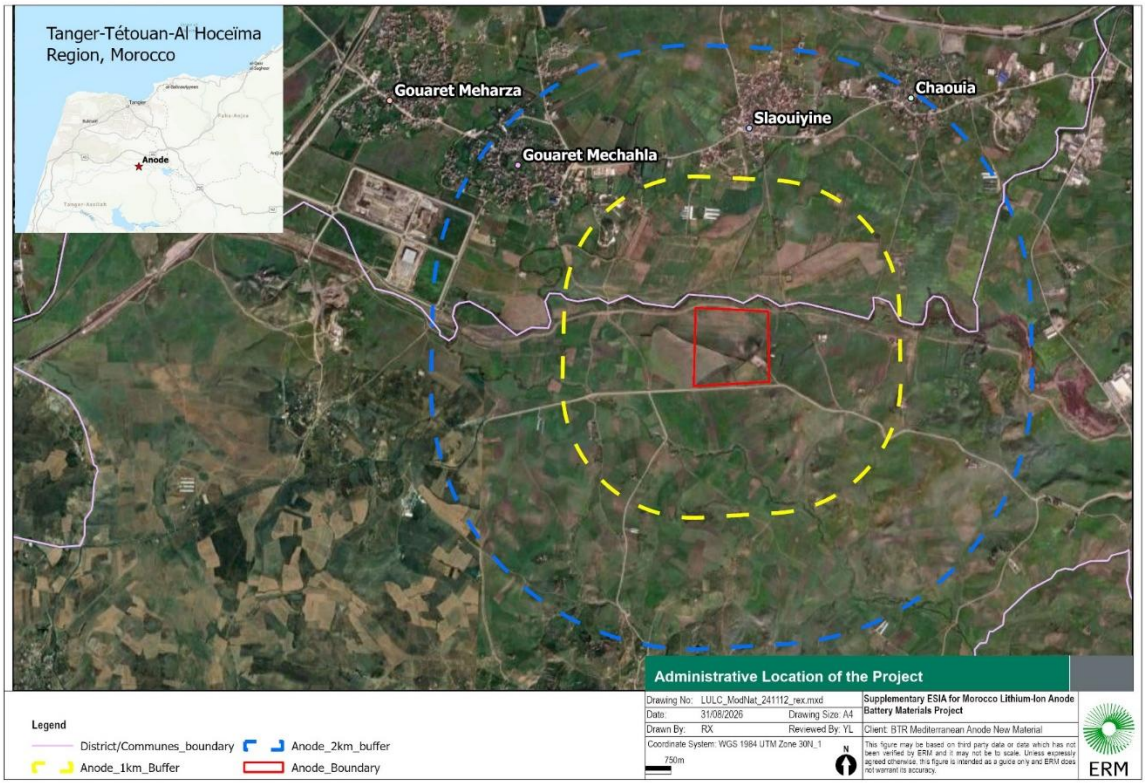
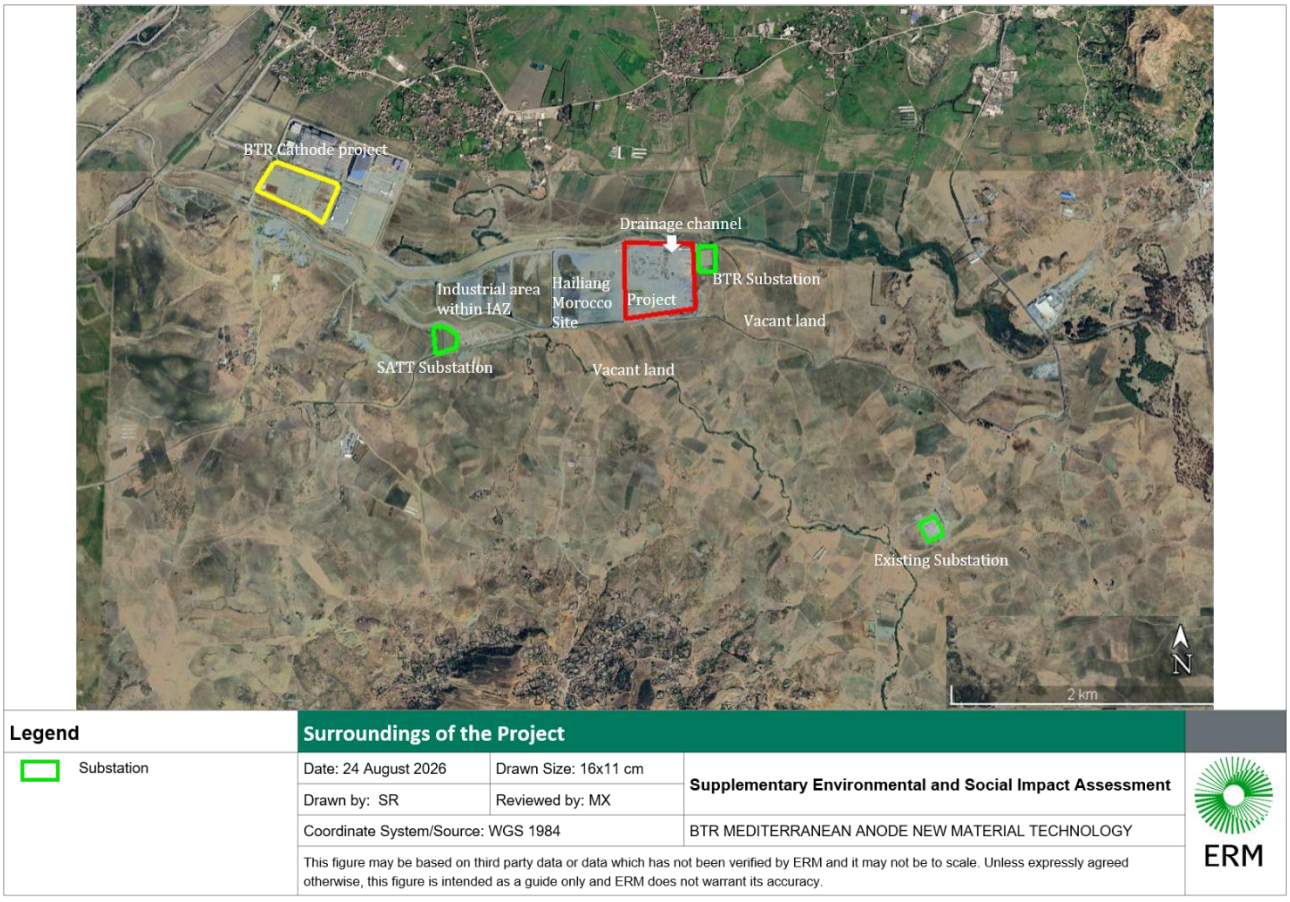


FIGURE 1-2 PROJECT SURROUNDINGS



1.3 PROJECT COMPONENTS

TABLE 1-2 PROJECT COMPONENTS

Facility Type	Key Components	Building Area(m²)
Production Facilities	Raw Material Workshop	4,000
	Coating Workshop	6,175
	Granulation Workshop	6,175
	Pre-carbonisation Workshop	12,900
	Graphitisation Workshop	64,376
	Carbonisation Workshop	10,661
	Finished Product Workshop	14,145
Storage Facilities	Graphite Warehouse	19,000
	Packaging Material Warehouse	2,550
	Hazardous Waste Storage Area	1,600
	LPG Storage Tank	~3,000
Utilities and Auxiliary Facilities	Substation	1,800
	Air Compressor Station	1,000
	Circulating Water Station	120
	Fire Water Tank and Pump Station	300
	Wastewater Treatment Station	600
	Accident Water Pond	300
	Rainwater Pond	300
	Administrative Building	7,850
	Nitrogen supply pipeline	/
Total Building Area		**153,852**

1.4 RESOURCE REQUIREMENT

1.4.1 WATER SUPPLY AND DISCHARGE

1.4.1.1 WATER SUPPLY

During the construction phase, water will be supplied through the existing water supply pipelines within the Industrial Acceleration Zone. Construction water demand, including water for dust suppression, equipment cleaning, and sanitary facilities. Drinking water for construction workers will be provided through purchased bottled water.

During the operational phase, tap water will be supplied via the existing Industrial Acceleration Zone water pipeline for both industrial and domestic use.

1.4.1.2 WASTEWATER DISCHARGE

Wastewater generated from construction activities will be discharged to the industrial zone drainage network, while sanitary wastewater collected from temporary septic tanks will be periodically removed by vacuum trucks for off-site disposal.

In operation phase, the project adopts a zero-discharge of industrial wastewater plan. The Project will generate both domestic and industrial wastewater during operation. Domestic wastewater from sanitary facilities and canteen activities, together with industrial wastewater from laboratory operations and floor cleaning, will be treated in on-site wastewater treatment station. Domestic wastewater will be treated using an improved A^2O-MBR (Anaerobic-Anoxic-Oxic and Membrane Bioreactor) process, while industrial wastewater will be treated through pH adjustment, coagulation-sedimentation, biological treatment, sedimentation and UV disinfection.

1.4.2 POWER SUPPLY

The Project will require electricity, LPG and diesel fuel during construction and operation. Both LPG and diesel fuel will be sourced from local suppliers and delivered to the Project Site by road tankers. Electricity will be supplied through a combination of temporary and permanent power supply infrastructure. The estimated power consumption of the Project is summarised in TABLE 1-3.

- Construction power supply: Temporary power will be supplied from the substation southeast of the Project site, within the Industrial Acceleration Zone, and connected to a temporary box transformer at the Project Site.
- Initial operational power supply: During the initial operational stage, power will continue to be supplied from the substation via a temporary underground cable connected to the dedicated TMU substation. The temporary facilities are expected to be completed by October 2026.
- Permanent power supply: The Project will ultimately be supplied from the planned SATT substation via a permanent overhead transmission line connected to the dedicated TMU substation. The SATT substation and final transmission line route have not yet been confirmed.

TABLE 1-3 POWER CONSUMPTION AND SOURCES

	Source	Note

LPG	Purchase	For heating purpose in the production process and the RTO system of anode material production
Electricity	Grid electricity	/
Diesel	Purchase	For construction machinery and equipment and generator. A standby diesel generator will be installed as emergency backup power sources during operation.

1.5 PROJECT SPECIFICATIONS OF CCRA

The Project is considered eligible for physical CCRA due to the following considerations:

- The Project is likely to be Category B or above. According to publicly available databases, the Project area is likely prone to a number of climate hazards, including landslides, wildfire, extreme heat, and water scarcity.[1]
- As calculated in Section 7.2 (GHG Emissions Assessment) of the ESIA main body, the Project's operational Scope 1 and Scope 2 GHG emissions are estimated at approximately 458,747.41 tCO_2e/year. These emissions are primarily associated with purchased electricity, particularly for the electricity-intensive graphitisation process, together with direct emissions from LPG combustion, thermal oxidation of pitch-derived asphalt fumes, and combustion of coal tar in the RTO. As the estimated annual Scope 1 and Scope 2 emissions exceed the 100,000 tCO_2e/year threshold specified in EP4, a transition climate risk assessment has been undertaken. The assessment indicates that the Project has relatively low exposure to material transition risks, which are not expected to adversely affect its financial viability under the plausible decarbonisation scenarios assessed:
    - While the Project will generate gross Scope 1 and Scope 2 GHG emissions during operation, it is also expected to support the development of Morocco's battery-material and electric-vehicle value chains. The estimated operational emissions comprise approximately 15,021.01 tCO_2e/year of Scope 1 emissions from LPG combustion and relevant process and thermal-treatment activities, and approximately 443,726.40 tCO_2e/year of Scope 2 emissions from purchased electricity. The Project does not involve municipal solid-waste incineration, landfill methane avoidance or electricity exports, and no avoided-emissions credit has therefore been applied. Its wider contribution to the low-carbon transition should instead be considered in terms of local battery-material production, industrial capacity building, technology and skills transfer, and support for the development of the electric-vehicle supply chain. These wider benefits are considered separately from the Project's gross GHG inventory and do not offset its Scope 1 or Scope 2 emissions.
    - The Project's operational GHG emissions are structurally associated with the electricity-intensive nature of artificial graphite anode material production, particularly the graphitisation process, together with LPG use and the thermal treatment of carbon-

[1] Think Hazard - Morocco

containing process materials. Purchased electricity accounts for approximately 96.7% of the Project's combined Scope 1 and Scope 2 emissions, with Scope 2 emissions estimated at approximately 443,726.40 tCO_2e/year, compared with total operational emissions of approximately 458,747.41 tCO_2e/year. The Project's transition exposure is therefore driven predominantly by electricity consumption and the carbon intensity of purchased electricity, while direct Scope 1 emissions represent a substantially smaller proportion of the operational inventory.

- Although the use of batteries in electric vehicles may support reductions in downstream transport emissions compared with conventional internal-combustion-engine vehicles, battery-material production remains energy-intensive and may generate significant operational GHG emissions. For the Project, purchased electricity, particularly for the graphitisation process, represents the dominant source of operational emissions. The Project Company plans to procure green electricity to reduce its Scope 2 emissions and operational GHG intensity. The current site layout does not identify sufficient space for an additional boiler facility and its associated infrastructure. Accordingly, the boiler-based emission-reduction option considered is not regarded as feasible at this stage. The Project's GHG management approach will instead focus on credible green-electricity procurement, energy-efficiency improvements, process optimisation and other measures that can be implemented within the existing site configuration.

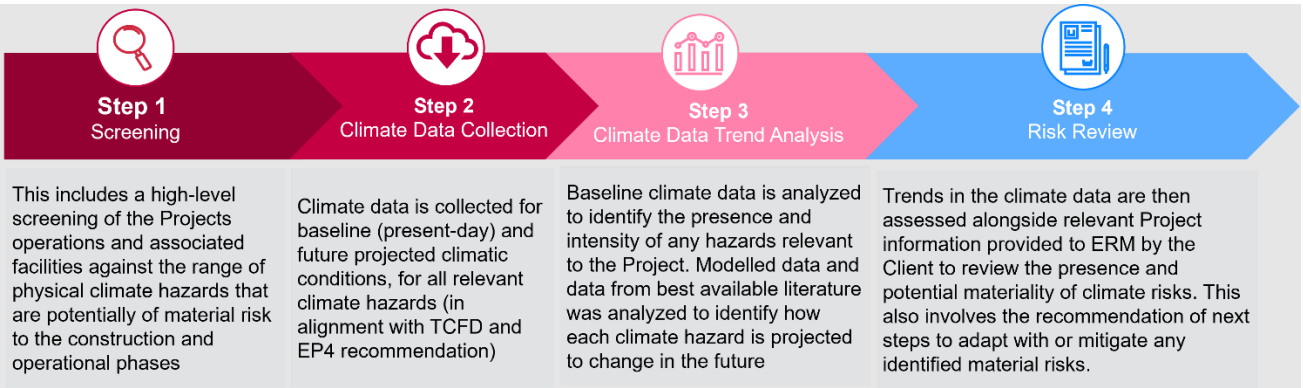
2. METHODOLOGY

2.1 PHYSICAL CCRA METHODOLOGY

A materiality-based approach (4 steps) that aligns with the recommendations of the TCFD was used to evaluate the potential physical impacts of climate change, as outlined in ***Figure*** 2-1:

- Steps 1-3 (in red) involve a high-level screening of the Project's construction and operational phases through the collection and analysis of baseline and future projected climate data.
- Step 4 (in blue) involves a risk review of climate hazards as potentially material to the construction and/or operational phases of the Project.

FIGURE 2-1 A SUMMARY OF THE FOUR KEY STEPS OF PHYSICAL CCRA



Step 4 involves reviewing the climate data collected for each hazard included in this assessment. This includes analysing baseline and future projected trends for each climate hazard, as well as assessing the potential materiality of any risks present under baseline conditions, and how these risks are projected to change in the future based on key trends identified within the climate data. Each climate hazard will be assessed in relation to the Project using a combination of climate data and qualitative research sourced from industry-leading academic and governmental sources.

ERM has gathered a series of data variables for each climate hazard included in this assessment. This climate data is primarily collected using ERM's Climate Metrics Database and is supplemented by any climate data provided by the client, as well as the best available online data sources. Refer to 0 for the data used in this assessment.

Following above, ERM undertakes a structured evaluation of the potential risks posed by identified climate hazards to the Project within the Risk Review section. This review provides an overview of potential impacts associated with hazards determined to be material to the Project's operations and assets. The assessment was carried out at the level of key project equipment rather than at the component level, in order to avoid duplication of findings, given that similar types of equipment are utilised across various facilities.

The analysis draws upon the Project's geographic and environmental context to assess its exposure to these hazards, while vulnerability is evaluated in greater detail with reference to Project design features, applicable engineering standards, and other resilience measures already in place or planned. The resulting Risk Materiality Category presented below in ***TABLE***

2-1 reflect the consideration of these vulnerability factors and mitigation measures and therefore represent the residual risk to the Project after accounting for existing and planned controls.

TABLE 2-1 RISK MATERIALITY CATEGORIES

Risk Materiality Category		Definition
Not Applicable (N/A)		Impacts with this category may not relate to the Project's context, design, or operational conditions. This means that the identified hazard or risk factor is either not present, or its exposure pathway does not apply to the Project's activities, assets, or location. As such, no material operational, financial, environmental, or social impacts are expected to arise under this category.
Unlikely material		Impacts with this category (such as those related to operational, financial or other types of impacts) are unlikely to be material. This means that, for example, (a) operational impacts could be expected to be short-term, impacting a limited proportion of the overall asset and its operations, or (b) financial impacts would be expected to be minimal relative to the project's overall revenue and/or costs.
Likely material	Low	Impacts in this category (such as those related to operational, financial or other types of impacts) are expected to be of low materiality. This means that, for example, (a) operational impacts, if they occur, would generally be short-term and affect only a small proportion of the asset or its functions, or (b) any associated financial impacts would be small relative to the Project's overall revenue and costs, and are not expected to meaningfully influence overall performance.
	Moderate	Impacts in this category (such as those related to operational, financial or other types of impacts) are expected to be of moderate materiality. This means that, for example, (a) operational impacts, if they occur, would generally be short- to medium-term and affect only a moderate proportion of the asset and its operations, or (b) any associated financial impacts would be moderate relative to the Project's overall revenue and costs, and are not expected to meaningfully influence overall performance.
	High	Impacts associated with this category (such as those related to operational, financial or other types of impacts) are likely to be of high materiality. This means that, for example, (a) operational impacts could be expected to be medium- to long-term, impacting a low to moderate proportion of the overall asset and

Risk Materiality Category	Definition
	its operations, or (b) financial impacts would be expected to be moderate to high relative to the Project's overall revenue and/or costs.

Within the "Next Steps" section, ERM provides high-level recommendations for climate-related risk areas identified through this CCRA as potentially material to the Project, including those assigned a "Likely Material" rating. These recommendations are intended to support the validation and management of the identified risks during subsequent stages of Project design and implementation. Depending on the nature and significance of the risk, the recommended next steps may include:

- no additional action, where the available information indicates that the risk is not material or is already being appropriately managed;
- targeted refinement or validation of the assessment as additional design information, climate data or operational parameters become available; or
- incorporation of appropriate adaptation, resilience, monitoring or risk-management measures into the Project's design, construction, operation and maintenance arrangements.

These recommended next steps are outlined in ***TABLE*** 2-2.

TABLE 2-2 NEXT STEPS FOR CCRA

Next Steps Category	Definition
No further action required	The assessment does not identify a need for additional Project-specific action beyond the measures already incorporated into the Project's design or management arrangements.
Targeted risk refinement and management	The CCRA has identified a potentially material risk that could be further refined or validated as additional Project information becomes available. Appropriate risk-management or resilience measures could be considered and incorporated into the relevant Project arrangements. This category is typically applied to risks rated "Likely Material – Low or Moderate".
Priority risk management and design integration	The CCRA has identified a potentially material risk requiring priority attention during subsequent Project design and implementation. This may include specialist technical validation, incorporation of adaptation or resilience measures into the detailed design, establishment of operational controls and monitoring, or assessment of

Next Steps Category	Definition
	residual risk. This category is typically applied to risks rated "Likely Material – Moderate or High".

The ratings in the Risk Review represent the residual risk under the current or committed Project design, taking account of the embedded measures for which supporting information was available.

2.2 TRANSITION CCRA METHODOLOGY

The overall objectives of this transition CCRA are to address the following questions:

- What are the current and anticipated key transition risks to the Project's operations?
- What plans, processes, policies and systems are in place to manage (i.e., to mitigate, transfer, accept or control) these risks?

This transition CCRA applies a staged screening and assessment approach. It first identifies a broad range of potentially relevant transition risk and opportunity drivers. These drivers are then screened based on their relevance to the Project and the existence of a credible impact pathway. Drivers retained through this initial screening are assessed quantitatively or qualitatively, depending on the availability and suitability of scenario data. The results are subsequently used to identify those drivers requiring detailed risk and opportunity review.

This approach enables the assessment to consider a wider range of potential drivers at the identification stage without assuming that every identified driver is material or requires the same level of detailed assessment.

The transition CCRA is based on the knowledge ERM has of the Project, as well as an understanding of the broader value chain elements identified as being critical to the Project. The following methodology in ***TABLE*** 2-3 was applied to undertake the Assessment:

TABLE 2-3 TRA METHODOLOGY OVERVIEW

No.	Step	Description
1.	**Information Collection**	• Information is collected for the Project based on the feasibility study, regulatory EIA, ESIA, GHG assessment, technical design documents, documents provided by the Client and relevant publicly available information. The review considers the Project's production processes, energy consumption, GHG emissions, energy sources, raw materials, products, target markets, customers, supply chain and existing or proposed transition-risk management measures.
2.	**Climate Driver Identification**	• In accordance with the TCFD framework, a literature review drawing on relevant policy, industry, market, academic and technical sources is undertaken to identify a broad longlist of potential transition risks

No.	Step	Description
		and opportunities that may affect the Project or its value chain. Identification covers policy and legal, technology, market and reputational drivers, as well as relevant opportunities associated with resource efficiency, energy sources, products and services, and markets. Inclusion in the longlist does not mean that a driver is considered material or will automatically be subject to detailed assessment.
3.	**Project Relevance Screening**	• Each identified driver is screened to determine whether there is a credible pathway through which it could affect the Project's capital expenditure, operating costs, revenues, market access, compliance obligations, technology choices, energy supply, product demand or competitive position. Based on the screening, each driver is retained for quantitative scenario assessment, retained for qualitative assessment, retained for monitoring, or screened out from further assessment.
4.	**Transition Scenario Assessment**	• Transition scenarios comprise a range of trends, referred to as Scenario Indicators, which characterise climate-related transition factors such as changes in energy intensity, emissions intensity, renewable-energy deployment, energy prices and downstream market demand. Scenario Indicators are selected where they are relevant to a retained transition driver and can reasonably represent its potential implications for the Project. • For each quantitative Scenario Indicator, the difference, or delta, between the indicator value under the low-carbon and BAU scenarios is calculated at each future time horizon. Indicator data are drawn principally from the IEA World Energy Outlook 2025, using the Current Policies Scenario (CPS) as the BAU scenario and the Net Zero Emissions by 2050 Scenario (NZE) as the low-carbon scenario. Relevant NGFS Phase V data are used where suitable IEA data are unavailable or where a more geographically relevant indicator is required. • Project-specific Relevance Weightings are assigned to each selected Scenario Indicator. The weighting reflects the extent to which the associated driver could affect the Project and is based on professional

No.	Step	Description
		judgement informed by the Project's characteristics, GHG and energy profile, products, value chain and target markets. • For each quantitative Scenario Indicator, a symmetric Scenario Indicator delta is calculated at each future time horizon as the absolute difference between the low-carbon and BAU scenario values divided by the sum of their absolute values. Where both scenario values are zero, the delta is assigned a value of zero. • The Scenario Indicator deltas are normalised separately for risks and opportunities at each time horizon. Each delta is divided by the maximum delta within the corresponding Risk or Opportunity group. • Project-specific Relevance Weightings are assigned to each selected Scenario Indicator based on the potential significance and likelihood of the associated risk or opportunity. The climate score is calculated by multiplying the normalised Scenario Indicator delta by the Project-specific Relevance Weighting. The resulting score is translated into a relative rating of risk or opportunity for 2035, 2040 and 2050.
5.	**Selection for Detailed Review**	• The scenario-screening and qualitative-screening results are used to identify the transition drivers requiring detailed review. Drivers receiving a High Risk or High Opportunity rating in one or more assessed time horizons are generally carried forward for detailed review. Professional judgement may also be applied where a lower-rated driver is strategically significant or where the quantitative indicator may understate its Project-specific implications. Drivers rated Limited or Low may still be selected where their potential consequences or strategic relevance warrant further consideration.
6.	**Reporting**	• A summary screening table is presented to show the identified drivers, Project relevance, assessment approach, screening results and whether detailed review is required. A transition scenario screen is presented for drivers assessed quantitatively, together with qualitative screening results for drivers without suitable quantitative indicators. • Detailed reviews are provided for the material or otherwise strategically significant risks and

No.	Step	Description
		opportunities selected through the screening process. These reviews describe the potential consequences, relevant Project characteristics, existing or proposed management measures, key uncertainties and recommendations for further assessment, monitoring or risk management. • Recommendations are provided for next steps, further analysis and other matters for the Client to consider. Drivers screened out or retained for monitoring remain documented and may be reconsidered during future updates of the CCRA.

Transition Driver Identification

This transition CCRA initially seeks to identify a broad range of potentially relevant climate-related risk and opportunity drivers for the Project and its value chain. The identification process does not assume that all listed drivers are material. Instead, it establishes a longlist for subsequent Project relevance screening and prioritisation.

In accordance with the TCFD framework, potential drivers are considered under the categories of policy and legal, technology, market and reputation risks, together with corresponding opportunities relating to resource efficiency, energy sources, products and services, markets and resilience.

Potential drivers may include changes in industrial energy-efficiency and GHG requirements, carbon pricing, energy costs, product carbon-footprint and traceability requirements, renewable-electricity availability, lower-energy production technologies, competing downstream technologies, raw-material and supply-chain requirements, and changes in demand for lithium-ion batteries and anode materials.

Project Relevance Screening

Each identified transition driver is screened to determine whether it is relevant to the Project and whether it should be carried forward for quantitative scenario assessment, qualitative assessment, monitoring or no further assessment.

The screening considers:

- whether a credible pathway exists through which the driver could affect the Project;
- the Project activities, assets, costs, revenues, products or value-chain relationships potentially affected;
- the potential scale and timing of the risk or opportunity;
- the Project's exposure and sensitivity to the driver;
- whether the effect is already reflected in normal business planning or represents an incremental impact under a low-carbon transition;
- the availability and suitability of Scenario Indicators or other supporting evidence; and

- whether the driver could require changes to Project technology, energy procurement, operating practices, capital planning, supply-chain arrangements or commercial strategy.

Based on this screening, each driver is assigned one of the following outcomes:

- Retained for Quantitative Scenario Assessment: The driver is relevant to the Project and can be reasonably represented using available scenario indicators.
- Retained for Qualitative Assessment: The driver is relevant to the Project, but suitable quantitative indicators are unavailable or would not adequately represent the Project-specific risk or opportunity.
- Retained for Monitoring: The driver is not currently expected to be material but may become more relevant as regulations, technology, markets, customer requirements or Project conditions evolve.
- Screened Out from Further Assessment: No sufficiently credible or material impact pathway has been identified, the driver has limited relevance to the Project, or its potential effects are adequately captured under another retained driver.

Transition Scenario Assessment

The Project approach applies climate-change scenario datasets aligned with two plausible future scenarios, namely the BAU and low-carbon scenarios, to explore the potential implications of a transition to a low-carbon economy under the low-carbon scenario relative to the BAU scenario.

The analysis is based on Scenario Indicators selected to characterise the effects of the low-carbon transition. These may include changes in energy intensity, CO_2 emissions intensity, renewable-energy deployment, electricity prices, transport electrification, battery demand and other indicators relevant to the retained transition risks and opportunities.

The transition CCRA calculates a symmetric Scenario Indicator delta as the absolute difference between the indicator values under the selected scenarios divided by the sum of their absolute values. This approach produces a bounded value between zero and one and can be applied consistently where a common historical baseline is unavailable. The Scenario Indicator deltas are normalised separately for risks and opportunities at each time horizon by reference to the maximum delta within the corresponding group. For example, it may compare an indicator under the IEA CPS, representing the BAU scenario, with the corresponding value under the IEA NZE Scenario, representing the low-carbon scenario.

The greater the delta between the scenarios, the greater the potential incremental transition effect represented by the selected indicator. By combining the Scenario Indicator delta with a Project-specific Relevance Weighting, the assessment characterises the relative emergence of risk or opportunity over the selected future time horizons of 2035, 2040 and 2050.

The climate score is calculated as follows:

Climate Score = Normalised Scenario Indicator Delta × Project-specific Relevance Weighting

A threshold is applied to the climate score to translate the results into ratings of Limited, Low, Moderate or High risk or opportunity at each future time horizon.

The assessment of transition risk and opportunity is based on the incremental difference between the BAU and low-carbon scenarios. Risks and opportunities already embedded within the BAU scenario are not separately characterised through the climate score, although they may be recognised qualitatively where relevant to interpretation of the results.

Broad global indicators may be used as directional proxies for application-specific technology risks, but the resulting scores require qualitative interpretation and should not be treated as direct measures of Project-level demand displacement.

Selection of Drivers for Detailed Review

Following the Project relevance screening and transition scenario assessment, selected risks and opportunities are carried forward into the detailed review.

A transition driver may be selected for detailed review where:

- it receives a High risk or opportunity rating in one or more assessed time horizons;
- it may result in material CAPEX, OPEX, revenue, compliance, market-access or operational implications;
- it is particularly relevant to the Project's substantial electricity demand, GHG emissions profile or downstream market exposure;
- the quantitative indicator may understate its Project-specific significance;
- it could result in technological lock-in, loss of competitiveness or material changes in downstream demand;
- it involves significant uncertainty but could have material consequences; or
- it requires specific management action, further technical assessment or ongoing monitoring.

Drivers rated Limited or Low may also be retained for detailed review where they are strategically important to the Project. Conversely, a driver may not be carried forward where no credible material impact pathway has been identified, where the effect is adequately covered by another driver or where it has limited relevance to the Project's technology, products, energy profile or target markets.

The selection of a driver for detailed review therefore reflects the combined results of the scenario assessment, qualitative screening, Project relevance and professional judgement. It is not determined solely by the numerical climate score.

Detailed Risk and Opportunity Review

The detailed review examines each selected risk or opportunity and provides:

- a description of the transition driver and its relevance to the Project;
- the potential operational, financial, regulatory, technological or market consequences;
- the expected direction and timing of the risk or opportunity;
- relevant Project characteristics;
- existing and proposed management measures;

- key uncertainties and data limitations; and
- recommended actions for risk management, monitoring, further assessment or opportunity development.

Drivers screened out or retained for monitoring are not subject to the same level of detailed review. Their screening results will nevertheless remain documented and may be reconsidered during future updates of the transition CCRA.

Working Assumptions and Limitations

This approach is based on the following working assumptions:

- Risks that are present in the BAU Scenario are likely to have already been factored into 'business as usual' corporate risk management and strategy. However, should the global policy effort to meet climate change targets ramp up, management may not have adjusted its risk appetite and strategy to respond to the emerging risks (and opportunities) driven by the low carbon energy transition, the transition CCRA seeks to measure this incremental change. Noting the risk and opportunity inherent in the BAU Scenario that the Project may already be responding to, but this is not characterised in the Assessment.
- This transition CCRA is intended as an initial forward-looking assessment to understand the relative levels of risk and opportunity driven by the low carbon economy transition, to inform prioritisation of further investigation / assessment. It is not intended to be an absolute assessment of climate-related financial, commercial, or operational risk and opportunity.
- This transition CCRA has been conducted using the information and scenario datasets available at the time of assessment, principally the IEA World Energy Outlook 2025 and NGFS Phase V. The IEA CPS and NZE are used as the principal BAU and low-carbon scenarios, respectively, with selected NGFS indicators used where suitable IEA data are unavailable or where a more geographically relevant series is required.
- The review of existing mitigation measures is limited to information supplied by the Client.
- The Assessment scope includes all operations associated with the Project, and the products destined for the EU market.
- Note that the transition CCRA focuses on the Project's operational phase and does not include the risks associated with the construction phase.
- The normalised climate scores provide a relative screening of the identified transition drivers and should not be interpreted as forecasts of actual Project costs, revenue changes or other financial impacts.

3. PHYSICAL CLIMATE CHANGE RISK ASSESSMENT

This section presents the results of the Physical Climate Change Risk Assessment for the Project. The assessment integrates baseline and projected climate data with Project-specific characteristics to evaluate the potential exposure, vulnerability, and risk associated with relevant physical climate hazards.

The assessment considers both acute hazards (e.g. extreme heat events, extreme rainfall) and chronic hazards (e.g. long-term water stress), across the Project's construction and operational phases and over multiple future time horizons aligned with EP4 requirements.

3.1 OVERVIEW OF CLIMATE DATA, SCENARIOS AND TIME HORIZONS

Several data sources are used in the physical CCRA, including baseline and projections data. ERM uses baseline data to understand the current severity of each climate hazard within the Project's area, whilst projections data are used to assess the potential change (if any) in intensity and/or frequency of individual climate hazards within the Project area, under selected future timeframes and climate scenarios.

3.1.1 BASELINE AND PROJECTIONS DATA

The baseline and projections climate data used in this assessment are compiled from numerous international scientific organisations, including the Intergovernmental Panel for Climate Change (IPCC), the World Resource Institute (WRI), International Best Track Archive for Climate Stewardship (IBTrACS), Fathom, National Aeronautics and Space Administration (NASA), European Space Agency (ESA). A summary of the source of data is provided in 0.

The climate data used in this assessment is comprised of a variety of types of climate data including Modelled and Reanalysis (baseline only) data:

- Modelled data aims to identify, quantify and accurately represent complex physical processes within the climate and can be generated in a variety of formats, depending on the physical process being modelled, based on models of differ resolution (e.g., Global Climate Models or Regional Climate Models). Modelled climate data can be used to highlight trends in climatic processes under historic (past), present and future projected climatic conditions. [2]
- Reanalysis data (baseline only) describes the reanalysis of previously recorded climate data, either from observational or satellite records. This source of data aims to correct any biases, errors and aspects of physical climatic processes that were previously unidentified within older iterations of data. These corrections can be carried out via the back testing of data against newly observed climatic trends and/or modelled climate data. [3]

3.1.2 CLIMATE SCENARIOS

The IPCC is the United Nations' leading body for assessing the science related to climate change. The IPCC provides periodic Assessment Reports (AR) reviewing the available literature on climate change as well as trends in climatic hazards. Each AR is supported by the findings of the latest models from Coupled Model Intercomparison Project (CMIP). ERM utilises the newest round of climate data from the IPCC AR6, published in 2021, which marks the most

[2] NOAA (2021), Climate Models. Available at: https://www.climate.gov/maps-data/primer/climate-models
[3] ECMWF (2021), Climate Reanalysis. Available at: https://www.ecmwf.int/en/research/climate-reanalysis

well-rounded set of published climate data (as provided in CMIP6).

The data provided by CMIP6 is seen to improve upon the data provided by CMIP5 by using a greater number of climate model runs and modelling groups. CMIP6 scenario integrates socioeconomic and Representative Concentration Pathways (RCPs) to Shared Socioeconomic Pathways (SSPs), which aim to bridge the gaps between the physical climate and socioeconomic conditions, and to explore the potential future climate response to a broader range of greenhouse gases (GHG), land uses and air pollutants, in comparison to AR5.

Each of the SSPs set out by the IPCC represents scenarios that vary on the basis of future projected greenhouse gas (GHG) emissions and resultant warming over the next century. As GHG's increase, climatic conditions within any given area could also potentially change (e.g. increasing temperatures and/or changes to precipitation regimes). However, the specific changes experienced for any given area can vary, depending on prescribed increase in GHG emissions associated with each SSP and time horizon.

Scenarios are selected on the basis of their appropriateness for any given assessment being undertaken. The technical guidance on physical scenario analysis from the TCFD and other sources advise the inclusion of a selection of scenarios covering a variety of reasonable outcomes. This includes the inclusion of a scenario representative of keeping global average temperatures at 2 °C or below by the end of this century, most closely aligned with the Paris Agreement. [4] As a result, ERM has included two SSPs in the assessment: SSP 1-2.6 and SSP 5-8.5 (see below TABLE 3-1 for estimated temperature increases and definitions associated with each SSP).

TABLE 3-1 CLIMATE SCENARIOS USED IN THIS PHYSICAL CCRA

Scenario	Definition	Mean annual temperature increase by 2100 compared to pre-industrial averages (1850-1900)
SSP 1-2.6	A shift to sustainable development pathways with net zero targets achieved after 2050s.	+1.8 ºC (very likely range of 1.3 ºC to 2.4 ºC)
SSP 5-8.5	High challenges for mitigation (resource / fossil fuel intensive) and low challenges for adaptation (rapid development).	+4.4 ºC (very likely range of 3.3 ºC to 5.7 ºC)

3.1.3 TIME HORIZONS

The following ***TABLE*** 3-2 provides an indicative comparison between the time horizons chosen for this physical CCRA and the Project's principal milestones. The adopted timeframe follows WMO standards and standard climate-science practice, the "2030s" and "2050s" refer to 30-year climatological periods (i.e., 2015-2044 or 2035-2064). These periods encompass the Project's full 30-year operational window. Multi-decadal averaging is essential to smooth

[4] TCFD (2017), Recommendations of the Task Force on Climate-related Financial Disclosures. Available at: https://assets.bbhub.io/company/sites/60/2020/10/FINAL-2017-TCFD-Report-11052018.pdf

inter-annual variability and provide robust estimates of long-term climate trends such as extreme heat, wildfire potential, and water stress.

TABLE 3-2 TIME HORIZONS SELECTED FOR INCLUSION WITHIN THIS PHYSICAL CCRA

Time horizon	Justification
Baseline	The Project's construction started in May 2025 and is anticipated to span a period of 20 months. The Project is expected to be put into operation by January 2027. The baseline data used in this physical CCRA is based on the baseline set by each projection model.
2030s	The near future of the Project's operational phase.
2050s	The far future of the Project operation phase.

3.1.4 RISK AREA

To support the structured review of physical climate risks, the Project has been divided into a number of risk areas based on the principal types of equipment, infrastructure and receptors that may be exposed or vulnerable to climate-related hazards. The risk areas have been defined at the level of key Project equipment and functional systems rather than individual components, as equipment of a similar nature is expected to have broadly comparable exposure pathways, vulnerabilities and potential consequences. This approach avoids unnecessary duplication while allowing material differences between the main production facilities, utility systems, storage and chemical-management areas, construction and temporary maintenance works, and occupational health and safety receptors to be appropriately considered.

TABLE 3-3 presents the risk areas considered in this assessment and examples of the potential consequences that may arise from relevant climate hazards. The examples are indicative and do not in themselves represent a determination of risk materiality. The materiality of each risk is assessed in the Risk Review based on the Project's exposure, equipment sensitivity, design characteristics, applicable engineering standards, existing and planned resilience measures, and the potential consequences for safety, asset integrity and Project operations.

TABLE 3-3 DEFINITIONS OF THE POTENTIAL RISK AREAS TO THE PROJECT

Risk area	Definition and extent of the risk area
Main Production Facilities	This risk area covers the Project's principal production workshops, process equipment, associated electrical and control systems, ventilation systems, and air-emission collection and treatment facilities. It includes the Raw Material, Crushing and Granulation Workshops; Pre-carbonisation, Graphitisation and Carbonisation Workshops; and Finished Product Workshop and Associated Air Emission Control Systems. Climate-related events

Risk area	Definition and extent of the risk area
	may affect process stability, equipment efficiency and integrity, environmental-control performance, product quality and continuity of production.
Utilities	This risk area covers the utility systems required to support production and maintain safe operating conditions, including the Cooling Systems, Electrical Network, Air Compressor Station, Nitrogen Generation and Supply Systems, Wastewater Treatment Stations, and External Water and Electricity Connections. Climate-related events may affect the capacity, efficiency, integrity or availability of these systems, potentially resulting in utility interruptions, process instability, controlled shutdowns or disruption to environmental-control systems.
Storage and Chemical Management Areas	This risk area covers storage and handling areas for raw materials, intermediate products, finished products, chemicals, fuels, hazardous materials and wastes, together with associated loading and unloading areas, containment systems, ventilation, fire-protection equipment and material-handling facilities. Climate-related events may affect storage conditions, material stability, containment integrity, fire safety and safe access, potentially resulting in material damage, contamination, uncontrolled releases or interruption of production and logistics.
Construction and Temporary Maintenance Works	This risk area covers construction activities and temporary maintenance works, including excavation, lifting operations, work at height, scaffolding, temporary structures, temporary electrical installations, material laydown areas, contractor facilities and temporary access routes. Climate-related events may affect worker safety, temporary works, equipment operation, site access and the sequencing or duration of construction and maintenance activities.
Staff Health & Safety – OHS	This risk area covers employees, contractors and other personnel involved in construction, operation, maintenance, laboratory activities, warehousing, logistics, security and other Project activities. Climate-related events may create direct occupational health and safety risks, affect working conditions and productivity, restrict site access or outdoor activities, and complicate evacuation, medical assistance and emergency response.

3.2 CCRA LIMITATIONS AND ASSUMPTIONS

This physical CCRA provides a high-level review of the possible risks posed to the Project. As a result, this physical CCRA is generated with the aim of identifying risks and aspects of the Project's design that ERM believes should be assessed further as the Project and its operations progress.

However, several limitations and assumptions accompany this type of approach, which should be recognised when interpreting the results of this assessment. These include:

- ERM has not sought to verify the accuracy of any information provided by the Client (for example design specifications, observational data provided by the Client regarding the areas and the facilities that the ERM team did not visit in person, etc.);
- This assessment uses future projected outputs from Global Climate Models (GCMs). The GCMs data have not been validated for the region where the Project is located;
- This high-level screening exercise should not be considered as sufficiently detailed in its output for use within a lender's credit risk assessment associated with the proposed financing facility; and
- This report will not include an assessment of the potential impact of natural hazards that are not affected by climate change (e.g. earthquakes) on the Project and its operations.

3.3 CLIMATE RISK SCREENING

3.3.1 CLIMATE IN MOHAMMED AND MOROCCO

Morocco is exposed to a range of physical climate risks, including rising temperatures, drought, water scarcity, extreme rainfall and flooding. According to the 2024 Notre Dame Global Adaptation Initiative Country Index, Morocco ranked 90th globally, with an ND-GAIN score of 47.7, a vulnerability score of 0.450 and a readiness score of 0.403.[5] The Index indicates that adaptation challenges remain, although Morocco is comparatively well positioned to strengthen its resilience. Water represents an important area of vulnerability, including projected changes in annual runoff and groundwater recharge.[6]

Observed and projected climate trends indicate increasing temperatures, declining and more variable precipitation, and more frequent and severe drought conditions across Morocco. Historical observations indicate that cumulative rainfall decreased between 1961 and 2017, while future projections suggest that average annual precipitation may continue to decline, with regional variations across the country. These changes are expected to increase pressure on water resources and may also increase exposure to extreme heat, drought and water scarcity.[7]

The World Bank Climate Risk Country Profile: Morocco characterises Morocco as being exposed to both rapid-onset climate hazards and gradual changes in climate conditions, including rising temperatures, water scarcity, drought and extreme rainfall. Climate conditions vary considerably across the country, from relatively temperate areas in the north to increasingly arid conditions in central, southern and south-eastern regions. The Project is located within Mohammed VI Tangier Tech City in northern Morocco, where the climate is influenced by both

[5] ND-GAIN Country Index rankings | ND-GAIN Index
[6] Morocco | ND-GAIN Index
[7] National Climate Resilience Assessment for Morocco – Analysis - IEA

the Mediterranean Sea and the Atlantic Ocean. The Project-specific Climate Model Data indicates that extreme heat, water stress and drought, and pluvial flooding warrant further consideration in the Physical CCRA. Conditions conducive to vegetation fire may also increase under higher-emissions scenarios, although the relevance of wildfire exposure requires validation against surrounding land cover and combustible vegetation.[8]

At the national level, Morocco's Nationally Determined Contribution identifies water-resource resilience and adaptation to drought, extreme heat, heavy precipitation and other climate-related hazards as important national priorities. The NDC addresses adaptation across water resources, agriculture, forestry, fisheries, coastal areas, health, housing, infrastructure and climate-vulnerable territories. These pressures are relevant to the Project because its production processes depend on reliable electricity and water supplies, including water used for equipment cooling, cleaning, flue gas treatment and other auxiliary operations.[9] The Project's exposure to water stress and other climate hazards is therefore assessed using the Project-specific CMD, together with the regulatory EIA, Project design information and available evidence on external utility infrastructure.

At the Project level, the Site is located within Mohammed VI Tangier Tech City in northern Morocco. The regulatory EIA characterises the Tangier area as having Mediterranean and Atlantic climatic influences, with generally mild temperatures, seasonal rainfall and comparatively dry summers. Temperatures above 40°C have historically been uncommon. However, the Project-specific CMD indicates increasing exposure to extreme heat, continued water stress and potential pluvial flooding during low-probability extreme rainfall events. These hazards are relevant because Project operations depend on reliable electricity supply, cooling water, flue gas treatment, equipment cleaning and other utility systems.

In accordance with EP4, the Project was screened against relevant acute and chronic climate hazards using the Project-specific CMD, supported by the regulatory EIA, Project design information, Morocco's national climate commitments and recognised international climate-risk sources. The CMD provides baseline and future climate information for 2030 and 2050 under SSP1-2.6 and SSP5-8.5. Hazards identified as potentially relevant were retained for detailed assessment of exposure, vulnerability, consequences and existing adaptation measures[10].

3.3.2 POTENTIAL CLIMATE HAZARDS

Baseline climate data indicate that the Project is exposed to a range of physical climate hazards that may affect construction, operations, worker safety, and supporting utilities. Detailed analysis is presented below.

3.3.2.1 TEMPERATURE RELATED CLIMATE HAZARD

Extreme Heat events

The Project is exposed to heat-related stress, including a Warm Spell Duration Index (WSDI) of 30.8 days, a maximum recorded temperature of 35.5°C, and approximately 29 days per year with apparent temperatures exceeding 35°C. These baseline indicators confirm that extreme heat is already relevant to the Project Site and warrants further assessment under future

[8] Climate Risk Country Profile: MOROCCO
[9] unfccc.int/sites/default/files/NDC/2022-06/Moroccan updated NDC 2021 Fr.pdf
[10] Chapter 4 | Climate Change 2021: The Physical Science Basis

climate scenarios.

Extreme Cold Events

Cold winters are characteristic of the region with a baseline of 0.4 frost days and a minimum temperature of 0.4 °C. Extreme cold is therefore considered a low hazard, with direct operational impact aside from potential localized mechanical stress or reduced worker comfort during winter periods.

As such, extreme heat represents Moderate and cold events represent Low. These hazards may lead to increased occupational health risks, reduced labour productivity, decreased efficiency of thermal systems, increased cooling demand, and accelerated equipment degradation.

Mean Temperature

The long-term climate record for Morocco (1991–2020) indicates an annual mean temperature of 16.84 °C, reflecting the country's mediterranean climate.[11]

Against this climatic backdrop, the World Bank CCKP projects sustained temperature increases for Morocco, accompanied by more frequent and prolonged heatwaves. The CMIP6 multi-model ensemble projections for Morocco show a clear upward shift in average surface air temperatures across all SSPs. These projections underscore that Morocco is expected to face persistent and escalating warming regardless of the global emissions pathway, with projected average mean surface air temperature of 22°C for 2050s under SSP5-8.5.[12]

Mean temperature shifts are considered slow-onset, broadly uniform, therefore do not create direct operational vulnerabilities beyond those already captured under the extreme heat hazard. **Given this stability and the Project's limited sensitivity to incremental shifts in annual averages, changes in mean temperature are not considered as a material climate hazard. Consequently, this factor has been scoped out from the detailed assessment.**

3.3.2.2 WATER RELATED CLIMATE HAZARD

Extreme Precipitation and Flood Events

Flooding is a natural disaster that occurs when a large amount of water submerges land that is usually dry. In this physical CCRA, flooding is categorised into three main types: extreme rainfall flooding, river flooding, and coastal flooding.

- Extreme rainfall flooding, or pluvial flooding, occurs when an unusually large amount of rain takes place and exceeds the capacity of the drainage system in a short period of time. This type of flooding can happen anywhere, but it is most common in areas that are prone to thunderstorms or tropical storms. Extreme rainfall flooding can be very abrupt and is a dangerous type of flooding that can occur with little or no warning.
- River flooding, or fluvial flooding, occurs when a river overflows its banks. This can be caused by heavy rain, snowmelt, or a combination of both. River flooding can be widespread and can cause significant damage to property and infrastructure.

[11] Morocco - Country Overview | Climate Change Knowledge Portal
[12] Morocco - Mean Projections (CMIP6) | Climate Change Knowledge Portal

- Coastal flooding occurs when sea levels rise and inundate coastal areas. This type of flooding can be caused by a storm surge, which is a large wave of water that is driven inland by a storm. Coastal & offshore flooding can also be caused by sea level rise, which is the long-term rise in the average sea level caused by climate change. **Coastal flooding has been scoped out because the Project Site is located inland and the Project-specific climate data indicate no modelled coastal inundation under the baseline or assessed future scenarios.**

Baseline conditions show modelled inundation depth of 590 mm under a 1-in-500-year flood scenario, with maximum 1-day and 5-day precipitation levels of 123.9 mm and 313.3 mm, respectively. The IPCC AR6 indicates that continued warming is expected to intensify heavy precipitation in many regions because a warmer atmosphere can hold more moisture.[13] The CCKP provides CMIP6 projections for Morocco across different future periods and SSP scenarios, illustrating potential changes in precipitation conditions and the range of uncertainty across climate models[14]. At the Project level, the Project-specific CMD indicates potential exposure to pluvial flooding during low-probability extreme rainfall events, while no material fluvial or coastal inundation is identified in the available model outputs. **Extreme precipitation and pluvial flooding are therefore assigned a Moderate hazard exposure rating and retained for detailed assessment, particularly in relation to site drainage capacity, low-lying production and utility areas, electrical infrastructure, internal access routes and surface-water management systems**.

Water Stress and Drought

Water stress and drought were screened using the water-stress and maximum-consecutive-dry-days indicators provided in the Project-specific CMD. The CMD classifies the Project location as being subject to Extremely High-water stress across the assessed baseline and future periods and indicates a baseline maximum consecutive dry period of approximately 95.6 days. These results indicate that water availability is an existing climate-related constraint at the Project location.

In addition, Morocco's NDC identifies water-resource resilience as a national adaptation priority. This national context supports the consideration of drought and water scarcity in the Physical CCRA, while the Project-level exposure rating is based primarily on the Project-specific CMD and site-specific water-supply arrangements.[15]

Given the Project's reliance on externally supplied water for cooling, flue gas treatment, cleaning, sanitation and firefighting, **water stress and drought are assigned a High hazard exposure rating and retained for detailed assessment**. Water recirculation, wastewater treatment and reuse measures are expected to reduce freshwater demand, but the final Project risk rating should be confirmed against the water balance, utility supply capacity, recycling performance, storage capacity and drought-response arrangements.

Mean Precipitation Change

Morocco's observed climatology (1991–2020) of the wider Tangier area shows a strongly seasonal precipitation pattern, with most rainfall occurring between autumn and spring and

[13] Chapter 4 | Climate Change 2021: The Physical Science Basis
[14] Morocco - Mean Projections (CMIP6) | Climate Change Knowledge Portal
[15] unfccc.int/sites/default/files/NDC/2022-06/Moroccan updated NDC 2021 Fr.pdf

comparatively dry conditions during summer. The annual mean precipitation is 723.69 mm/a. In such a regime, modest shifts in mean annual precipitation have limited relevance for water availability during the driest months.[16] CMIP6 projections similarly indicate little variation in annual precipitation across warming scenarios, with only minor changes. This suggests no meaningful upward or downward trend in long-term average precipitation, even under higher emissions.[17] **Given the stable modelled annual totals and the existing seasonal pattern, mean precipitation change is unlikely to represent a material climate hazard for the Project. Consequently, this factor has been scoped out from the detailed assessment.**

Sea Level Rise

Sea level rise is not relevant to the Project due to its inland location and is therefore screened out as not material.

3.3.2.3 WIND RELATED CLIMATE HAZARD

Extreme Wind Events

Based on ERA5 hourly 10 m maximum wind-gust data for the period from 1 January 1940 to 25 August 2026, and interpreted alongside indicative Beaufort-equivalent wind-speed bands, extreme wind events at the Project site remain operationally relevant, although the most severe events are infrequent. [18] [19] Approximately 88.34% of the 759,552 valid hourly gust observations are below 15 m/s. Gusts from 15 m/s to below 25 m/s account for approximately 11.55% of valid observations. These conditions may affect lifting operations, scaffolding, temporary structures, work at height and other outdoor activities. Gusts from 25 m/s to below 30 m/s are relatively rare, accounting for approximately 0.107% of valid observations, while gusts of 30 m/s or above account for approximately 0.005% of valid observations. Higher wind gusts may generate short-duration loads on roofs, cladding, large doors, stacks, exposed utility infrastructure and other non-structural components. The maximum gust in the ERA5 dataset is approximately 37.20 m/s, recorded at 03:00 on 22 December 1958. Such higher-end events are therefore very rare but cannot be fully discounted over the multi-decade operating life of the Project.

While the Project's main steel structures are expected to be designed in accordance with applicable Moroccan wind-load requirements, the construction phase is likely to be more exposed to extreme wind. The Project-specific CMD indicates a baseline maximum wind gust speed of approximately 116 km/h (32.2 m/s); however, future scenario projections were not available for this indicator. **Such conditions may create low-frequency but potentially high-consequence safety risks, particularly for crane operations, scaffolding, temporary structures, work at height and unsecured materials. Given the potential for disruptive gusts, extreme wind is considered a credible hazard and has been retained for detailed assessment.**

[16] Morocco - Country Overview | Climate Change Knowledge Portal
[17] https://interactive-atlas.ipcc.ch/
[18] ERA5 hourly time-series data on single levels from 1940 to present
[19] Beaufort wind force scale - Met Office

Mean Wind Change

Based on the ERA5 grid point data (1991–2020), the Project Site is characterised by a moderately windy environment with occasional strong gust events. The statistical distribution of 10-metre wind gust speeds indicates that approximately 93.9% of the available hourly records exceed 3.3 m/s (12 km/h). Specifically, approximately 0.01% of hourly gust values are below 1.1 m/s, 1.1% fall within the 1.1–2.2 m/s range, and 4.9% fall within the 2.2–3.3 m/s range. The median 10-metre wind gust speed is approximately 8.7 m/s (31.2 km/h), while the interquartile range, from P25 to P75, is approximately 5.9–11.8 m/s (21.2–42.5 km/h). The P90 and P95 values are approximately 14.9 m/s and 17.0 m/s, respectively, and the maximum value recorded in the available dataset is approximately 31.1 m/s (112.1 km/h). These results indicate a variable and relatively energetic gust environment, rather than one dominated by calm or light-wind conditions.[20]

Future projections are analysed using the CMIP6 ensemble, adopting the Global Warming Level (GWL) framework as a policy-relevant dimension of integration. This approach aligns with the warming thresholds of the Paris Agreement, allowing for a standardised assessment of regional change patterns regardless of the specific socio-economic pathway (SSP) timing. Under SSP1-2.6, the median annual mean wind speed is projected to remain broadly stable at 6.8 m/s during the Near Term (2021–2040) and 6.7 m/s during the Medium Term (2041–2060). Under SSP5-8.5, the projected median annual mean wind speed is 6.7 m/s in both the Near Term (2021–2040) and Medium Term (2041–2060). The limited variation across scenarios and time periods indicates that the Project area's annual mean wind regime is not expected to change materially.[21]

A notable feature of the CMIP6 data is the narrowing of the uncertainty range in future scenarios. For the 1986–2005 baseline period, the P90 and P95 values are 7.1 m/s and 7.3 m/s, respectively. Under SSP1-2.6, the corresponding values for 2021–2040 are 7.1 m/s and 7.2 m/s, while under SSP5-8.5 they are 6.9 m/s and 7.2 m/s. [22] This contraction of the upper percentiles indicates a projected reduction in the overall variability and a slight softening of the average wind intensity at the project site. **Consequently, the screening concludes that the risk associated with changes in mean wind speed is minimal. The stability of these figures across the SSP1-2.6 and SSP5-8.5 horizons provide high confidence that the project's operational environment, regarding average wind loads, will not be adversely impacted by long-term climate shifts.**

3.3.2.4 SOLID MASS RELATED CLIMATE HAZARD

Extreme Mass Movement

The Rainfall-Induced Landslides Index, expressed as the number of days with the potential occurrence of a landslide event, is 0 days under the baseline and all assessed future time horizons and SSP scenarios, indicating that the modelled landslide-triggering threshold is not exceeded at the Project location. This result is consistent with the generally flat topography of the Project Site, where no significant natural slopes, escarpments or elevated terrain have been identified. Rainfall-induced landslide exposure is therefore rated Low and is not

[20] https://cds.climate.copernicus.eu/datasets/reanalysis-era5-single-levels-timeseries
[21] IPCC WGI Interactive Atlas
[22] https://cds.climate.copernicus.eu/datasets/reanalysis-era5-single-levels-timeseries?tab=download

considered a material physical climate risk to the permanent Project facilities. Consequently, this hazard has been scoped out from the detailed assessment.

Erosion

The Project is located on a generally flat industrial land parcel within the Tanger Tech Industrial Acceleration Zone. During operation, buildings, concrete-surfaced internal roads and other developed areas will substantially reduce the extent of exposed soil susceptible to wind and rainfall erosion. The Project design also includes approximately 35,016 m² of landscaped areas, representing a planned greening ratio of approximately 11.19%. Vegetation within these areas is expected to provide additional soil cover and reduce localised surface erosion, subject to successful establishment and ongoing maintenance.

Soil erosion is expected to be more relevant during construction, when excavation, temporary soil stockpiles and site preparation may expose loose soil to wind and intense rainfall. The EIA and feasibility study identify measures including appropriate compaction of temporary loose soil, prompt management of excavated material, dust suppression and stabilisation or vegetation of permanent slopes where required. **Given the flat site topography and the limited extent of exposed soil during operation, chronic soil erosion is assessed as a Low risk. Construction-related erosion can be managed through standard erosion and sediment control measures. Consequently, this factor has been scoped out from the detailed assessment.**

3.3.2.5 WILDFIRES

Baseline conditions indicate 0 days per year with wildfire-enhancing climatic conditions, while the historical maximum burned area within the assessed surrounding area is approximately 1.4 km². Although the baseline Forest Fire Danger Index is low, future projections indicate an increase to approximately 1.0–1.5 days per year by 2030 and 3.5–7.0 days per year by 2050, depending on the assessed SSP scenario. This projected increase is consistent with rising temperatures and prolonged dry conditions, which may create more favourable conditions for wildfire ignition and spread in the wider landscape. **Given the low baseline exposure but increasing future fire-weather conditions, wildfire is considered a credible emerging hazard and has been retained for detailed assessment.**

3.4 CLIMATE RISK REVIEW

Following the high-level screening presented in the previous section, this section provides a granular assessment of the climate hazards identified as having a moderate-to-high potential impact on the Project. This detailed review integrates a multi-dimensional analysis, synthesized from localized climate baseline data, future projections, and specific Project technical parameters.

The evaluation considers the interplay between evolving climate trends and the Project's current engineering design specifications, management measures and plans. By assessing the adaptive capacity of the planned infrastructure against these physical stressors, this section identifies critical residual risks. Consequently, targeted mitigation and adaptation measures are recommended to ensure the long-term resilience and operational continuity of the Project throughout its intended lifecycle.

3.4.1 EXTREME HEAT

3.4.1.1 CLIMATE DATA AND TRENDS

The baseline WSDI for the Project site is approximately 30.8 days per year. Climate model projections indicate a significant increase in the duration of heat waves under both low- and high-emission scenarios. By the 2030s, WSDI is projected to rise to 73.8 days (SSP1-2.6) and 85.7 days (SSP5-8.5), and by the 2050s to 84 days (SSP1-2.6) and 147.4 days (SSP5-8.5).

TABLE 3-4 BASELINE AND PROJECTED EXTREME HEAT CLIMATE DATA

Variable	Baseline	Projections			
		2030s		2050s	
		SSP 1-2.6	SSP 5-8.5	SSP 1-2.6	SSP 5-8.5
Warm Spell Duration Index (WSDI) (days)	30.8	73.8	85.7	84	147.4

3.4.1.2 RISK REVIEW

The baseline climate conditions at the Project site indicate an average of 29 human heat stress days per year, with the highest recorded daily maximum temperature at 35.5 °C. Climate projections show a progressive intensification of heat stress conditions under both low- and high-emission scenarios.

Under SSP1-2.6, human heat stress days are projected to rise significantly to 51.5 days in the 2030s and 56 days in the 2050s, with the highest daily maximum temperature increasing to 37.9 °C and 38.3 °C, respectively. Under SSP5-8.5, more significant increases are expected, with 56 heat stress days in the 2030s and 70.5 days in the 2050s. Maximum daily temperatures may reach 37.9 °C by the 2030s and 39.2 °C by the 2050s. This pattern indicates that the intensity of extreme heat remains relatively stable, but the duration of high-temperature conditions is expected to increase.

TABLE 3-5 HUMAN HEAT STRESS DAYS AND HIGHEST DAILY MAXIMUM TEMPERATURE

Scenario	Time horizon	Human heat stress days (days)	Highest daily maximum temperature (°C)
Baseline		29	35.5
SSP1-2.6	2030s	51.5	37.9
SSP1-2.6	2050s	56	38.3
SSP5-8.5	2030s	56	37.9
SSP5-8.5	2050s	70.5	39.2

Extreme heat may pose occupational health and safety risks to workers engaged in outdoor or physically demanding activities during construction, operation and maintenance, including heat

stress, dehydration and fatigue. Construction workers are expected to be particularly exposed during outdoor activities. The construction emergency plan therefore includes heatstroke-prevention measures such as adjusting work and rest schedules according to local temperature conditions, scheduling work during cooler periods where practicable, increasing rotation and rest periods, providing ventilated rest areas, and supplying appropriate drinking water. These measures should be incorporated into the Project's occupational health and safety procedures and updated in response to heat alerts and actual site conditions.

During operation, extreme heat may affect electrical and control equipment by increasing internal equipment temperatures and cooling demand, particularly where equipment is installed outdoors or in enclosed rooms with limited ventilation. Project information indicates that the transformer is specified for a maximum ambient temperature of 40°C. The wastewater treatment facilities include outdoor structures designed for ambient temperatures from -5°C to 45°C, while equipment rooms and associated electrical equipment generally have operating ranges of up to 40°C. Accordingly, prolonged ambient temperatures approaching or exceeding 40°C could reduce the available thermal margin and may require enhanced ventilation, air conditioning, equipment inspection or temporary operational controls.

The Project's principal high-temperature processes are pre-carbonisation, graphitisation and carbonisation. Because these temperatures are generated and controlled within dedicated process equipment, moderate changes in outdoor air temperature are not expected to directly alter the required process temperatures. However, high ambient temperatures may still affect auxiliary equipment, electrical rooms, ventilation systems, cooling systems and worker exposure around high-temperature process areas. The resilience of the overall production system should therefore not be inferred solely from the high internal operating temperatures of the furnaces.

Cooling water is used across several Project processes, including equipment cooling and, in some areas, flue-gas treatment. Project documentation identifies three cooling stations and indicates that cooling water is returned to the cooling system after use. The feasibility study also describes indirect cooling water as recirculated without routine discharge. This recirculating arrangement reduces routine water consumption and limits dependence on once-through cooling, but it does not eliminate sensitivity to extreme heat. Higher ambient temperatures may reduce heat-rejection efficiency, increase evaporation and make-up-water demand, and increase the load on pumps, fans and other cooling equipment. The available documentation does not specify a confirmed cooling-water operating range of 33°C to 41.5°C or confirm that treated effluent will be used as cooling-system make-up water. These claims should therefore not be included unless supported by final design documentation.

The wastewater treatment system also represents a heat-sensitive auxiliary facility. The Project information indicates that outdoor wastewater structures are designed for ambient temperatures up to 45°C, while equipment rooms and electrical components generally operate up to 40°C. The biological treatment process has an optimum wastewater temperature range of approximately 20°C to 35°C, with treatment performance expected to decline as wastewater temperature rises above this range. Ambient air temperature and wastewater temperature are not equivalent, and short-duration hot weather would not necessarily produce an immediate corresponding increase in wastewater temperature. Nevertheless, prolonged hot conditions and solar exposure could gradually increase wastewater temperature and affect biological treatment performance. Operational controls should therefore include monitoring of

ambient and wastewater temperatures, ventilation and cooling of equipment rooms, inspection of pumps and control cabinets, and adjustment of aeration or operating conditions where required.

Overall, the Project incorporates several features that reduce exposure to extreme heat, including recirculating cooling-water systems, ventilation and cooling arrangements for selected equipment areas, equipment redundancy within the wastewater treatment system, and occupational heat-prevention measures. However, the available information does not demonstrate that the Project is inherently resilient to all future extreme-heat conditions. Residual risk is therefore expected to be concentrated on outdoor workers, electrical and control equipment with a maximum ambient operating temperature of approximately 40°C, cooling-system performance, and the biological wastewater treatment process. Subject to implementation of the identified management measures and confirmation that future design temperatures remain within equipment specifications, the residual risk is assessed as **Low to Moderate.** The final rating should be aligned with the Project's climate hazard score and assessment matrix.

TABLE 3-6 POTENTIAL RISK AREAS AT THE START AND END OF OPERATIONS ASSOCIATED WITH THE PROJECT FOR THE EXTREME HEAT HAZARD GROUPING

Risk area	**Description of potential risks and materiality in relation to risk area**	**Risk materiality category and time-period**		
		Construction phase (Baseline)	**Early operation phase (2030s)**	**Late operation phase (2050s)**
Main Production Facilities • Raw Material, Crushing and Granulation Workshops • Pre-carbonisation, Graphitisation and Carbonisation Workshops • Finished Product Workshop and Associated Air Emission Control Systems	• Auxiliary Equipment Thermal Stress, OPEX / CAPEX: Higher ambient temperatures may increase thermal stress on motors, fans, pumps, actuators and bearings, potentially increasing maintenance needs and shortening equipment service life. • Electrical and Control Equipment Overheating, OPEX / CAPEX: Electrical cabinets, variable-frequency drives, control panels, sensors and relays	Not Applicable (N/A)	Low	Low

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	may overheat where cooling or ventilation is insufficient, resulting in alarms, derating or temporary shutdowns. • Ventilation and Air-Treatment Load, OPEX: Extreme heat may increase ventilation and cooling demand within production workshops and associated air-emission control systems, increasing electricity use and equipment loading. • Heat-Accelerated Equipment Degradation, OPEX / CAPEX: Prolonged heat exposure may accelerate the ageing of insulation, seals, cables, lubricants and electronic components, requiring more frequent inspection, maintenance and replacement.			
Utilities • Cooling-System • Electrical Network • Air Compressor Station	• Cooling-System Performance Loss – OPEX / CAPEX: Higher ambient temperatures may reduce heat-rejection efficiency	Not Applicable (N/A)	Low	**Moderate**

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
• Nitrogen Generation and Supply Systems • Wastewater Treatment Stations • External Water and Electricity Connections	and increase loads on circulating-water pumps, cooling equipment and controls. This may increase electricity use and make-up-water demand or require temporary production adjustments. • Electrical Network Derating – OPEX / CAPEX: Prolonged heat may reduce the operating margins of transformers, switchgear, cables and electrical panels. As some equipment is specified for ambient temperatures of approximately 40°C, conditions approaching this limit may cause alarms, derating or accelerated insulation ageing. • Air Compressor and Nitrogen-System Stress – OPEX: Higher intake-air temperatures may reduce compressor efficiency and increase cooling demand, energy consumption and thermal stress on motors and			

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	associated equipment. • Wastewater-Treatment Performance – OPEX: Higher wastewater temperatures may reduce biological treatment efficiency and increase aeration and pump loads. • External Utility Reliability – OPEX: Extreme heat may increase demand on external electricity and water networks, potentially resulting in supply constraints or short-duration interruptions.			
Storage and Chemical Management Areas	• Material and Packaging Degradation – OPEX: Prolonged heat may degrade temperature-sensitive packaging, seals, labels and stored materials, increasing inspection or replacement needs. • Chemical Storage and Instrument Sensitivity – OPEX / CAPEX: Prolonged heat may affect pumps, valves, gauges, leak-	Not Applicable (N/A)	Low	Low

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	detection systems and alarms, particularly in outdoor or poorly ventilated areas. • Ventilation Demand – OPEX: Higher temperatures may increase ventilation and energy demand in enclosed chemical, hazardous-waste and packaging-storage areas. • Fire-Safety Pressure – OPEX: Extreme heat may increase the consequences of equipment failure or combustible-material releases. Existing fire-protection and containment measures reduce this risk, subject to regular inspection.			
Construction and Temporary Maintenance Works	• Concrete Curing and Surface Drying – CAPEX: High temperatures may accelerate moisture loss, increasing the risk of cracking or uneven concrete curing. • Sealant, Coating and Asphalt Application – CAPEX: Elevated temperatures may affect curing and	Low	Not Applicable (N/A)	Not Applicable (N/A)

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	adhesion, potentially resulting in rework or increased maintenance. • Construction Equipment Thermal Stress – CAPEX / OPEX: Prolonged heat may cause equipment overheating, reduced efficiency or more frequent cooling periods. • Temporary Maintenance Exposure – OPEX: Maintenance near high-temperature processes may expose equipment and workers to combined ambient and process heat.			
Staff Health & Safety – OHS	• Heat Stress Risk – OPEX: Personnel may face dehydration, fatigue, or heat exhaustion during high-temperature outdoor or heat-source-adjacent work. • Heat-Related Medical Emergencies – OPEX: Prolonged exposure during maintenance or emergency interventions may lead to heat stroke	**Moderate**	**Moderate**	**Moderate**

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	or other severe health effects. • PPE Heat Burden – OPEX: Wearing protective equipment in extreme heat increases physiological heat load. • Productivity Loss – OPEX: Hot conditions may slow maintenance, inspections, or operational tasks. • Emergency Response Constraints – OPEX: Extreme heat can impair personnel's ability to respond quickly to incidents, increasing operational risk.			

3.4.1.3 NEXT STEPS

This section provides an overview of ERM's recommended next steps for all risk areas that have been identified within the 'Risk review' section as being 'Likely Material'. The recommended next steps within this section are based upon the risk review undertaken for each risk area and ERM's technical review and input into this assessment.

TABLE 3-7 RECOMMENDED NEXT STEPS FOR EACH RISK AREA IDENTIFIED AS BEING 'LIKELY MATERIAL' WITHIN THE RISK REVIEW SECTION FOR THE EXTREME HEAT HAZARD GROUPING

Extreme Heat		
Risk areas	Justification	Next Steps
Main Production Facilities	Targeted risk refinement and management	• Evaluate cooling and heat-rejection capacity. Confirm that systems serving the main production equipment can meet

Extreme Heat		
		increased demand during extreme heat without placing excessive pressure on water resources. • Strengthen thermal management of electrical systems. Review ventilation or air conditioning for MCC rooms, control cabinets and VFD panels, and introduce temperature alarms and seasonal maintenance. • Optimise ventilation and air-treatment performance. Review the capacity and controls of ventilation, RTO and other air-emission control systems, and complete preventive maintenance before peak-summer periods. • Enhance temperature-related condition monitoring. Monitor bearing temperature, vibration and cabinet temperature for critical fans, pumps, motors and auxiliary equipment during hot periods.
Utilities	Targeted risk refinement and management	• Verify cooling-system resilience. Confirm the capacity and redundancy of circulating-water systems under projected extreme temperatures and identify any required efficiency or operational improvements. • Enhance electrical equipment monitoring. Install temperature monitoring and undertake thermal inspections of transformers, switchgear and other critical electrical equipment to support preventive maintenance. • Confirm electrical equipment design margins. Review equipment temperature ratings, ventilation and auxiliary cooling requirements, and establish procedures for operation during extreme heat. • Strengthen water-supply resilience. Monitor pump temperatures, confirm redundancy under peak summer demand and prepare contingency procedures for increased cooling and make-up-water requirements. • Protect wastewater-treatment performance. Monitor wastewater temperature and treatment performance and adjust aeration, operating parameters and maintenance frequency during high-temperature periods.
Storage and Chemical Management Areas	Targeted risk refinement and management	• Increase summer ventilation capacity. Review ventilation requirements for enclosed chemical, hazardous-waste and packaging-storage areas, and inspect ventilation equipment before summer. • Enhance monitoring-system reliability. Increase inspection and calibration of gauges, alarms and leak-detection systems, particularly in exposed or poorly ventilated areas. • Strengthen OHS controls for storage-area work. Shift non-urgent work to cooler hours and provide suitable PPE, drinking water and rest breaks. • Improve fire and spill preparedness. Increase inspections of chemical, fuel and combustible-material storage areas

Extreme Heat		
		and reinforce emergency-response training during heatwaves.
Construction and Temporary Maintenance Works	Targeted risk refinement and management	• Implement strict summer work-rest cycles. Schedule heavy work (lifting, welding, concrete pours) during early morning/evening; enforce hydration, shaded rest stations, and temperature-triggered work pauses. • Protect material integrity during curing. Use chilled/conditioned water for concrete, curing blankets, fogging/misting, and adjust mix designs for high-temperature conditions. • Increase readiness of construction equipment. Require pre-summer servicing of cranes, generators, pumps, and trucks; add mobile shade structures and mandate routine cool-down periods.
Staff Health & Safety – OHS	Targeted risk refinement and management	• Implement health and safety protocols to protect plant personnel from the effects of extreme heat. • Provide adequate cooling facilities, encourage frequent hydration, and consider adjusting working hours during periods of intense heat. • Strengthen emergency preparedness. Train first-aid teams for heat-related illnesses, place heat-emergency kits onsite, and rehearse emergency response for heat-stress scenarios.

Subject to implementation of the recommended measures and verification that final equipment temperature ratings and thermal design margins remain adequate under projected climate conditions, the residual risk to Main Production Facilities and Utilities is expected to remain Low in the 2030s and Low to Moderate in the 2050s, while OHS risks are expected to remain Moderate but manageable through operational controls.

3.4.2 EXTREME COLD

3.4.2.1 CLIMATE DATA AND TRENDS

Based on climate model projections, the Number of Frost Days for the Project site is expected to experience a decrease from the baseline of 0.4 days to 0.1–0.3 days by the 2030s, and further to 0–0.2 days by the 2050s under the SSP1-2.6 and SSP5-8.5 scenarios. The risk associated with frost is therefore assessed as Low across the baseline and all assessed future scenarios and time horizons.

TABLE 3-8 BASELINE AND PROJECTED EXTREME COLD CLIMATE DATA

Variable	Baseline	Projections			
		2030s		2050s	
		SSP1-2.6	SSP5-8.5	SSP1-2.6	SSP5-8.5
Number of Frost	0.4	0.3	0.1	0.2	0

Variable	Baseline	Projections			
		2030s		2050s	
		SSP1-2.6	SSP5-8.5	SSP1-2.6	SSP5-8.5
Days (Days)					
Lowest daily minimum temperature (°C)	0.4	0.8	1.5	0.6	2.1

3.4.2.2 RISK REVIEW

Climate projections indicate that the number of frost days at the Project Site is expected to decrease from 0.4 days per year to 0 days per year by the 2050s under the assessed SSP scenarios. The projected lowest daily minimum temperature ranges from 0.6°C-2.1°C across the assessed periods and scenarios. Although cold conditions are expected to remain infrequent, episodic low temperatures may pose occupational health and safety risks to workers undertaking outdoor construction, maintenance and material-handling activities, including cold stress, reduced manual dexterity and increased slip hazards where frost or ice is present. Low temperatures may also affect exposed pipework, pumps, instruments, water-containing equipment and electrical or control systems, particularly during start-up or after periods of shutdown. Accordingly, the Project should remain prepared for occasional cold-weather events even where the overall number of frost days is projected to decline.

The available Project information indicates that outdoor wastewater treatment structures are designed for ambient temperatures ranging from-5°C to 45°C, while the RTO wastewater treatment system is specified for an operating environment of 0°C to 40°C. These design ranges provide some tolerance to seasonal low temperatures, but equipment installed outdoors or containing water may remain vulnerable if ambient temperatures fall below their specified operating limits. Cold-weather management should therefore include monitoring of weather forecasts, inspection and insulation of exposed pipework and water-containing equipment, maintenance of safe access routes, provision of suitable protective clothing, and work controls during frost or icy conditions. Subject to confirmation that projected minimum temperatures remain within the final equipment design limits and that appropriate winterisation measures are implemented, extreme cold is assessed as a Low risk.

TABLE 3-9 POTENTIAL RISK AREAS AT THE START AND END OF OPERATIONS ASSOCIATED WITH THE PROJECT FOR THE EXTREME COLD HAZARD GROUPING

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
Main Production Facilities	• Water-Treatment System Cold-	Not Applicable	Low	Low

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
• Raw Material, Crushing and Granulation Workshops • Pre-carbonisation, Graphitisation and Carbonisation Workshops • Finished Product Workshop and Associated Air Emission Control Systems	Temperature Performance, OPEX: Low water temperatures may reduce the performance of pumps, membranes and associated treatment equipment, potentially increasing energy use or operational adjustments. • Cooling-System Icing and Mechanical Stress, OPEX / CAPEX: In unusually cold conditions, exposed cooling-water components, pipework and basins may be susceptible to localised icing, potentially disrupting circulation or increasing mechanical stress. • Electrical and Control Equipment Cold Exposure, OPEX / CAPEX: Low temperatures and condensation may affect outdoor electrical equipment, control cabinets, sensors and protection devices, potentially reducing operational reliability. • Reduced Biological Treatment Efficiency, OPEX: Colder wastewater may reduce biological activity within the anaerobic, anoxic and aerobic treatment	(N/A)		

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	stages, potentially affecting treatment efficiency and effluent quality. The available project information indicates that biological activity may progressively decline below 12°C, with a more substantial reduction below 8°C.			
Utilities • Cooling-System • Electrical Network • Air Compressor Station • Nitrogen Generation and Supply Systems • Wastewater Treatment Stations • External Water and Electricity Connections	• Cooling-System Cold-Temperature Effects – OPEX / CAPEX: Low temperatures may affect exposed pipework, valves, pumps and water-containing equipment, particularly during shutdown or low-flow conditions. • Electrical Equipment Condensation – OPEX / CAPEX: Temperature changes may cause condensation within switchgear, cabinets and control panels, affecting insulation, relays and switching reliability. • Air Compressor and Nitrogen-System Efficiency Loss – OPEX: Low intake-air temperatures may affect compressor start-up, lubrication and pressure-control equipment. • WWTP Performance – OPEX: Lower wastewater	Not Applicable (N/A)	Low	Low

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	temperatures may reduce biological-treatment efficiency and affect exposed pipelines, valves and instruments. • External Utility Reliability – OPEX: Occasional cold conditions may affect external water and electricity connections, although prolonged disruption is unlikely.			
Storage and Chemical Management Areas	• Warehouse Enclosure and Ventilation Performance, OPEX / CAPEX: Low temperatures may stiffen door seals and mechanical components or cause condensation, affecting door operation, ventilation and instrumentation. • Storage Equipment and Monitoring Reliability, OPEX / CAPEX: Low temperatures may affect exposed valves, pipework, pumps, gauges and leak-detection equipment, increasing inspection or start-up requirements.	Not Applicable (N/A)	Low	Low
Construction and Temporary Maintenance Works	• Cold-Weather Concrete Risks, CAPEX: Low temperatures may slow hydration and curing, increasing the risk of surface defects,	Low	Not Applicable (N/A)	Not Applicable (N/A)

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	cracking or reduced concrete quality. • Earthworks and Underground Utility Impacts, CAPEX: Cold and wet conditions may affect excavation, backfilling and compaction and delay the installation of pipelines, cable trenches and drainage systems. • Machinery Cold-Start Limitations, CAPEX / OPEX: Increased lubricant or hydraulic-fluid viscosity may affect the start-up and response of cranes, pumps, compressors and construction vehicles.			
Staff Health & Safety – OHS	• Cold Stress – OPEX: Prolonged outdoor exposure during occasional low-temperature conditions may cause discomfort, fatigue or mild cold stress. • Reduced Dexterity – OPEX: Low temperatures may temporarily reduce manual dexterity, increasing risks when handling tools or equipment. • Slips, Trips and Falls – OPEX: Occasional frost, condensation or wet surfaces may increase	Low	Low	Low

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	slip and fall risks in outdoor work areas. • PPE Burden – OPEX: Additional cold-weather clothing may restrict movement or visibility during outdoor work and maintenance. • Reduced Productivity – OPEX: Cold conditions may slow outdoor work and increase the need for rest or warm-up periods. • Emergency Response Limitations – OPEX: Low temperatures may affect personnel mobility and extend response times during outdoor incidents.			

3.4.2.3 NEXT STEPS

This section provides an overview of ERM's recommended next steps for all risk areas that have been identified within the 'Risk review' section as being 'Low'. The recommended next steps within this section are based upon the risk review undertaken for each risk area and ERM's technical review and input into this assessment.

TABLE 3-10 RECOMMENDED NEXT STEPS FOR EACH RISK AREA IDENTIFIED AS BEING 'LOW' WITHIN THE RISK REVIEW SECTION FOR THE EXTREME COLD HAZARD GROUPING

Extreme Cold		
Risk areas	Justification	Next Steps
Main Production Facilities	Targeted risk refinement and management	• Review cold-weather protection for critical equipment. Confirm insulation, localised heat tracing and cold-start requirements for exposed pipework, valves, pumps and production auxiliary systems. • Enhance monitoring of temperature-sensitive components. Monitor electrical cabinets, instruments, fans, dampers and air-emission control equipment for condensation or low-temperature operating issues. • Improve operational readiness. Review cold-start, controlled shutdown and warm-up procedures to minimise thermal shock and equipment stress during occasional cold conditions. • Strengthen preventive maintenance for cold periods. Focus inspections on lubrication systems, seals, exposed pipework, water-containing equipment and condensation management.
Utilities	Targeted risk refinement and management	• Review cold-weather protection for exposed water systems. Confirm insulation and localised frost protection for exposed cooling-system and WWTP pipework, valves, pumps and water-containing equipment. • Strengthen electrical-system resilience. Verify the low-temperature performance of relays, batteries, outdoor switchgear and control panels, and manage condensation during temperature changes. • Enhance seasonal inspection of exposed utility equipment. Monitor cooling systems, pipelines, instruments and external utility connections during occasional low-temperature conditions. • Prepare for reduced biological-treatment efficiency. Monitor wastewater temperature and treatment performance, and adjust aeration, operating conditions or treatment loads where required.
Storage and Chemical Management Areas	Targeted risk refinement and management	• Review cold-weather sealing performance. Inspect doors, seals and enclosed storage areas to maintain suitable storage conditions during occasional low-temperature periods. • Enhance protection of monitoring equipment. Inspect temperature-sensitive gauges, alarms, leak-detection systems, valves and instruments, particularly in outdoor or poorly ventilated storage areas. • Strengthen cold-weather material-handling practices. Review the storage and handling requirements for raw

Extreme Cold		
		materials, chemicals, fuels, packaging materials and hazardous waste under low-temperature conditions. • Maintain suitable ventilation during cooler periods. Review ventilation arrangements for enclosed chemical, fuel and hazardous-waste storage areas to control condensation and maintain equipment reliability.
Construction and Temporary Maintenance Works	Targeted risk refinement and management	• Integrate low-temperature conditions into work planning. Adjust the scheduling of concrete works, earthworks and material handling during occasional cold-weather events. • Maintain appropriate concrete-curing conditions. Monitor ambient and concrete temperatures and apply localised covering or protection where required during low-temperature periods. • Strengthen construction-equipment readiness. Check lubricants, hydraulic systems and start-up procedures for cranes, lifting equipment, pumps and other machinery before cold-weather operation. • Strengthen contractor cold-weather safety planning. Maintain safe access, good housekeeping and controls for occasional frost, condensation or wet surfaces.
Staff Health & Safety – OHS	Targeted risk refinement and management	• Maintain suitable worker protection. Provide appropriate cold-weather clothing and slip-resistant footwear for outdoor work during occasional low-temperature conditions. • Strengthen low-temperature safety procedures. Address reduced manual dexterity, cold-related fatigue, and slip risks associated with frost, condensation or wet surfaces. • Improve weather monitoring and work controls. Monitor forecasts and site conditions and adjust outdoor work where low temperatures may affect worker safety. • Enhance cold-weather awareness training. Train workers to recognise early signs of cold stress and move safely through outdoor or wet work areas.

3.4.3 FLOODING

3.4.3.1 CLIMATE DATA AND TRENDS

Extreme Rainfall Flooding

According to the baseline and projected data, the Project Site is exposed to pluvial flood risk under a 1-in-500-year event. The modelled inundation depth increases only slightly, from 590 mm under baseline conditions to 610 mm by the 2030s, and to 620–640 mm by the 2050s under the assessed SSP1-2.6 and SSP5-8.5 scenarios.

Under baseline conditions, the modelled inundation depth for a 1-in-500-year pluvial flood event is estimated at 590 mm, associated with a maximum 1-day precipitation of 123.9 mm. Maximum 1-day precipitation shows some variability, increasing to 129.9 mm under SSP1-2.6

but decreasing slightly to 121.3 mm under SSP5-8.5 by the 2030s. By the 2050s, it is projected to increase to 134.5 mm under SSP1-2.6 and 138.9 mm under SSP5-8.5.

The range is from 313.3 mm in the baseline to 323.8 mm by the 2030s under SSP1-2.6; to 299.1 mm under SSP5-8.5. By the 2050s, 314.7 mm under SSP1-2.6 to 302 mm under SSP5-8.5. This indicates no consistent trend in maximum 5-day precipitation across the assessed scenarios; however, the substantial modelled inundation depth confirms that pluvial flooding remains a material hazard to the Project Site across all assessed time horizons and emission pathways.

The projected inundation depth increases modestly across the assessed time horizons, while maximum 1-day precipitation increases by the 2050s. Maximum 5-day precipitation does not show a consistent trend across the assessed scenarios.

TABLE 3-11 BASELINE AND PROJECTED EXTREME RAINFALL FLOODING DATA

Variable	Baseline	Projections			
		2030s		2050s	
		SSP1-2.6	SSP5-8.5	SSP1-2.6	SSP5-8.5
1-in-500 year pluvial flood inundation depth (mm)	590	610	610	620	640
1-in-500 year maximum 1-day precipitation (mm)	123.9	129.9	121.3	134.5	138.9
1-in-500 year maximum 5-day precipitation (mm)	313.3	323.8	299.1	314.7	302

River Flooding

The Project Site is located within the Tanger Tech Industrial Acceleration Zone, with the Oued Mharher and Oued Sabone **(*Figure* 1-1)** identified as the principal watercourses in the wider surrounding area. Based on the Project-specific climate model data, riverine flooding is not considered a material hazard to the Project Site**.**

3.4.3.2 RISK REVIEW

The Project is located within the Tanger Tech Industrial Acceleration Zone in Tangier -Assilah Province, Morocco. Available project documentation describes the site as generally flat and identifies the surrounding land use as industrial and agricultural, with nearby transport infrastructure. The local environmental assessment indicates that the site is not considered to be affected by riverine flooding. Nevertheless, the climate risk screening identifies potential

exposure to pluvial flooding during an extreme rainfall event. This risk may arise where intense rainfall exceeds the capacity of the site drainage system or results in the temporary accumulation of surface water within low-lying or poorly drained areas of the site. Moroccan Decree No. 2.24.1146 provides for a flood-protection channel for the wider Mohammed VI Tanger Tech City, indicating that flood management is relevant at the development-zone level. However, this does not confirm that the Project plot is flood-prone or has previously flooded.[23]

The Project incorporates a range of design and operational measures intended to manage stormwater, wastewater and potentially contaminated runoff. These measures do not eliminate the underlying hazard associated with extreme rainfall or pluvial flooding. However, they provide an important level of resilience by separating stormwater from wastewater, providing wastewater buffering and treatment capacity, monitoring water levels and maintaining arrangements for the controlled storage and management of abnormal flows.

A rainwater and wastewater separation arrangement is included in the Project design to reduce the potential for stormwater to enter the wastewater collection system during rainfall events. This is important because the uncontrolled entry of stormwater or surface wash water into the wastewater network could result in short-term inflows exceeding the system's design capacity. The wastewater facilities therefore include high-level monitoring and two-stage liquid-level alarms. At high liquid levels, available standby pumps can be brought into operation to increase the pumping and treatment rate, while an exceptional high-level condition triggers an alarm and an operational response. During forecast heavy rainfall, the proposed operating approach includes lowering the water level in the equalisation tanks in advance, where practicable, and increasing site inspections to preserve temporary storage capacity and identify abnormal conditions.

Stormwater will be collected through a standalone stormwater pipeline network that is separate from the wastewater collection system. Stormwater within the capacity of the onsite stormwater treatment facilities will be treated and reused in the production process, subject to meeting the applicable reuse water-quality requirements. Where stormwater flows exceed the capacity of the onsite treatment facilities, the excess stormwater will be discharged to the Industrial Acceleration Zone stormwater pipeline network for subsequent off-site discharge through the industrial park's stormwater drainage system. Potentially contaminated runoff will not be discharged directly to the stormwater network. The Project will use the rainwater monitoring basin and accident-water basin to monitor, isolate and temporarily contain potentially contaminated stormwater and emergency runoff. Where abnormal water quality or accidental contamination is identified, the affected runoff will be diverted from the stormwater network and managed through the Project's wastewater treatment or emergency-response arrangements, as appropriate.

Separate systems are proposed for domestic and industrial wastewater. The domestic wastewater treatment system is designed to receive wastewater from sanitary facilities and canteen areas following appropriate pretreatment, including grease separation and septic treatment. Domestic wastewater is collected in an equalisation tank, screened to remove coarse suspended material and then pumped to an integrated treatment unit incorporating biological treatment, settlement and ultraviolet disinfection. The industrial wastewater system receives laboratory wastewater and floor-cleaning wastewater and applies pH adjustment,

[23] Moroccan government approves flood protection canal for Mohammed VI Industrial City in Tangier

coagulation and sedimentation, biological treatment, settlement and ultraviolet disinfection. All treated effluent will be directed to the treated-water collection tank and reused within the production process.

The combined design capacity of the wastewater treatment facilities is 200 m³/day for domestic wastewater and 50 m³/day for industrial wastewater. The Project information also identifies two domestic wastewater equalisation tanks, each with a volume of approximately 105.6 m³, and a treated-water storage tank with a volume of approximately 150 m³. These facilities provide a degree of hydraulic buffering and help reduce the potential for short-term fluctuations in wastewater inflow to disrupt treatment performance. The treatment systems are also designed with standby pumping and aeration equipment to support continued operation when an individual unit is unavailable.

Additional controls are incorporated into the wastewater treatment equipment to reduce the risk of leakage, overflow or system malfunction. The systems include automated controls, operational status displays, equipment-fault alarms and high and low liquid-level alarms. Pumps are configured with duty and standby arrangements, while treated-water pumps can be controlled according to storage-tank water levels. The treatment equipment and internal pipework are specified using materials selected to withstand corrosion, ageing and impact associated with the wastewater characteristics. Covered equalisation and treated-water tanks are also proposed to provide secure containment and facilitate controlled wastewater management.

The overall site design includes a wastewater treatment station, an accident-water basin and a rainwater monitoring basin. These facilities provide designated areas for wastewater treatment, emergency containment and stormwater monitoring. Any emergency or abnormal wastewater requiring temporary containment should be managed through the Project’s operational and emergency-response procedures before treatment, reuse or compliant disposal. Firefighting water and other potentially contaminated emergency runoff should similarly be prevented from discharging directly to the stormwater system or the surrounding environment.

Overall, the proposed separation of stormwater and wastewater, onsite treatment and reuse of stormwater within the available treatment capacity, controlled discharge of excess stormwater to the industrial park’s stormwater drainage network, wastewater treatment and reuse, automated liquid-level monitoring, standby equipment, accident-water containment and construction-phase drainage controls reduce the potential for extreme rainfall to result in wastewater overflow, contaminated runoff or uncontrolled releases..

During construction, runoff, wastewater and erosion risks will be managed through temporary drainage and sediment-control measures. Construction wastewater will be collected in a temporary sedimentation tank and, following settlement, reused where suitable. Excavated material will be stored in designated areas, temporary loose soil will be appropriately compacted, and erosion-control measures will be implemented during foundation excavation, road construction and site levelling. Foundation pits will be provided with drainage ditches, collection sumps and appropriate dewatering arrangements, while construction activities will, where practicable, avoid periods of heavy rainfall and temporary drainage systems and excavations will be regularly inspected. Together, these measures will reduce sediment mobilisation, rainfall accumulation, excavation instability and associated safety risks.

The Project's emergency arrangements provide an additional operational layer of resilience. Relevant measures include monitoring weather conditions, maintaining communication with the appropriate Moroccan authorities and regularly inspecting and reinforcing temporary facilities and foundation-pit protection measures. For the wastewater treatment system, extreme rainfall response measures include preserving available equalisation capacity, responding to high liquid levels and conducting enhanced inspections during severe weather.

Overall, the proposed rainwater and wastewater separation arrangements, wastewater treatment and buffering capacity, automated liquid-level monitoring, standby equipment, accident-water containment and construction-phase drainage controls reduce the potential for extreme rainfall to result in wastewater overflow, contaminated runoff or uncontrolled releases. However, these measures primarily reduce the consequences of pluvial flooding and associated pollution events rather than eliminating the physical flood hazard itself. Their effectiveness will depend on adequate detailed drainage design, regular inspection and maintenance, preservation of available storage capacity before forecast heavy rainfall, and implementation of the Project's emergency-response procedures. Taking into account the proposed mitigation and management measures, the residual pluvial flood risk is assessed as Low to Moderate. Accordingly, residual pluvial flood risk should continue to be managed through operational monitoring, preventive maintenance and periodic review of drainage and containment capacity against the extreme rainfall conditions identified in the climate risk assessment.

TABLE 3-12 POTENTIAL RISK AREAS AT THE START AND END OF OPERATIONS ASSOCIATED WITH THE PROJECT FOR THE EXTREME RAINFALL FLOODING HAZARD GROUPING

Risk area	**Description of potential risks and materiality in relation to risk area**	**Risk materiality category and time-period**		
		Construction phase (Baseline)	**Early operation phase (2030s)**	**Late operation phase (2050s)**
Main Production Facilities • Raw Material, Crushing and Granulation Workshops • Pre-carbonisation, Graphitisation and Carbonisation Workshops • Finished Product Workshop and Associated Air Emission Control Systems	• Inundation of Ground-Level Equipment – CAPEX / OPEX: Flooding may affect ground-level pumps, motors, MCCs, control panels and auxiliary equipment, causing equipment damage or temporary production disruption. • Power and Process-Control Disruption – OPEX: Flood-related	Not Applicable (N/A)	**Moderate**	**Moderate**

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	power or control-system failures may interrupt material handling, thermal processes and associated air-emission control systems. • Corrosion and Moisture-Related Failures – OPEX / CAPEX: Standing water and high humidity may accelerate corrosion, insulation deterioration and electrical faults in metallic and electrical components. • Interruption of Material and Reagent Supply – OPEX: Floodwater may restrict access to raw materials, process additives and chemical-dosing equipment, potentially disrupting production or air-emission control systems. • Damage to Floors and Equipment Foundations – CAPEX: Prolonged inundation or water ingress may damage workshop floors, equipment			

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	foundations, joints and embedded services, increasing repair requirements.			
Utilities • Cooling-System • Electrical Network • Air Compressor Station • Nitrogen Generation and Supply Systems • Wastewater Treatment Stations • External Water and Electricity Connections	• Pump and Motor Inundation – CAPEX / OPEX: Floodwater may affect ground-level pumps, motors and controls, causing equipment damage or temporary utility disruption. • Pipeline Scour and Exposure – CAPEX: Extreme rainfall may erode backfill around buried water and wastewater pipelines, increasing the risk of exposure or damage. • Cooling-Water Contamination – OPEX: Stormwater ingress may affect cooling-water quality and cooling-system performance. • Electrical Equipment Damage – CAPEX / OPEX: Floodwater may affect transformers, switchgear, MCCs, VFDs and control panels located below potential flood levels.	Not Applicable (N/A)	**Moderate**	**Moderate**

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	• Electrical Safety Risks – OPEX: Water ingress and saturated conditions may cause ground faults, short circuits or electrical hazards during and after flooding. • WWTP Hydraulic Overload – OPEX: Unintended stormwater inflow may exceed wastewater collection, equalisation or treatment capacity, increasing overflow or treatment-disruption risks. • External Utility Disruption – OPEX: Flooding may interrupt external water or electricity connections and restrict access for inspection or repair.			
Storage and Chemical Management Areas	• Flooding of Loading and Unloading Areas – OPEX: Pluvial flooding may disrupt the delivery and handling of raw materials, chemicals and finished products, even where site drainage measures are provided.	Not Applicable (N/A)	Low	**Moderate**

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	• Water Damage to Stored Materials – OPEX: Floodwater ingress may damage raw materials, packaging and finished products or temporarily reduce storage and material-handling efficiency. • Damage to Electrical and Ventilation Systems – CAPEX / OPEX: Elevated water levels may damage low-level electrical components, ventilation equipment, monitoring systems and warehouse doors, potentially disrupting storage operations. • Chemical, Fuel and Waste Containment Pressure – OPEX: Extreme rainfall may exceed drainage or containment capacity, increasing the risk of water ingress, overflow or mobilisation of contaminants from chemical, LPG and hazardous-waste storage areas.			

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
Construction and Temporary Maintenance Works	• Erosion and Instability of Temporary Works – CAPEX: Heavy rainfall may erode excavations, temporary slopes, earthworks and access routes, potentially requiring repair or additional stabilisation. • Deterioration of Stored Materials – CAPEX: Rainfall or localised flooding may damage stockpiled construction materials and equipment, particularly where storage areas are uncovered or poorly drained. • Reduced Concrete Quality – CAPEX: Excessive rainfall or surface water may affect concrete placement and curing, potentially reducing construction quality or requiring rework. • Work Interruptions and Delays – OPEX / CAPEX: Heavy rainfall and localised flooding may restrict site access, lifting, excavation and foundation works,	**Moderate**	Not Applicable (N/A)	Not Applicable (N/A)

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	resulting in temporary work stoppages or construction delays.			
Staff Health & Safety – OHS	• Slip, Trip and Fall Risks – OPEX: Rainfall and localised water accumulation may create slippery surfaces, increasing slip, trip and fall risks for workers. • Electrical Exposure Hazards – OPEX: Floodwater or water ingress into electrical areas may expose workers to electric shock and other electrical hazards. • Restricted Evacuation and Emergency Access – OPEX: Localised flooding may obstruct pedestrian routes, emergency exits and vehicle access, potentially delaying evacuation and emergency response. • Exposure to Contaminated Water – OPEX: Workers involved in inspection, drainage clearance or post-flood cleanup may be exposed to	**Moderate**	**Moderate**	**Moderate**

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	contaminated runoff, requiring appropriate PPE and hygiene controls.			

3.4.3.3 NEXT STEPS

This section provides an overview of ERM's recommended next steps for all risk areas that have been identified within the 'Risk review' section as being 'Likely Material'. The recommended next steps within this section are based upon the risk review undertaken for each risk area and ERM's technical review and input into this assessment.

TABLE 3-13 RECOMMENDED NEXT STEPS FOR EACH RISK AREA IDENTIFIED AS BEING 'LIKELY MATERIAL' WITHIN THE RISK REVIEW SECTION FOR THE EXTREME RAINFALL FLOODING HAZARD GROUPING

Extreme Rainfall Flooding		
Risk areas	Justification	Next Steps
Main Production Facilities	Targeted risk refinement and management	• Strengthen protection of low-lying equipment. Review opportunities to elevate or seal ground-level motors, pumps, MCCs, control panels and other flood-sensitive equipment. • Verify drainage and pumping capacity. Assess whether workshop drainage, sump pumps and backup power can operate under the extreme rainfall conditions identified for the Project. • Refine shutdown and restart procedures. Establish controlled isolation, shutdown, inspection and restart procedures to minimise equipment damage and production disruption during flooding. • Enhance post-flood inspection and recovery. Prioritise electrical systems, production equipment, material-handling systems and associated air-emission control systems before operations resume.
Utilities	Targeted risk refinement and management	• Assess flood exposure across critical utilities. Review the installation elevations and flood protection of cooling systems, substations, compressor and nitrogen systems, WWTPs and associated control equipment. • Strengthen utility redundancy. Confirm backup power, standby pumping and contingency arrangements for

Extreme Rainfall Flooding		
		temporary interruptions to electricity, water supply and cooling systems. • Improve pipeline and drainage-corridor protection. Review erosion, scour and settlement risks around buried pipelines, cable routes, equipment foundations and drainage channels. • Prepare utility recovery arrangements. Establish safe access, electrical isolation, dewatering, inspection and restart procedures where fixed utility equipment is affected by flooding.
Storage and Chemical Management Areas	Targeted risk refinement and management	• Review floor levels, door thresholds, drainage and temporary barriers for material, product, packaging and chemical storage areas. • Confirm that chemical, fuel and hazardous-waste containment systems retain adequate capacity during extreme rainfall. • Establish procedures for protecting or relocating flood-sensitive materials and inspecting gauges, alarms and leak-detection systems. • Prepare safe dewatering and cleanup procedures for accumulated water and potentially contaminated runoff.
Construction and Temporary Maintenance Works	Targeted risk refinement and management	• Integrate flood-risk considerations into work planning by avoiding high-risk activities during peak rainfall periods. • Enhance stability of excavations, stockpiles, and temporary structures through additional reinforcement or grading. • Prepare emergency pumping and drainage arrangements to quickly remove accumulated water from work areas. • Strengthen contractor HSE coordination on emergency communication, stop-work triggers, and safe-access protocols during storms.
Staff Health & Safety – OHS	Targeted risk refinement and management	• Strengthen flood-specific safety procedures covering movement restrictions, electrical isolation, and safe-work boundaries. • Improve emergency communication systems and ensure alternative evacuation routes are clearly identified for flood scenarios. • Reinforce training and awareness on slip hazards, electrical risks, and safe conduct in flooded areas. • Enhance availability of suitable PPE and hygiene resources for safe work during and after flood-related incidents.

Subject to verification of drainage capacity, finished floor levels, flood protection measures and equipment elevations against the identified flood conditions, residual flood risk is expected to reduce from Moderate to Low for the principal production facilities and utilities.

3.4.4 EXTREME WINDS

3.4.4.1 CLIMATE DATA AND TRENDS

Please Refer to Section 3.3.2.3 for details.

3.4.4.2 RISK REVIEW

The assessment of extreme wind conditions at the Project Site is based on hourly ERA5 10 m wind-gust data for the period 1940–2025. The analysis uses the fg10 variable for the ERA5 grid point. The 2026 data were excluded from the historical statistics because the available record for that year is incomplete. Percentages were calculated using all valid non-missing hourly observations within the 1940–2025 period as the denominator. This long-term dataset offers a robust basis for understanding the frequency and magnitude of short-duration gusts that are most relevant to construction safety and the performance of non-structural components.[24]

The statistical distribution indicates a generally moderate wind climate, with approximately 88.38% of historical hourly gust observations remaining below 15 m/s. However, 10 m wind gusts within the 15–25 m/s assessment range account for approximately 11.51% of observations and may periodically affect high-altitude construction, crane operations and outdoor maintenance activities. Gusts within the 25–30 m/s range are uncommon, accounting for approximately 0.105% of observations, while gusts of 30 m/s or above occur in approximately 0.0049% of observations. The maximum gust recorded during the 1991–2020 baseline period was approximately 31.13 m/s. Although infrequent, these stronger gust events may impose short-duration wind loads on cladding, roofing, temporary works and other exposed secondary systems and should therefore be considered in structural design and operational planning.

When the hourly gust observations are classified using indicative Beaufort-equivalent wind-speed bands, approximately 65.82% fall within the Force 0–5 ranges. Approximately 18.25% and 10.32% fall within the Force 6 strong-breeze and Force 7 near-gale ranges, respectively. Gusts within the Force 8 gale and Force 9 strong-gale ranges account for approximately 4.40% and 1.05% of valid observations, respectively. Force 10 storm and Force 11 violent-storm ranges represent approximately 0.145% and 0.012% of observations, respectively. Only three hourly observations, representing approximately 0.0004% of valid observations, are at or above the Force 12 hurricane-force threshold. This comparison is indicative because the ERA5 variable represents maximum wind gusts, whereas the Beaufort scale is conventionally defined with reference to sustained mean wind speed.[25] [26]

A Generalized Extreme Value distribution was fitted to the series of 86 annual maximum gust values extracted for the complete calendar years from 1940 to 2025. The fitted distribution gives an estimated 86-year return-level gust of approximately 34.69 m/s. This modelled return level is distinct from the maximum gust in the annual-maxima series, which is approximately 37.20 m/s. Based on the fitted GEV distribution, the observed maximum corresponds to an estimated return period of approximately 414 years.[27] The fitted 86-year return level also has

[24] https://cds.climate.copernicus.eu/datasets/reanalysis-era5-single-levels-timeseries
[25] ERA5 hourly time-series data on single levels from 1940 to present
[26] Beaufort Wind Scale
[27] This return-period estimate is subject to substantial uncertainty because it materially exceeds the 86-year observational period.

a relatively wide indicative 95% bootstrap interval of approximately 32.02–37.63 m/s.

Where the climate-screening wind pressure exceeds the design basis adopted for the Project, the higher value may be used as a conservative upper-bound scenario to assess the vulnerability of roofing, cladding and other non-structural elements. This screening does not replace detailed structural verification against the applicable Moroccan codes and Project design standards. The adequacy of the primary structural frame cannot be confirmed through this climate screening and should be verified against the applicable Moroccan wind-loading requirements and final Project design criteria. According to CMIP6 data, surface wind speed will decrease by 1.3% (warming 1.5°C) to 2.9% (warming 4°C) under SSP5-8.5.[28]

Vulnerability is primarily concentrated in construction activities, outdoor maintenance and wind-sensitive non-structural components. Strong gusts may cause temporary suspension of lifting, work-at-height and other exposed activities, and should therefore be managed through a formal wind-response protocol based on equipment-specific operating limits. Targeted inspection and, where required, reinforcement of roofing, cladding, external ducting, stacks and mounted equipment are recommended to improve resilience to infrequent but plausible peak-gust conditions.

To manage extreme-wind risks, the Project requires lifting, crane operations, work at height and other wind-sensitive outdoor activities to be suspended when wind conditions exceed the applicable equipment or safe-working limits. Cranes, temporary structures and loose materials should be secured, anchored, dismantled or removed as appropriate, while scaffolding and lifting equipment should be inspected before and after strong-wind events to confirm their continued stability.

Strong winds may also increase fall-from-height and falling-object risks. Appropriate controls include the use of safety harnesses, guardrails, toe boards and safety nets, together with the securing of tools and loose materials. These measures should be supported by permit-to-work requirements, pre-task briefings and coordination of simultaneous activities in exposed work areas.

Preventive maintenance and emergency preparedness provide additional resilience. Regular inspections of cranes, scaffolding, temporary structures, roofing, cladding and safety equipment should be undertaken to identify wind-related defects. Emergency procedures should define reporting, activity suspension, evacuation and safe restart requirements, supported by workforce training and periodic drills. Subject to the effective implementation of the proposed mitigation and management measures, the residual risk associated with strong winds is assessed as Low to Moderate.

[28] https://interactive-atlas.ipcc.ch/

TABLE 3-14 POTENTIAL RISK AREAS AT THE START AND END OF OPERATIONS ASSOCIATED WITH THE PROJECT FOR THE EXTREME WINDS HAZARD GROUPING

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
Main Production Facilities • Raw Material, Crushing and Granulation Workshops • Pre-carbonisation, Graphitisation and Carbonisation Workshops • Finished Product Workshop and Associated Air Emission Control Systems	• Production Equipment and External Components Sensitivity – OPEX / CAPEX: Sudden wind gusts may destabilise crane-handled equipment during maintenance, increasing the risk of impact damage to production equipment, ventilation systems or other exposed components. • Cladding and Insulation Damage – CAPEX: High winds may loosen roofing, insulation panels or protective cladding, potentially allowing water ingress, reducing thermal performance and increasing maintenance requirements. • Equipment and Component Misalignment – OPEX / CAPEX: Wind-induced vibration during outdoor maintenance may affect conveyor covers, ventilation	Not Applicable (N/A)	Low	Low

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	ducts, stacks or externally mounted equipment, potentially causing misalignment or connection damage.			
Utilities • Cooling-System • Electrical Network • Air Compressor Station • Nitrogen Generation and Supply Systems • Wastewater Treatment Stations • External Water and Electricity Connections	• Power and Control Cable Vulnerability – OPEX: Repeated wind-induced vibration may stress above-ground cables, cable supports, junction boxes and external connections, potentially affecting electrical reliability. • Cooling-System Structural Stress – CAPEX: Lateral wind loads may affect exposed cooling equipment, fan housings, louvers and lightweight components, potentially reducing cooling performance or increasing maintenance needs. • External Electrical Connection Damage – OPEX / CAPEX: Strong gusts may cause vibration or damage to external electrical connections and, where overhead lines are used, may stress conductors, insulators and	Not Applicable (N/A)	Low	Low

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	supporting structures. • Outdoor Tank and Equipment Cover Damage – CAPEX: Wind uplift may loosen tank covers, access panels, equipment housings or lightweight protective structures. • Valve and Instrument Exposure – OPEX: Wind-induced vibration and airborne dust may affect exposed sensors, gauges, valves and control equipment, potentially reducing monitoring reliability or increasing inspection requirements.			
Storage and Chemical Management Areas	• Material-Handling Disruption – OPEX: Wind gusts entering during door operations may disrupt the loading, unloading and handling of raw materials, packaging materials, chemicals and finished products. • Ventilation and Building-Envelope Stress – OPEX / CAPEX: Wind	Not Applicable (N/A)	Low	Low

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	pressure may affect warehouse doors, louvers, ventilation systems, roofing and cladding, potentially increasing wind-driven dust or rain ingress. • Outdoor Equipment and Drainage Exposure – OPEX / CAPEX: Wind-driven dust and debris may affect gauges, alarms, leak-detection equipment and drainage channels in outdoor chemical, fuel and hazardous-waste storage areas.			
Construction and Temporary Maintenance Works	• Lifting and Crane-Operation Disruption – OPEX / CAPEX: Strong gusts may destabilise suspended loads and require temporary suspension of crane and lifting operations. • Scaffolding and Temporary-Structure Instability – CAPEX / OPEX: High winds may affect scaffolding, temporary roofs, barriers, formwork and other temporary structures.	**Moderate**	Not Applicable (N/A)	Not Applicable (N/A)

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	• Wind-Blown Materials and Tools – OPEX: Unsecured materials, sheeting and tools may become wind-blown hazards. • Work-at-Height Interruption – OPEX: Gusty conditions may restrict elevated work and result in temporary work stoppages.			
Staff Health & Safety – OHS	• Fall-From-Height Risks – OPEX: Gusts can impair worker balance on scaffolds, ladders, or elevated platforms, increasing fall likelihood. • Flying-Object Hazards – OPEX: Wind-blown materials or tools may cause injuries, especially in open-yard or construction areas. • Visibility & Stability Impairment – OPEX: Dust uplift and sudden wind bursts may reduce visibility, hinder safe movement, and increase trip or collision risks.	**Moderate**	**Moderate**	**Moderate**

3.4.4.3 NEXT STEPS

This section provides an overview of ERM's recommended next steps for all risk areas that have been identified within the 'Risk review' section as being 'Likely Material'. The

recommended next steps within this section are based upon the risk review undertaken for each risk area and ERM's technical review and input into this assessment.

TABLE 3-15 RECOMMENDED NEXT STEPS FOR EACH RISK AREA IDENTIFIED AS BEING 'LIKELY MATERIAL' WITHIN THE RISK REVIEW SECTION FOR THE EXTREME WINDS HAZARD GROUPING

Extreme Wind Events		
Risk areas	Justification	Next Steps
Main Production Facilities	Targeted risk refinement and management	• Strengthen resilience of exposed equipment. Review anchoring and protection of external ducts, stacks, platforms, ventilation equipment and other wind-sensitive components. • Enhance preventive maintenance. Inspect stacks, ducting, cladding, lifting points, access platforms and equipment supports before and after strong winds. • Refine shutdown and restart procedures. Establish criteria for suspending exposed operations and safely inspecting and restarting affected production and air-emission control systems.
Utilities	Targeted risk refinement and management	• Review wind exposure of utility facilities. Assess cooling systems, substations, pump areas and outdoor utility equipment to identify components requiring additional securing or reinforcement. • Improve protection of exposed utilities. Secure above-ground cables, junction boxes and external panels, and verify the adequacy of equipment supports and protective housings. • Enhance utility contingency arrangements. Develop procedures to maintain or safely restore essential electricity, water and cooling services following wind-related disruption.
Storage and Chemical Management Areas	Targeted risk refinement and management	• Strengthen controls for warehouse doors, loading and unloading activities and exposed stored materials during strong-wind conditions. • Inspect ventilation equipment, doors, roofing, cladding, outdoor instruments and drainage channels before and after strong-wind events. • Review procedures for temporary suspension of material handling and safe access during severe wind conditions.
Construction and Temporary Maintenance Works	Targeted risk refinement and management	• Integrate wind-risk considerations into scheduling, avoiding high-risk activities during forecast strong-wind periods. • Reinforce temporary structures and ensure lifting plans account for variable wind loads and stop-work thresholds. • Strengthen contractor coordination on wind-related stop-work triggers, site housekeeping, and stabilization of materials.

Extreme Wind Events		
Staff Health & Safety – OHS	Targeted risk refinement and management	• Enhance wind-specific safety briefings, ensuring workers understand hazards related to fall risks, flying objects, and reduced visibility. • Improve site-wide emergency communication and ensure alternative safe paths and muster points are identified during wind events. • Reinforce enforcement mechanisms for wind-triggered work suspension, PPE requirements, and safe-work boundaries.

Subject to verification of structural and non-structural wind resilience and implementation of operational controls, residual risk is expected to remain Low for permanent facilities and Moderate for occupational health and safety during extreme wind events.

3.4.5 WILDFIRES

3.4.5.1 CLIMATE DATA AND TRENDS

The wildfire risk is measured by the Forest Fire Danger Index (FFDI) under baseline conditions and future time horizons. The FFDI measures the potential fire-permitting climatic conditions at a specific location, which are proportional to daily maximum temperature and wind speed and are inversely proportional to relative humidity. The larger Forest Fire Danger Index implies a higher wildfire risk at the site due to higher temperature under global warming.

Across future scenarios, wildfire exposure remains Low. Under SSP1-2.6, fire-permitting days stay broadly stable through 2050s (1.5 – 3.5 days). Under SSP5-8.5, the number decreases to 1 day in the 2030s and then rises to 7 days by the 2050s, representing the highest projected value across the assessed scenarios and time horizons. Risk scores remain within the Low category under the baseline and all future scenarios. Overall, wildfire is not considered a material climate-related risk to the Project, although the projected increase in fire-weather days under SSP5-8.5 supports continued monitoring and routine fire-prevention preparedness.

TABLE 3-16 BASELINE AND PROJECTED WILDFIRE CLIMATE DATA

Variable	Baseline	Projections			
		2030s		2050s	
		SSP 1-2.6	SSP 5-8.5	SSP 1-2.6	SSP 5-8.5
FFDI (Forest Fire Danger Index) (Number of days with fire-permitting climatic conditions)	0	1.5	1	3.5	7

3.4.5.2 RISK REVIEW

The Project is located within the Tanger Tech Industrial Acceleration Zone, where surrounding industrial and agricultural land may provide limited fuel sources for external fires. Although wildfire-enhancing climatic conditions are currently limited, the Forest Fire Danger Index is

projected to increase from 0 days under baseline conditions to 1.0–1.5 days by the 2030s, and further to 3.5–7.0 days by the 2050s. The Project could therefore be exposed to external wildfire effects, including smoke, reduced visibility, airborne embers and potential disruption to site access or utilities.

While the available Project information does not identify wildfire-specific protection systems, the Project's general fire-safety and emergency-management arrangements provide a baseline level of resilience. Controls on ignition sources, hot work, smoking and combustible materials would reduce the likelihood of an on-site fire during hot, dry and windy conditions. Routine inspections and weather monitoring would also support the early identification of external fire or smoke conditions.

The Project's firefighting infrastructure, including fire alarms, hydrants, portable extinguishers and emergency water supplies, would support the response if smoke, embers or fire reached the site. Appropriate storage and management of fuels, combustible materials and wastes would further reduce the potential for an external fire to trigger secondary hazards within process or storage areas.

Emergency-response procedures, defined responsibilities, evacuation arrangements and coordination with the relevant Moroccan authorities would further strengthen resilience. Regular maintenance of firefighting equipment, emergency drills, clear access routes and effective site housekeeping would help protect personnel and maintain an orderly response during smoke-affected or reduced-visibility conditions. Overall, these measures reduce the potential consequences of external wildfire exposure, although wildfire risk should continue to be monitored as fire-conducive climatic conditions increase, particularly by the 2050s under SSP5-8.5.

TABLE 3-17 POTENTIAL RISK AREAS AT THE START AND END OF OPERATIONS ASSOCIATED WITH THE PROJECT FOR THE WILDFIRES HAZARD GROUPING

Risk area	**Description of potential risks and materiality in relation to risk area**	**Risk materiality category and time-period**		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
Main Production Facilities • Raw Material, Crushing and Granulation Workshops • Pre-carbonisation, Graphitisation and Carbonisation Workshops • Finished Product Workshop and Associated Air	• Air-Intake and Ventilation Interference – OPEX: Wildfire smoke and airborne particulates may enter production buildings, increasing filtration loads and placing additional stress on ventilation fans and air-handling equipment. • Particulate Stress on External Equipment –	Not Applicable (N/A)	Low	Low

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
Emission Control Systems	OPEX / CAPEX: Smoke, ash and wind-blown particulates may foul external ducts, stacks, sensors and ventilation equipment, increasing inspection, cleaning and maintenance requirements. • Production and Material-Handling Disruption – OPEX: Smoke, reduced visibility or nearby fire-response activities may temporarily restrict outdoor inspections, material handling, maintenance and access to production areas.			
Utilities • Cooling-System • Electrical Network • Air Compressor Station • Nitrogen Generation and Supply Systems • Wastewater Treatment Stations • External Water and Electricity Connections	• Electrical Network Sensitivity – OPEX / CAPEX: Smoke and particulates may accumulate on exposed conductors, insulators and electrical equipment, increasing cleaning needs and trip or flashover risks. • Cooling-System Efficiency Impacts – OPEX: Hot, dry fire-weather conditions may reduce heat-rejection efficiency and increase cooling loads, evaporation and make-up-water demand. • Utility Equipment and Access Constraints – OPEX / CAPEX: Smoke, ash and reduced	Not Applicable (N/A)	Low	Low

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	visibility may affect outdoor instruments and restrict inspection or access to critical utility facilities.			
Storage and Chemical Management Areas	• Ventilation and Air-Treatment Load – OPEX: Wildfire smoke and airborne particulates may increase loads on workshop ventilation, filtration and air-handling systems, resulting in higher energy use and more frequent filter inspection or replacement. • Indoor Air-Quality Management – OPEX: Smoke intrusion during regional fire-weather events may affect indoor air quality, particularly in occupied buildings and production areas supplied with outdoor air, requiring temporary adjustment of ventilation operations. • Reduced Visibility and Operational Disruption – OPEX: Smoke, airborne ash or embers may reduce visibility during loading, unloading, outdoor maintenance and vehicle movements, potentially restricting activities and affecting safe site access.	Not Applicable (N/A)	Low	Low

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
Construction and Temporary Maintenance Works	• Worksite Exposure to Wind & Dust – OPEX: Strong, dry winds linked to high FFDI days can impair visibility, increase airborne debris, and raise safety risks for scaffolding, lifting operations, and temporary structures. • Hot-Weather Productivity Impacts – OPEX: Fire-permitting climatic conditions often coincide with extreme heat, increasing heat-stress risks for crews and requiring shorter work cycles and more rest breaks. • Restricted Emergency Access – OPEX: Smoke or haze during high-risk periods can slow emergency response times, complicating evacuations and limiting visibility for ground vehicles on temporary access roads.	Low	Not Applicable (N/A)	Not Applicable (N/A)
Staff Health & Safety – OHS	• Respiratory & Heat-Stress Risks – OPEX: Combined heat and low-humidity conditions increase risks of dehydration, respiratory irritation, and reduced tolerance for PPE. • Visibility-Related Safety Hazards – OPEX: Haze, dust and smoke during	Low	Low	**Moderate**

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	wildfire-permitting days can impair visibility across the plant, elevating risks of slips, collisions, and handling errors. • Emergency Preparedness Challenges – OPEX: Elevated fire-weather conditions may constrain response capabilities, as smoke and strong winds complicate muster assembly, crisis communication, and movement across open areas.			

3.4.5.3 NEXT STEPS

This section provides an overview of ERM's recommended next steps for all risk areas that have been identified within the 'Risk review' section as being 'Likely Material'. The recommended next steps within this section are based upon the risk review undertaken for each risk area and ERM's technical review and input into this assessment.

TABLE 3-18 RECOMMENDED NEXT STEPS FOR EACH RISK AREA IDENTIFIED AS BEING 'LIKELY MATERIAL' WITHIN THE RISK REVIEW SECTION FOR THE EXTREME WILDFIRES HAZARD GROUPING

Extreme Wildfires		
Risk areas	Justification	Next Steps
Main Production Facilities	Targeted risk refinement and management	• Strengthen preparedness for smoke, ash and ember intrusion. Review ventilation and filtration resilience and confirm that critical production, electrical and control equipment can operate safely during degraded air-quality conditions. • Establish seasonal readiness checks for key systems. Inspect ventilation systems, RTOs, air-emission control equipment and outdoor utilities before periods of elevated wildfire weather.

Extreme Wildfires		
		• Incorporate wildfire-weather alerts into operational planning. Use forecasts of hot, dry and windy conditions to support maintenance scheduling, outdoor-work controls and emergency preparedness.
Utilities	Targeted risk refinement and management	• Assess the robustness of power, water-supply, and cooling systems under wildfire-related disruptions such as reduced visibility, high winds, or upstream grid instability. • Develop contingency plans for utility operations during regional wildfire events, including standby arrangements and priority protection for critical assets. • Integrate wildfire-weather monitoring into utility maintenance planning to ensure equipment remains reliable during peak fire-risk seasons.
Storage and Chemical Management Areas	Targeted risk refinement and management	• Review ventilation and filtration arrangements for smoke and particulate ingress into storage areas. • Establish procedures for restricting loading, unloading and vehicle movements during smoke-related low-visibility conditions. • Inspect combustible materials, chemical and fuel storage areas and outdoor monitoring equipment during periods of elevated wildfire weather.
Construction and Temporary Maintenance Works	Targeted risk refinement and management	• Embed wildfire-weather criteria into work-planning (e.g., wind, smoke, visibility) to guide safe scheduling of lifting, outdoor activities, and temporary structures. • Enhance contractor briefings and site controls during high-risk periods to ensure safe evacuation routes and clear communication in case of nearby fires. • Establish simple, scalable readiness checks for temporary facilities and equipment before periods of sustained heat, dryness, and strong winds.
Staff Health & Safety – OHS	Targeted risk refinement and management	• Update site-wide OHS procedures to account for smoke exposure, heat stress, and reduced visibility during regional wildfire events. • Reinforce training on wildfire-related situational awareness, safe movement on site, and adherence to shelter-in-place or evacuation instructions. • Ensure emergency communication systems, muster points, and access roads remain functional under wildfire-weather conditions.

Subject to implementation of the recommended monitoring and preparedness measures, residual wildfire risk is expected to remain Low for production facilities, utilities and storage areas throughout the Project life.

3.4.6 WATER STRESS AND DROUGHT

3.4.6.1 CLIMATE DATA AND TRENDS

Water Stress and Drought are assessed by the water stress indicator provided by the World Resource Institute (WRI) which measures the ratio of total water withdrawals to available water supplies under different CMIP6 climate scenarios. According to the baseline and projected data, the Project site is currently exposed to extremely high baseline water stress (>80%), and this condition is projected to persist across all future climate scenarios (SSP1-2.6 and SSP5-8.5) in both the 2030s and 2050s. This suggests a chronic structural vulnerability in water availability that is unlikely to be alleviated even under low-emission pathways.

The number of consecutive dry days that describes hydroclimatic conditions is projected to remain high, fluctuating around the baseline of 95.6 days. Future scenarios indicate modest variations, with 104.7-110.4 days by the 2030s and 108-109.4 days by the 2050s, pointing to the persistence of extended dry periods and seasonal drought stress.

TABLE 3-19 BASELINE AND PROJECTED WATER STRESS AND DROUGHT CLIMATE DATA

Variable	Baseline	Projections			
		2030s		2050s	
		SSP1-2.6	SSP5-8.5	SSP1-2.6	SSP5-8.5
Water Stress (Index)	0.9	1	1	1.1	1.6
Water Stress (categorical, %)	>80% Extremely High	>80% Extremely High	>80% Extremely High	>80% Extremely High	>80% Extremely High
Number of consecutive dry days (days)	95.6	110.4	104.7	109.4	108

3.4.6.2 RISK REVIEW

The Project Site in the Tanger Tech Industrial Acceleration Zone is located in an area where baseline water stress is classified as Extremely High. Water stress is projected to remain Extremely High under both SSP1-2.6 and SSP5-8.5 throughout the 2030s and 2050s. Consecutive dry days are projected to increase from approximately 95.6 days under baseline conditions to 104.7–110.4 days by the 2030s and 108.0–109.4 days by the 2050s, indicating the continued potential for prolonged dry periods.

Morocco is one of the world's most water-stressed countries, and national water scarcity is expected to intensify because of demographic pressure, growing water demand from economic sectors, particularly irrigated agriculture, and the effects of climate change on water availability. The World Bank indicates that Morocco is approaching the absolute water-scarcity threshold of 500 m³ per person per year by 2030. This national context may increase competition for available water resources and reinforce the importance of supply reliability and

water-use efficiency for industrial developments such as the Project.[29]

The Project does not propose direct abstraction from a river, canal or groundwater source. Water for production and domestic purposes will be supplied through the potable-water network operated by Tanger Med Utilities. Project water demand is associated with process and equipment cooling, laboratory activities, floor cleaning, domestic use, and water used in the granulation and graphitisation air-emission control systems. The available Project documentation does not specify a permitted annual abstraction volume because the Project relies on utility-supplied water rather than direct abstraction from a natural water body.

Given the Extremely High baseline and projected water stress, the risk to the Project is assessed as High. Although the Project does not directly abstract water from a natural water body, production, cooling and environmental-control systems depend on an external utility supply in a country experiencing significant water scarcity. Prolonged dry periods, increasing regional demand or restrictions affecting the utility network could therefore influence water availability, operating costs and the continuity of water-dependent activities.

The Project incorporates water-efficiency and wastewater-management measures to reduce its dependence on external freshwater supplies. Cooling water is returned to the Project's cooling stations for recirculation within relevant production processes. Separate wastewater-treatment systems are planned with a combined design capacity of 200 m³/day for domestic wastewater and 50 m³/day for industrial wastewater. All treated domestic and industrial effluent will be collected and reused within the production process, subject to meeting the applicable reuse water-quality requirements. No routine discharge of treated operational wastewater is planned. These measures are expected to reduce freshwater demand and operational exposure, although water stress remains a key consideration because the Project continues to rely on the Tanger Med Utilities network.

TABLE 3-20 POTENTIAL RISK AREAS AT THE START AND END OF OPERATIONS ASSOCIATED WITH THE PROJECT FOR THE WATER STRESS AND DROUGHT HAZARD GROUPING

Risk area	**Description of potential risks and materiality in relation to risk area**	**Risk materiality category and time-period**		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
Main Production Facilities • Raw Material, Crushing and Granulation Workshops • Pre-carbonisation, Graphitisation and Carbonisation Workshops	• Process-Water Supply Constraints – OPEX: Reduced water availability may affect water-dependent production and auxiliary activities, potentially requiring production adjustments or	Not Applicable (N/A)	**Moderate**	**High**

[29] Water Scarcity in Morocco : Analysis of Key Water Challenges

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
• Finished Product Workshop and Associated Air Emission Control Systems	prioritisation of critical water uses. • Air-Emission Control Constraints – OPEX: Water shortages may affect wet scrubbing and other water-dependent air-emission control systems, potentially reducing operational flexibility or increasing compliance risks. • Equipment-Cooling Constraints – OPEX / CAPEX: Reduced make-up-water availability may affect equipment cooling and increase thermal stress on production and auxiliary equipment. • Cooling-System Performance Reduction – OPEX: Lower water availability may constrain circulating-water system operation, potentially requiring temporary production curtailment during severe drought conditions. • Cleaning and Dust-Control Constraints – OPEX: Water shortages may limit equipment cleaning, floor washing and dust-control activities, increasing housekeeping and maintenance requirements.			

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	• Production Continuity Risk – OPEX / CAPEX: Prolonged water-supply restrictions may disrupt multiple water-dependent systems and require prioritisation, temporary load reduction or suspension of affected production activities.			
Utilities • Cooling-System • Electrical Network • Air Compressor Station • Nitrogen Generation and Supply Systems • Wastewater Treatment Stations • External Water and Electricity Connections	• External Water-Supply Vulnerability, OPEX: Extremely High regional water stress and prolonged dry periods may constrain the reliability or increase the cost of utility-supplied water required for cooling, cleaning, firefighting and environmental-control systems. • Cooling-System Stress, OPEX / CAPEX: Higher temperatures and prolonged dry conditions may increase evaporation, make-up-water demand and cooling-system loads. Reduced water availability may affect cooling performance and require temporary production adjustments. • WWTP Performance, OPEX: Water-supply constraints or reduced wastewater inflows may affect the hydraulic and biological stability of the	Not Applicable (N/A)	**Moderate**	**High**

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	wastewater treatment systems. Changes in influent volume may require adjustment of aeration, pumping and other operating parameters. • Air Compressor and Nitrogen-System Reliability, OPEX / CAPEX: Water or electricity supply constraints may affect cooling and power availability for compressors and nitrogen systems, potentially disrupting pneumatic conveying, instrumentation and production-support functions.			
Storage and Chemical Management Areas	• Reduced Cleaning and Dust-Control Capacity – OPEX: Water scarcity may constrain floor washing, dust suppression and cleaning within raw-material, finished-product and storage areas, potentially increasing dust accumulation and housekeeping requirements during prolonged dry periods. • Chemical, Fuel and Waste Storage Readiness – OPEX: Water shortages may limit routine cleaning, emergency rinsing and	Not Applicable (N/A)	**Low**	**Moderate**

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	firefighting readiness in chemical, LPG and hazardous-waste storage areas, potentially increasing the consequences of spills or fire events.			
Construction and Temporary Maintenance Works	• Water-Dependent Construction Delays – CAPEX: Limited water availability may disrupt concrete works, curing, dust suppression, and soil compaction, leading to delays, reduced structural quality, and higher rework needs. • Insufficient Water for Equipment Testing – OPEX / CAPEX: Water scarcity during extended dry periods can constrain equipment cleaning, flushing, and hydrostatic testing, increasing the risk of mechanical failure or non-compliance with commissioning requirements. • Dust-Control Limitations – OPEX: High dust levels during prolonged dry conditions intensify the need for water-based dust suppression, which may become insufficient due to withdrawal constraints, creating safety risks and	**Moderate**	Not Applicable (N/A)	Not Applicable (N/A)

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	reducing visibility on site.			
Staff Health & Safety – OHS	• Dust-Exposure Health Risks – OPEX: Persistent dry conditions elevate dust exposure, increasing risks of respiratory irritation and requiring more frequent cleaning and PPE—yet water shortages may limit effective dust control. • Reduced Hygiene & Sanitation – OPEX: Constraints on water availability may reduce sanitation and hygiene standards in administrative and worker areas, increasing health risks during long dry periods. • Heightened Heat Stress – OPEX: Worker heat stress may worsen when cooling systems or evaporative cooling rely on limited water availability, affecting productivity and safety during high-temperature/dry conditions. • Reduced Emergency Readiness – OPEX: Reduced water for emergency response systems (e.g., eyewash/ safety showers, fire-suppression readiness) may	**Moderate**	**Moderate**	**Moderate**

Risk area	Description of potential risks and materiality in relation to risk area	Risk materiality category and time-period		
		Construction phase (Baseline)	Early operation phase (2030s)	Late operation phase (2050s)
	decrease the effectiveness of OHS controls during incidents.			

3.4.6.3 NEXT STEPS

This section provides an overview of ERM's recommended next steps for all risk areas that have been identified within the 'Risk review' section as being 'Likely Material'. The recommended next steps within this section are based upon the risk review undertaken for each risk area and ERM's technical review and input into this assessment.

TABLE 3-21 RECOMMENDED NEXT STEPS FOR EACH RISK AREA IDENTIFIED AS BEING 'LIKELY MATERIAL' WITHIN THE RISK REVIEW SECTION FOR THE WATER STRESS AND DROUGHT HAZARD GROUPING

Water Stress and Drought		
Risk areas	Justification	Next Steps
Main Production Facilities	Priority risk management and design integration	• Strengthen long-term water planning and monitoring, particularly for water-dependent cooling, wet air-emission control and production-support systems. • Develop water-scarcity operating procedures, including staged production adjustments and prioritisation of critical cooling and environmental-control systems. • Periodically review the process-water balance to identify efficiency improvements, leakage reduction and further recycling or reuse opportunities. • Integrate water-stress considerations into preventive maintenance, equipment replacement and future production-capacity planning.
Utilities	Priority risk management and design integration	• Strengthen external water-supply resilience. Monitor water availability and utility-supply conditions and establish early-warning arrangements for potential supply restrictions. • Expand water reuse within utility systems. Assess opportunities to increase treated-effluent reuse for cooling-system make-up and other suitable non-potable uses, subject to water-quality requirements. • Improve utility-system water efficiency. Review water use across cooling systems, pumps, pipelines and wastewater-

Water Stress and Drought		
		treatment facilities to identify leakage, operational losses and efficiency improvements. • Review alternative water-supply arrangements. Assess backup supply, storage and water-prioritisation options for prolonged drought or temporary utility-supply restrictions, subject to technical and regulatory feasibility.
Storage and Chemical Management Areas	Targeted risk refinement and management	• Review water requirements for storage-area management. Identify essential water uses for cleaning, dust control, spill response and fire protection during prolonged supply restrictions. • Reduce water use in cleaning and dust control. Assess dry-cleaning, vacuum collection and other low-water methods for raw-material, product and packaging-storage areas. • Strengthen dry-condition monitoring. Increase inspections of graphite and raw-material storage areas for dust accumulation, damaged packaging and material losses during prolonged dry periods. • Maintain emergency-response readiness. Confirm that sufficient water remains available for firefighting, emergency showers, eyewash stations and chemical spill response during water-restricted periods.
Construction and Temporary Maintenance Works	Targeted risk refinement and management	• Integrate water stress into construction planning. Schedule concrete works, equipment cleaning, testing and dust-control activities to reduce water demand during supply-restricted periods. • Strengthen construction water-efficiency requirements. Monitor site water use and promote collection, treatment and reuse of suitable construction water where technically feasible. • Maintain worker sanitation and hygiene. Prioritise adequate potable water, sanitation and washing facilities for construction workers during prolonged dry periods or water restrictions. • Review temporary water-system resilience. Confirm that temporary storage, pumps, pipelines and concrete-curing arrangements can support critical construction activities during water-supply constraints.
Staff Health & Safety – OHS	Targeted risk refinement and management	• Update OHS procedures for dry and dusty conditions, including appropriate dust suppression, housekeeping and respiratory protection where water availability is constrained. • Maintain adequate potable water and heat-stress controls for personnel during prolonged hot and dry periods.

Water Stress and Drought		
		• Verify emergency water availability for safety showers, eyewash stations and firefighting systems under potential water-supply constraints. • Strengthen dry-season monitoring and training, with a focus on respiratory protection, hydration and heat-stress management.

Subject to confirmation of external water-supply resilience, implementation of water-reuse measures, contingency storage and water-scarcity procedures, residual risk is expected to reduce from High to Moderate in the 2050s. However, some residual exposure will remain due to the Project's continued dependence on external water supply in a region subject to Extremely High water stress.

3.5 SUMMARIES AND CONCLUSIONS

The physical CCRA has assessed the Project's exposure and vulnerability to relevant acute and chronic climate hazards during construction and operation. The assessment considered Project-specific climate data, site conditions, available design information, planned engineering and management controls, and the potential consequences for production facilities, utilities, storage and chemical-management areas, construction and temporary maintenance works, and staff health and safety.

The assessment identifies water stress and drought as the most significant chronic physical climate risk to the Project. The Project location is subject to Extremely High baseline water stress, which is projected to persist under all assessed scenarios and time horizons. Although the Project will not directly abstract water from a natural water body, it will depend on externally supplied water for cooling, relevant production and environmental-control activities, cleaning, domestic use and firefighting. Residual risks to the main production facilities and utilities are assessed as Moderate in the 2030s and High in the 2050s. Risks to storage and chemical-management areas increase from Low in the 2030s to Moderate in the 2050s, while risks to construction activities and staff health and safety are assessed as Moderate where applicable.

Extreme rainfall and pluvial flooding also represent a material risk requiring continued management. Modelled pluvial-flood depths change only marginally across the assessed scenarios, but low-probability extreme rainfall events may exceed local drainage capacity and affect ground-level equipment, electrical and control systems, wastewater facilities, storage areas, internal access routes and worker safety. Residual risk is assessed as Moderate for the main production facilities and utilities in both the 2030s and 2050s. Risk to storage and chemical-management areas is assessed as Low in the 2030s and Moderate in the 2050s. Construction and staff health and safety risks are assessed as Moderate where applicable. Riverine and coastal flooding are not identified as material hazards to the Project Site based on the available information.

Extreme heat is projected to become more frequent and persistent over the Project's operational life. The principal vulnerabilities relate to worker heat stress, heat-sensitive electrical and control equipment, cooling and ventilation performance, and biological wastewater treatment. Residual risk to the main production facilities is assessed as Low in the

2030s and 2050s. Risk to utilities is assessed as Low in the 2030s and Moderate in the 2050s, reflecting increasing pressure on cooling systems, electrical equipment and water-dependent operations. Staff health and safety risk is assessed as Moderate during construction and throughout operation.

Extreme-wind risk is concentrated primarily in construction activities, temporary maintenance works, work at height, lifting operations and worker safety. These risks are assessed as Moderate during the applicable construction or operational periods. Residual risks to permanent production facilities, utilities, and storage and chemical-management areas are assessed as Low during operation, subject to compliance with applicable wind-loading requirements and implementation of appropriate inspection, maintenance and operating controls.

Wildfire-weather conditions are currently limited but are projected to become more frequent, particularly by the 2050s under SSP5-8.5. Direct wildfire exposure remains comparatively low because of the Project's industrial setting and limited surrounding combustible vegetation. Residual risks to production facilities, utilities and storage areas are assessed as Low. Staff health and safety risk may increase to Moderate by the 2050s because of potential smoke exposure, reduced visibility, heat stress and emergency-response constraints. Proportionate monitoring, fire-prevention and emergency-preparedness measures should therefore be maintained.

Extreme cold is assessed as a Low risk. Frost conditions are infrequent and are projected to decline, while the projected minimum temperatures are projected to remain within the identified operating ranges of relevant Project equipment. Occasional low-temperature conditions may nevertheless affect exposed water-containing equipment, electrical and control systems, biological wastewater treatment, outdoor work and safe access. These risks can be managed through routine seasonal inspection, condensation and frost protection, cold-start procedures and worker-protection measures.

Mean temperature change, mean precipitation change, coastal flooding, sea-level rise, rainfall-induced landslides and chronic erosion were not identified as material stand-alone hazards requiring detailed risk assessment. Relevant effects are either limited in the Project context or are more appropriately addressed under the retained hazard categories, including extreme heat, pluvial flooding and water stress and drought.

The Project incorporates measures that provide an initial basis for climate resilience, including circulating cooling-water systems, wastewater treatment and potential reuse arrangements, separation of stormwater and wastewater, wastewater equalisation and containment capacity, equipment monitoring, standby pumping and utility equipment, occupational health and safety controls, and emergency-response procedures. However, the effectiveness of these measures remains dependent on completion of detailed design, confirmation of equipment specifications and operating limits, commissioning results, maintenance and implementation of the recommended management measures.

Priority should therefore be given to:

- confirming the Project water balance, external water-supply reliability, water-reuse potential and contingency arrangements for water-supply restrictions;
- verifying site drainage, pumping, containment and flood-protection capacity against the

extreme rainfall and pluvial-flood conditions identified in this assessment;

- confirming the temperature ratings and thermal margins of critical electrical, control, cooling, ventilation and wastewater-treatment equipment;
- maintaining occupational heat-stress controls and climate-related emergency-preparedness arrangements;
- confirming the wind resistance of exposed and non-structural components and maintaining appropriate wind-related operating restrictions for lifting, work at height and temporary works; and
- maintaining proportionate wildfire-weather and cold-weather monitoring and preparedness measures.

Detailed hazard-specific risk ratings affected risk areas and recommended next steps are presented in Sections 3.4.1 to 3.4.6. Their implementation will be managed through the climate-risk register, relevant design and procurement processes, the ESMS, operating and maintenance procedures, emergency-response arrangements and the CCRMP presented in Section 5.

Overall, the identified physical climate risks are considered manageable, provided that the recommended design verification, operational controls, monitoring and contingency measures are implemented. Water stress and drought require the highest level of long-term management attention, followed by pluvial flooding and extreme heat. The physical climate-risk profile should be reviewed following completion of detailed design and commissioning, after material climate-related incidents or utility interruptions, and where material changes occur in Project operations, external utility conditions or relevant climate projections.

4. TRANSITION CLIMATE CHANGE RISK ASSESSMENT

4.1 ASSESSMENT SCOPE AND SCENARIO FRAMEWORK

The transition CCRA focuses on the Project's operational phase. The construction phase is excluded because of its relatively short duration and because material differences between the selected long-term transition scenarios are not expected to significantly affect the Project during construction.

4.1.1 ASSESSMENT BOUNDARY

For the purposes of this transition CCRA, the assessment boundary covers the Project's operational activities and relevant upstream and downstream value-chain relationships.

4.1.2 GEOGRAPHIES

The Project is located on Plot No. 59 within Mohammed VI Tangier Tech City, in Tangier-Assilah Prefecture, Tanger-Tétouan-Al Hoceïma Region, Morocco. The principal raw materials comprise calcined petroleum coke, green petroleum coke and pitch. The Project is intended to serve BTR's overseas customers and support the development of battery supply chains outside China. Accordingly, Morocco-specific indicators are used for Project-level operational and energy-related drivers where available, while regional or worldwide indicators are used to represent broader energy, technology, feedstock and downstream demand trends. The European Union is also considered where relevant to customer requirements, product carbon-footprint expectations and market access.

4.1.3 TRANSITION SCENARIOS

ERM has referenced two forward-looking transition scenarios in this Assessment as described below:

- BAU Scenario: IEA Current Policies Scenario (CPS)

  The CPS is an exploratory scenario based on laws and measures that had been formally adopted as of the relevant policy cut-off date. It assumes that no additional policies are introduced beyond those already in force and that the adoption of emerging energy technologies follows relatively cautious trajectories. The CPS therefore provides an appropriate reference case for examining the incremental effects of a more rapid low-carbon transition. Under the CPS, global energy-related CO_2 emissions remain at elevated levels, and the global average surface temperature rise reaches approximately 2.9°C by 2100. The CPS is not a forecast or an assessment of the most likely future pathway, but a scenario illustrating the implications of maintaining current policy settings without further strengthening.
- Low-Carbon Scenario: IEA Net Zero Emissions by 2050 Scenario (NZE)

  The NZE is a normative scenario that sets out a pathway for the global energy sector to achieve net-zero CO_2 emissions by 2050, with advanced economies reaching net zero earlier than other economies. It involves rapid deployment of clean-energy technologies, substantial improvements in energy efficiency and electrification, and major reductions in fossil-fuel use and non-CO_2 emissions. The WEO 2025 NZE retains the objective of reaching net-zero energy-related CO_2 emissions by 2050 and provides a pathway that

keeps open the possibility of limiting long-term warming to 1.5°C, although delayed emissions reductions result in a temporary overshoot of that level.

ERM has drawn the majority of the Scenario Indicator data from the IEA World Energy Outlook 2025, using the CPS as the BAU scenario and the NZE as the low-carbon scenario. Where suitable IEA data are unavailable or are not sufficiently relevant to a particular driver, corresponding data from the NGFS Phase V Current Policies and Net Zero 2050 scenarios are used. These NGFS scenarios are considered broadly comparable to the selected IEA scenarios in terms of overall policy ambition and transition direction but are not treated as directly equivalent. Selected NGFS models are used based on the availability, geographic relevance and internal consistency of the relevant indicator data. Due to the limited availability of Morocco-specific transition scenario data, selected indicators use Morocco-level, regional or worldwide data, depending on the geographic relevance of the driver and the availability of consistent data across the assessed scenarios and time horizons.

4.1.4 TIME HORIZONS

The analysis seeks to assess how the Scenario Indicators relevant to the Project and its value chain may differ between the two scenarios outlined above over the selected future time horizons. The forward-looking assessment considers 2035, 2040 and 2050, representing the short-, medium- and long-term horizons, respectively. These time horizons have been selected to support the assessment of how transition risks and opportunities may evolve over the Project's anticipated operational life, taking into account potential changes in climate policy, energy markets, technology, customer requirements and demand for battery materials.

4.2 TRANSITION RISK AND OPPORTUNITY IDENTIFICATION AND SCREENING

This section identifies and screens the transition risk and opportunity drivers that may affect the Project during its operational life. The assessment considers the Project's location in Morocco, electricity-intensive production process, operational GHG emissions, dependence on purchased electricity, position within the lithium-ion battery value chain, and exposure to international battery-material markets.

In accordance with the TCFD framework, relevant transition risks and opportunities were identified with reference to applicable policy, regulatory, industry, market and technology information. The identified drivers were subsequently screened based on their relevance to the Project, the existence of a credible impact pathway and the availability of a suitable Scenario Indicator. Definitions and examples of potential risks and opportunities associated with the transition to a lower-carbon economy are presented in ***TABLE*** 4-1 below:

TABLE 4-1 TCFD TRANSITION CLIMATE RISK CATEGORIES

TCR Quadrants	Potential Risks/Opportunities
Risk	
Policy and Legal	Risks arising from changes in laws, regulations, and policies that aim to mitigate or adapt to climate change. These include both implemented and anticipated regulations, such as carbon pricing

TCR Quadrants	Potential Risks/Opportunities
	mechanisms, emission limits, fuel efficiency standards, land use restrictions, and evolving permitting requirements. Legal risks may also emerge from litigation related to climate damage, non-compliance with climate disclosure obligations, or failure to consider climate risks in project planning.
Technology Shifts	Risks associated with the emergence or advancement of low-carbon or energy-efficient technologies that may replace or outperform incumbent, carbon-intensive technologies. This includes the risk of early obsolescence of current technologies or infrastructure, the need for costly upgrades, or the inability to integrate new technologies effectively. These risks may affect capital expenditures, operational continuity, and competitive positioning.
Market Shifts	Risks stemming from shifting market dynamics driven by the transition to a low-carbon economy. These shifts may include reduced demand for high-emission products, increased input costs, changing investor and consumer preferences, supply chain disruptions, and increased competition from low-carbon alternatives. Market risks can affect both pricing and availability of key goods and services.
Reputation	Risks resulting from negative stakeholder perception regarding a project's contribution to climate change, or its management of climate-related risks. These perceptions may influence the views of investors, financiers, customers, communities, civil society, or regulators. Reputational damage can lead to loss of stakeholder support, delays in permitting or project approval, divestment, or difficulty securing future business opportunities.
Opportunity	
Resource Efficiency	Opportunities to reduce operating costs, emissions, and environmental impact by optimising the use of energy, water, raw materials, and waste. Improvements in process efficiency, equipment performance, and resource recovery can contribute to climate mitigation while enhancing project performance and compliance.
Energy Source	Opportunities associated with transitioning to or integrating lower-carbon and renewable sources of energy, such as solar, wind, geothermal, hydropower, or sustainable biomass. This can lead to reductions in GHG emissions, increased energy security, cost predictability, and alignment with host country or financier decarbonisation targets.
Products and Services	Opportunities to offer climate-aligned goods, services, or business models that reduce emissions or enable adaptation. This may include the development of low-carbon infrastructure, climate-resilient

TCR Quadrants	Potential Risks/Opportunities
	housing, clean technology solutions, and adaptation services. Such opportunities can support project diversification and revenue stability in a climate-conscious market.
Markets	Opportunities arising from access to new or expanding markets driven by climate action, policy incentives, or demand for sustainable finance. This includes the development of carbon credit markets, access to green or sustainability-linked finance, or eligibility for climate investment programs under multilateral or development finance institutions.
Resilience	Opportunities to enhance the adaptive capacity of the project or surrounding communities through proactive measures that reduce vulnerability to climate risks. This can include climate-resilient infrastructure design, nature-based solutions, disaster preparedness, and integration of climate data into planning. Enhancing resilience can strengthen social license, reduce operational risk, and safeguard long-term project value.

A broad range of potential drivers has been considered at the identification stage. Inclusion in the initial longlist does not mean that a driver is considered material or will automatically be subject to detailed review. Each driver is first assessed for its relevance to the Project and the existence of a credible impact pathway. Relevant drivers are then retained for quantitative scenario assessment, qualitative assessment or monitoring. Drivers without a sufficiently credible or material Project-level impact pathway are screened out from further assessment.

4.2.1 IDENTIFICATION OF POTENTIAL TRANSITION CLIMATE RISK AND OPPORTUNITY DRIVERS

Potential transition drivers have been identified with reference to the TCFD categories of policy and legal, technology and market risks, together with opportunities associated with resource efficiency, energy sources, products and services, and markets.

The initial driver longlist considers both direct effects on the Project, such as changes in electricity costs, energy-efficiency requirements and equipment needs, and indirect effects arising through the Project's value chain, including customer carbon-footprint requirements, changes in battery demand and competition from alternative technologies.

TABLE 4-2 IDENTIFIED POTENTIAL TRANSITION CLIMATE RISK DRIVERS AND RATIONALE

Ref. No.	TCFD Category	Risk / Opportunity Driver	Potential Relevance to the Project	Scenario Indicator	Unit	Rationale for Scenario Indicator Selection
Risks						
1	Policy and Legal	Strengthening energy-efficiency requirements	The Project is an electricity-intensive artificial graphite anode-material manufacturing facility with estimated annual operational Scope 1 and Scope 2 GHG emissions of approximately 458,747.41 tCO_2e. More stringent energy-efficiency, energy-management, monitoring and reporting requirements may require additional process optimisation, lower-carbon electricity procurement, equipment upgrades and management controls, resulting in additional CAPEX and OPEX.	Final energy intensity (worldwide)	GJ per USD 1,000, PPP	Final energy intensity measures the amount of final energy consumed per unit of economic output. A greater decline under the low-carbon scenario is used as a directional proxy for the pace of economy-wide energy-efficiency improvement, which may be accompanied by stronger energy-performance requirements, management expectations and efficiency standards for energy-intensive industrial facilities.
2	Market	Product carbon-footprint and GHG requirements	Battery and automotive supply chains may increasingly require verified product carbon footprints, renewable-electricity information, and evidence of emissions reductions. Given the Project's substantial electricity consumption, its ability to provide credible product-level carbon information and reduce product GHG intensity may affect customer qualification, market access and competitiveness. Relevant trade-related carbon and sustainable-product requirements are also considered under this driver.	Energy-related CO_2 emissions intensity (worldwide)	Mt CO_2 per USD 2024 billion, PPP	The indicator measures the rate at which energy-related emissions decline relative to economic activity. A greater reduction under the low-carbon scenario indicates faster economy-wide decarbonisation and is used as a proxy for the potential strengthening of customer expectations, supply-chain requirements and competitive benchmarks relating to product carbon footprints and GHG performance.
3	Policy and Legal	Carbon-pricing exposure	Carbon-pricing mechanisms may affect the Project directly through carbon costs associated with Scope 1 emissions or indirectly through carbon costs passed through electricity tariffs, LPG prices, raw materials and services. The Project's substantial Scope 2 emissions may increase its sensitivity to carbon-cost pass-through by electricity suppliers.	Carbon price difference	USD (2024, MER) per tonne of CO2	Carbon-price differences between the relevant geographic markets are used as a directional proxy for the potential divergence in direct and indirect carbon-cost exposure under the assessed scenarios. A larger difference may indicate increased exposure to carbon costs passed through electricity, fuel, raw materials or services, or to trade-related carbon requirements in customer markets. The indicator does not represent a forecast of the carbon price directly payable by the Project.
4	Market	Fuel-price exposure	LPG is used in the Project's thermal processes and air-emission control systems. Changes in LPG prices under different transition pathways may affect operating costs, although LPG represents a substantially smaller share of the Project's energy use and emissions than purchased electricity.	International crude oil price	USD 2010/GJ	WEO does not provide an LPG-specific scenario price. International crude oil price from NGFS Phase V is therefore used as a proxy for the direction of petroleum-derived fuel prices. The indicator provides a quantitative representation of potential changes in the market conditions affecting LPG costs, although actual

Ref. No.	TCFD Category	Risk / Opportunity Driver	Potential Relevance to the Project	Scenario Indicator	Unit	Rationale for Scenario Indicator Selection
						LPG prices will also depend on refining, transportation and local supply conditions.
5	Technology	Industrial technology transition and potential equipment obsolescence	Continued industrial electrification and technological development may accelerate the deployment of more efficient electrical production equipment, controls, motors and utility systems. If the Project's graphitisation and supporting equipment becomes materially less efficient than emerging alternatives, additional investment may be required to maintain competitiveness and meet regulatory or customer expectations.	Electricity share of worldwide industrial final energy consumption, calculated by dividing industrial electricity consumption by total industrial final energy consumption	%	The indicator measures the pace of industrial electrification under each scenario. A greater electricity share under the low-carbon scenario is used as a proxy for accelerated changes in industrial technologies, equipment configurations and energy-management systems, potentially increasing the risk that existing equipment becomes less competitive or requires earlier upgrading.
6	Technology	Potential substitution of selected battery applications by hydrogen fuel-cell technologies	Greater technological maturity, infrastructure development and commercial deployment of hydrogen fuel-cell technologies could partially substitute for battery-electric systems in selected applications, particularly heavy-duty and long-distance transport. This may reduce the growth of lithium-ion battery and anode-material demand in the market segments most exposed to substitution.	Hydrogen consumption in transport (worldwide)	EJ	Transport-sector hydrogen consumption directly reflects the projected scale and pace of hydrogen-based transport deployment under each scenario. It is used as a proxy for potential competitive pressure on battery-electric technologies in selected transport segments. It does not imply a one-to-one displacement of lithium-ion batteries or graphite anode-material demand.
7	Market	Petroleum-derived feedstock availability	The Project's principal raw materials include petroleum-derived feedstocks such as green petroleum coke and calcined petroleum coke. A substantial long-term decline in oil production under a rapid low-carbon transition could affect the availability, sourcing patterns and costs of these feedstocks.	Conventional crude oil production	Million barrels per day	Petroleum coke is a by-product of oil refining. Conventional crude oil production is used as a proxy for the long-term scale of petroleum-related feedstock supply under each scenario. The relationship is indirect because petroleum-coke availability also depends on crude-oil characteristics, refinery throughput and refinery configuration.
8	Market	Competitive pressure from lower-carbon anode materials	Producers using lower-carbon electricity, more efficient production technologies, recycled inputs or alternative production routes may offer anode materials with lower verified carbon footprints. This could place commercial pressure on the Project where customers use product carbon intensity as a supplier-selection criterion.	CO_2 emissions per unit of worldwide industrial final energy consumption	Mt CO_2/EJ	The indicator measures the average carbon intensity of industrial energy consumption. A greater decline under the low-carbon scenario indicates faster industrial decarbonisation and is used as a proxy for the rate at which competing industrial producers may reduce their carbon footprints. It does not represent an anode-material-specific performance benchmark.
Opportunities						
9	Resource Efficiency	Energy efficiency improvements	Process optimisation, efficient graphitisation, energy-efficient electrical and utility equipment, preventive maintenance and	Final industrial energy intensity	GJ per USD 1,000, PPP	A reduction in final energy consumed per unit of economic output indicates improvements in energy productivity under the relevant scenario. The

Ref. No.	TCFD Category	Risk / Opportunity Driver	Potential Relevance to the Project	Scenario Indicator	Unit	Rationale for Scenario Indicator Selection
			improved production yields may reduce operating costs, GHG emissions and product carbon intensity.			difference between scenarios is used as a proxy for the potential pace of development and deployment of more energy-efficient technologies and practices that may be applicable to the Project.
10	Energy Source	Access to renewable and lower-carbon electricity	Increasing renewable electricity generation in Morocco may support the decarbonisation of the national grid and expand the availability of lower-carbon electricity for industrial consumers. This could create opportunities for the Project to reduce Scope 2 emissions and product carbon intensity through grid decarbonisation, credible renewable-electricity procurement or other traceable lower-carbon electricity arrangements. Purchased electricity accounts for approximately 96.7% of the Project's quantified operational Scope 1 and Scope 2 emissions, making the Project highly sensitive to the carbon intensity of electricity supply.	Renewable share of electricity generation in Morocco	%	The renewable share of electricity generation measures the proportion of Morocco's electricity supply generated from solar, wind, hydropower and biomass under each scenario. A higher renewable share under the low-carbon scenario is used as a proxy for the increasing availability of lower-carbon electricity, which may support reductions in the Project's Scope 2 emissions and product carbon footprint where corresponding electricity can be accessed and credibly attributed to the Project.
11	Products and Services	Increasing demand for lithium-ion batteries for electric mobility	Continued expansion of battery-electric transport may increase demand for lithium-ion batteries and associated anode materials, potentially supporting sales growth, production-capacity utilisation and long-term market development.	Electricity consumption in transport worldwide	EJ	Transport electricity consumption is used as a proxy for the scale and pace of transport electrification. Higher electricity consumption under the low-carbon scenario indicates greater deployment and use of electric transport and, consequently, greater potential demand for lithium-ion batteries and anode materials.
12	Products and Services	Increasing demand for battery energy storage	The increasing deployment of variable renewable electricity and the associated need for grid flexibility may support growth in stationary battery-storage systems and demand for lithium-ion battery materials. The opportunity will also depend on battery chemistry, technological development and the Project's access to relevant markets.	Installed battery-storage capacity worldwide	TWh	Installed battery-storage capacity directly represents the projected deployment of grid-connected battery storage under each scenario. Higher capacity under the low-carbon scenario indicates greater potential demand for battery materials, although the relationship with graphite anode-material demand will depend on battery chemistry, storage duration and future technology choices.

Note: Scenario Indicators have been selected principally from the IEA World Energy Outlook 2025 Extended Dataset, supplemented by NGFS Phase V data where suitable IEA data are unavailable or where a more geographically relevant indicator is required. Certain indicators are calculated from underlying scenario variables. Where a direct Project- or product-specific indicator is unavailable, a quantifiable energy-system, technology or market indicator is used as a directional proxy. The use of a proxy does not imply a direct or one-to-one relationship between the Scenario Indicator and the resulting operational or financial impact on the Project. The associated limitations are considered when interpreting the scenario-screening results.

4.2.2 SCREENING RESULTS

The Transition Scenario Screen provides the Project-level ratings for the identified transition risks and opportunities and indicates how their relative significance may change across the assessed time horizons. The screening results are used to prioritise the drivers requiring detailed review in Section 4.3.

Each quantitatively assessed driver is assigned a climate score and corresponding risk or opportunity rating for 2035, 2040 and 2050. Negative scores represent transition risks, and positive scores represent transition opportunities. The screening results provide a relative prioritisation of the identified drivers and are used to determine which drivers require detailed review. Final climate risk ratings are shown in ***TABLE*** 4-3 below.

TABLE 4-3 CLIMATE RISK AND OPPORTUNITY SCORE

Risk/ Opportunity Rating	**Climate Score (Normalised Scenario Delta × Project-specific Relevance Weighting)**
High Opportunity	More than 0.25
Moderate Opportunity	0.15 to 0.25
Low Opportunity	0.05 to 0.15
Limited	0.05 to -0.05
Low Risk	- 0.05 to -0.15
Moderate Risk	- 0.15 to - 0.25
High Risk	Less than - 0.25

Based on the quantitative screening, product carbon-footprint and GHG requirements and the potential substitution of selected battery applications by hydrogen fuel-cell technologies are rated as High Risks across the assessed time horizons. Access to renewable and lower-carbon electricity, increasing demand for lithium-ion batteries for electric mobility, and increasing demand for battery energy storage are rated as High Opportunities across the assessed time horizons. These risks and opportunities are carried forward for detailed review in Section 4.3.

TABLE 4-4 CLIMATE SCORES FOR THE TRANSITION SCENARIO SCREEN

Ref #	TCFD Quadrant	Risk / Opportunity Drivers	Potential Financial Consequence	Scenario Indicator	Climate Risk / Opportunity Rating		
					2035	2040	2050
Risk							
1	Policy and Legal	Strengthening energy-efficiency requirements	CAPEX and OPEX	Final energy intensity worldwide (worldwide)	Low	Low	Low
2	Market	Product carbon-footprint and GHG requirements	CAPEX and OPEX	Energy-related CO_2 emissions intensity (worldwide)	High	High	High
3	Policy and Legal	Carbon-pricing exposure	CAPEX and OPEX	Carbon price difference	Low	Low	Low
4	Market	Fuel-price exposure	OPEX	International crude oil price	Limited	Limited	Limited
5	Technology	Industrial technology transition and potential equipment obsolescence	CAPEX and OPEX	Electricity share of worldwide industrial final energy consumption	Limited	Low	Low
6	Technology	Potential substitution of selected battery applications by hydrogen fuel-cell technologies	Revenue	Hydrogen consumption	High	High	High
7	Market	Petroleum-derived feedstock availability	OPEX	Conventional crude oil production	Limited	Limited	Low
8	Market	Competitive pressure from lower-carbon anode materials	Revenue	CO_2 emissions per unit of worldwide industrial final	Low	Low	Moderate

Ref #	TCFD Quadrant	Risk / Opportunity Drivers	Potential Financial Consequence	Scenario Indicator	Climate Risk / Opportunity Rating		
					2035	2040	2050
				energy consumption			
Opportunity							
9	Resource Efficiency	Energy efficiency improvements	OPEX	Final energy intensity (worldwide)	**Low**	**Moderate**	**Moderate**
10	Energy Source	Access to renewable and lower-carbon electricity	OPEX	Renewable share of electricity generation in Morocco	**High**	**High**	**High**
11	Products and Services	Increasing demand for lithium-ion batteries for electric mobility	Revenue	Electricity consumption in transport	**High**	**High**	**High**
12	Products and Services	Increasing demand for battery energy storage	Revenue	Installed battery-storage capacity	**High**	**High**	**High**

4.3 RISK AND OPPORTUNITY REVIEW AND RECOMMENDATIONS

This section provides a description of the potential transition risks and opportunities associated with the Project. It further provides some qualitative narrative to supplement the results of the scenario analysis including existing mitigation measures applied by BTR. Recommendations for the next steps for the CCRA and actions to be implemented by the Client are also provided.

4.3.1 PRODUCT CARBON-FOOTPRINT AND GHG REQUIREMENTS

Evolving product carbon-footprint, GHG performance and supply-chain information requirements may affect the Project's customer qualification, market access and competitive position. Meeting these requirements may require lower-carbon electricity procurement, energy-efficiency improvements, product carbon-footprint accounting and verification, and enhanced GHG data-management systems, resulting in additional CAPEX and OPEX.

4.3.1.1 POTENTIAL RISK AND OUTCOME

A potential risk for the Project relates to evolving policy- and market-driven requirements concerning the carbon footprint and GHG emissions associated with its operations and products. Artificial graphite anode-material production is electricity intensive, particularly during graphitisation. Based on the Project's planned annual production capacity of 60,000 tonnes and estimated annual operational Scope 1 and Scope 2 GHG emissions of approximately 458,747.41 tCO_2e. Purchased electricity accounts for approximately 96.7% of the quantified operational Scope 1 and Scope 2 emissions. The Project's exposure is therefore driven primarily by electricity consumption and the carbon intensity of purchased electricity, although direct emissions from LPG combustion and relevant process and thermal-treatment activities also contribute to its operational carbon footprint.

Morocco's national decarbonisation commitments and evolving product carbon-footprint, GHG disclosure and supply-chain requirements among international battery and automotive customers may increase pressure on the Project to improve its energy and emissions performance.[30] Implementation of this policy direction may progressively affect industrial energy-management expectations, electricity-sector carbon intensity and GHG monitoring and reporting requirements relevant to energy-intensive facilities such as the Project. At the same time, the expansion of renewable electricity may create opportunities to reduce the Project's Scope 2 emissions, subject to the actual decarbonisation of the electricity supplied to the Project and the availability of credible renewable or lower-carbon electricity procurement arrangements.

The Project may also face increasing requirements from international battery and automotive customers concerning verified product carbon footprints, GHG emissions intensity, electricity sourcing and the traceability of underlying supply-chain data. Regulation (EU) 2023/1542 introduces mandatory carbon-footprint information for specified categories of batteries placed on the EU market and establishes a broader framework covering carbon-footprint performance, sustainability information and battery supply-chain requirements.[31] Although these obligations primarily apply to batteries and the relevant economic operators placing them on the EU market, battery manufacturers may require upstream material suppliers to provide sufficiently reliable and traceable emissions data to support battery-level calculations, conformity

[30] Morocco NDC 3.0 | UNFCCC
[31] Sustainability rules for batteries and waste batteries | EUR-Lex

assessment and customer disclosures.

For the Project, a comparatively high or insufficiently substantiated product carbon footprint could affect customer qualification, procurement decisions, contract requirements, pricing discussions, market access and competitiveness, particularly where competing anode-material producers have access to lower-carbon electricity or more energy-efficient production technologies. Managing this exposure may require investment in energy-efficient equipment, process optimisation, credible renewable or lower-carbon electricity procurement, product carbon-footprint calculation and verification, and enhanced GHG and supply-chain data-management systems. These measures may result in additional CAPEX and OPEX, but could also help the Project maintain access to battery supply chains that increasingly consider product-level carbon performance.

The quantitative screening rates Product carbon-footprint and GHG requirements as a High Risk in 2035, 2040 and 2050. This result reflects the substantial divergence in energy-related CO_2 emissions intensity between the CPS and NZE scenarios, combined with the Project's high sensitivity to electricity-related emissions. The rating represents the relative priority of this transition driver within the assessment and should not be interpreted as a forecast of the probability of customer loss or the percentage increase in Project costs.

TABLE 4-5 RISK RATING FOR PRODUCT CARBON-FOOTPRINT AND GHG REQUIREMENTS

Ref No.	Risk Type	Transition Risk Driver	Potential Financial Consequence	Short Term (2035)	Medium Term (2040)	Long Term (2050)
2	Market	Product carbon-footprint and GHG requirements	CAPEX and OPEX	**High Risk**	**High Risk**	**High Risk**

4.3.1.2 QUALITATIVE REVIEW AND MITIGATION MEASURES

Artificial graphite anode-material production is energy intensive, particularly because graphitisation requires high-temperature electric resistance heating. For the Project, purchased electricity represents the dominant source of quantified operational GHG emissions, accounting for approximately 443,726.40 tCO_2e per year, or 96.7% of combined Scope 1 and Scope 2 emissions. The Project's operational and product carbon footprints will therefore be particularly sensitive to electricity consumption, production efficiency, the carbon intensity of grid electricity and the availability of credible renewable or lower-carbon electricity arrangements. Direct emissions from LPG combustion and relevant process and thermal-treatment activities also contribute to the Project's GHG profile.

For the Project, the principal challenge will be to establish sufficiently robust systems for quantifying, managing and substantiating the carbon footprint of its anode materials. This will require reliable activity data for electricity and fuel consumption, production output, relevant process emissions and material inputs, supported by appropriate metering, allocation methods, emission factors, data-quality controls and document-retention arrangements. Where upstream emissions are material to the applicable product carbon-footprint boundary, relevant primary or sufficiently representative secondary data will also need to be obtained for petroleum coke, pitch, fuels, transportation and other key inputs.

The Project Company's planned procurement of green electricity and implementation of energy-efficiency measures could reduce the Project's operational emissions and product carbon footprint. However, growth in renewable generation within Morocco's electricity system would not automatically result in an equivalent reduction in the Project's reported Scope 2 emissions or product carbon footprint. Any renewable-electricity claims will need to be supported by credible contractual documentation, appropriate energy-attribute instruments, clear ownership and retirement arrangements, and accounting treatment consistent with the applicable corporate GHG and product carbon-footprint methodologies.

The Project Company will therefore need to periodically update its operational GHG inventory and product carbon-footprint calculations, compare actual performance against the design-stage baseline, and investigate material deviations in energy use or emissions intensity. The monitoring framework should also remain responsive to changes in applicable customer methodologies, reporting boundaries, allocation rules, emission factors and data-quality requirements.

4.3.1.3 RECOMMENDATIONS

The quantitative screening rates Product carbon-footprint and GHG requirements as a High Risk in 2035, 2040 and 2050. This reflects the substantial divergence in energy-related CO_2 emissions intensity between the CPS and NZE scenarios, together with the Project's high sensitivity to electricity-related emissions. The rating indicates the relative priority of this transition driver within the assessment and does not represent a forecast of customer loss, a specific future carbon-footprint threshold or the percentage increase in Project costs.

Given the Project's electricity-intensive production profile and the potential implications for customer qualification, market access and competitiveness, the recommendations in table below focus on strengthening product carbon-footprint accounting, GHG and energy-performance monitoring, access to credible lower-carbon electricity, supply-chain data management, and the integration of carbon-performance considerations into capital and technology planning. These measures are intended to improve the Project's capacity to respond to evolving requirements and reduce its exposure over the operational life of the Project.

TABLE 4-6 RECOMMENDATIONS TO MITIGATE THE RISK

Is this a Potential Risk to the Project?	Recommendations to Mitigate the Risk
Likely High Risk from Short term to Long term	• Product Carbon-Footprint Accounting and Verification: Establish and periodically update product carbon-footprint calculations for the Project's artificial graphite anode materials using applicable recognised methodologies. Document the system boundary, allocation methods, electricity accounting approach, activity data, emission factors, assumptions, exclusions and data-quality controls. Obtain independent verification where required by applicable

Is this a Potential Risk to the Project?	Recommendations to Mitigate the Risk
	regulations, customer requirements or financing commitments. • GHG and Energy-Performance Monitoring: Monitor Scope 1 and Scope 2 emissions, electricity and fuel consumption, production output, and GHG emissions intensity per tonne of finished anode material. Compare actual performance against the design-stage baseline, investigate material deviations and implement appropriate corrective or improvement measures. • Lower-Carbon Electricity Procurement: Assess technically and commercially feasible options for procuring renewable or lower-carbon electricity, including on-site solar generation, direct renewable-electricity supply, power purchase arrangements and other traceable electricity instruments. Ensure that associated emissions-reduction claims are supported by credible contractual documentation, appropriate energy-attribute instruments, and clear ownership and retirement arrangements. • Customer and Regulatory Foresight: Monitor developments in product carbon-footprint methodologies, battery supply-chain requirements, GHG disclosure expectations, electricity-traceability criteria and related sustainability requirements in Morocco and the Project's principal customer markets. Assess their potential implications for customer qualification, contractual requirements, product specifications, data systems and market access. • Supply-Chain Carbon Data Management: Obtain relevant primary or sufficiently representative secondary GHG data for petroleum coke, pitch, fuels, transportation and other material inputs where required to support product carbon-footprint calculations, Scope 3 screening or customer reporting. Establish proportionate supplier-data requirements, quality checks and document-retention arrangements. • Capital and Technology Planning: Integrate energy efficiency, GHG emissions intensity and product carbon-footprint considerations into major equipment

Is this a Potential Risk to the Project?	Recommendations to Mitigate the Risk
	selection, process optimisation, energy procurement and future capital planning. Periodically assess whether emerging production technologies or lower-carbon electricity options could materially improve Project performance or reduce the risk of competitive disadvantage.

4.3.2 POTENTIAL SUBSTITUTION OF SELECTED BATTERY APPLICATIONS BY HYDROGEN FUEL-CELL TECHNOLOGIES

4.3.2.1 POTENTIAL RISK AND OUTCOME

Greater technological maturity, supporting infrastructure development and commercial deployment of hydrogen fuel-cell technologies may increase competition with battery-electric systems in selected transport applications, particularly where vehicle range, refuelling time, payload and operational duty cycles materially influence technology selection. If hydrogen fuel-cell technologies capture market share in transport segments that would otherwise use battery-electric systems, the growth of lithium-ion battery demand in those segments could be lower than under current expectations. This could reduce the corresponding growth in demand for artificial graphite anode materials and may affect the Project's sales volumes, production-capacity utilisation and revenue.

The potential impact is expected to be application-specific rather than a broad substitution of battery-electric technologies. Current fuel-cell deployment remains concentrated in a limited number of markets and transport applications. The IEA identifies heavy trucks as the only rapidly growing road-transport market for fuel-cell electric vehicles, while noting that their total cost of ownership remains higher than that of battery-electric or diesel trucks. Available deployment data also indicate that recent fuel-cell vehicle growth is geographically concentrated and that overall growth in fuel-cell vehicles and hydrogen-refuelling infrastructure has slowed as battery-electric vehicles have gained market share across most road-transport segments.[32] [33]

TABLE 4-7 RISK RATING FOR POTENTIAL SUBSTITUTION OF SELECTED BATTERY APPLICATIONS BY HYDROGEN FUEL-CELL TECHNOLOGIES

Ref No.	Risk Type	Transition Risk	Potential Financial Consequence	Short Term (2035)	Medium Term (2040)	Long Term (2050)
6	Technology	Potential substitution of selected battery applications by	Revenue	**High Risk**	**High Risk**	**High Risk**

[32] Deployment of Fuel Cell Vehicles in Road Transport and the Expansion of the Hydrogen Refueling Station Network: 2025 Update - JuSER
[33] Demand – Global Hydrogen Review 2025 – Analysis - IEA

Ref No.	Risk Type	Transition Risk	Potential Financial Consequence	Short Term (2035)	Medium Term (2040)	Long Term (2050)
		hydrogen fuel-cell technologies				

4.3.2.2 QUALITATIVE REVIEW AND CURRENT MITIGATION MEASURES

Hydrogen fuel-cell and battery-electric technologies provide different pathways for reducing emissions from transport. Their relative competitiveness varies by application because of differences in energy efficiency, vehicle range, refuelling or charging requirements, payload, duty cycle, supporting infrastructure and energy costs. Current evidence indicates that fuel-cell deployment in road transport remains limited and geographically concentrated. Heavy trucks represent the principal growth segment, while battery-electric vehicles continue to demonstrate stronger deployment across most road-transport applications.[34]

For the Project, the principal exposure is a downstream technology and market-demand risk rather than a direct operational or regulatory risk. The Project will manufacture artificial graphite anode materials used in lithium-ion batteries. If hydrogen fuel-cell systems capture a greater share of selected transport applications that would otherwise have adopted battery-electric systems, the related growth in lithium-ion battery and artificial graphite anode-material demand could be lower than otherwise anticipated. Potential financial consequences could include lower sales growth, reduced production-capacity utilisation, pricing pressure and lower revenue.[35]

The relationship between transport-sector hydrogen deployment and demand for the Project's products is indirect. Higher hydrogen consumption in transport does not indicate an equivalent reduction in lithium-ion battery demand. Fuel-cell vehicles generally incorporate batteries for power management and regenerative braking, and transport-sector hydrogen consumption may include applications that do not directly compete with the battery markets served by the Project. In addition, the Project may supply anode materials to several battery applications, including passenger and commercial electric vehicles, stationary battery storage and other lithium-ion battery uses. Growth in these markets may partly or fully offset weaker demand in transport segments exposed to fuel-cell competition.

The IEA reports that new hydrogen applications, including mobility, continue to account for less than 1% of global hydrogen demand. Although heavy trucks are the fastest-growing fuel-cell road-transport segment, their total cost of ownership remains higher than that of battery-electric or diesel alternatives, and wider deployment continues to face cost, infrastructure and policy barriers. These conditions indicate that potential substitution is subject to significant uncertainty and is unlikely to occur uniformly across transport markets.[36]

Worldwide hydrogen consumption in transport is therefore used as a directional proxy for the scale and pace of hydrogen-based transport deployment under the CPS and NZE scenarios. The indicator captures the stronger role of hydrogen in transport under a rapid low-carbon

[34] Demand – Global Hydrogen Review 2025 – Analysis - IEA
[35] Hydrogen and fuels cells for transport - Mobility and Transport
[36] Demand – Global Hydrogen Review 2025 – Analysis - IEA

transition but does not identify which transport modes adopt hydrogen, the proportion of deployment that competes directly with battery-electric systems, or the resulting change in artificial graphite demand. It should not be used as a one-to-one displacement factor.

The Project-specific materiality of the risk will depend on the composition of the Project's customer base, the proportion of expected sales associated with transport applications exposed to hydrogen competition, the availability of alternative battery markets, customer qualification requirements and the Project's ability to adapt its products to evolving battery specifications. The available Project information does not provide a sufficiently detailed breakdown of forecast sales by customer, vehicle type or end-use application to quantify the potential revenue exposure. This represents an important uncertainty in interpreting the quantitative screening result.

The High Risk rating reflects the large scenario difference in projected transport-sector hydrogen consumption and the potential revenue significance of downstream technology substitution. However, it should not be interpreted as evidence that widespread displacement of lithium-ion batteries is expected or that the Project will experience a corresponding loss of sales. The rating identifies this driver as a priority for market monitoring, customer and end-use exposure assessment, and demand-sensitivity analysis.

4.3.2.3 RECOMMENDATIONS

The quantitative screening rates Potential substitution of selected battery applications by hydrogen fuel-cell technologies as a High Risk in 2035, 2040 and 2050. This reflects the substantial difference in projected transport-sector hydrogen consumption between the CPS and NZE scenarios and the potential revenue implications of downstream technology substitution. However, the rating does not represent a forecast of the proportion of lithium-ion battery demand that will be displaced by hydrogen fuel-cell technologies.

Given the uncertainty surrounding the affected transport segments and the Project's future customer and end-use mix, the recommendations in TABLE 4-8 focus on improving market-exposure information, monitoring competing technology deployment, testing alternative demand pathways, maintaining product adaptability and reducing concentration in end-use applications that may be exposed to substitution.

TABLE 4-8 RECOMMENDATIONS TO MITIGATE THE RISK

Is this a Potential Risk to the Project?	Recommendations to Mitigate the Risk
Likely High Risk from Short term to Long term	• Customer and End-Use Exposure Assessment: Periodically assess actual and forecast sales by customer, geography, battery application and vehicle segment, with particular attention to heavy-duty and long-distance transport applications that may be more exposed to hydrogen fuel-cell competition. Where sufficient data are available, estimate the proportion of Project revenue and production capacity associated with these applications.

Is this a Potential Risk to the Project?	Recommendations to Mitigate the Risk
	• Demand Sensitivity Analysis: Assess alternative demand pathways in which hydrogen fuel-cell technologies achieve different levels of deployment in selected transport segments. Evaluate the potential implications for sales volumes, product pricing, production-capacity utilisation and revenue. Clearly distinguish scenario assumptions from forecasts. • Market Diversification: Evaluate commercially and technically feasible opportunities to maintain a diversified customer and end-use portfolio across electric mobility, stationary battery storage and other suitable lithium-ion battery applications. Monitor concentration by customer, geography and end-use application. • Product Adaptability and Customer Qualification: Maintain product-development and customer-qualification capabilities to respond to changes in battery chemistry, performance, safety, cost and product carbon-footprint requirements. Review whether changes in downstream battery designs could affect artificial graphite specifications or demand. • Technology and Infrastructure Monitoring: Monitor fuel-cell vehicle deployment, low-emissions hydrogen costs, hydrogen-refuelling infrastructure, battery-electric heavy-duty vehicle deployment and relevant customer technology strategies. Monitoring should distinguish announced projects and targets from facilities and vehicles that are operational or under construction. • Risk Review Triggers: Reassess the risk where material changes occur in customer technology strategies, forecast sales exposure, fuel-cell vehicle deployment, hydrogen-refuelling infrastructure, hydrogen costs or the competitiveness of battery-electric alternatives.

4.3.3 ACCESS TO RENEWABLE AND LOWER-CARBON ELECTRICITY

Improved access to renewable and lower-carbon electricity represents a potential opportunity for the Project to reduce its electricity-related GHG emissions and the carbon footprint of its artificial graphite anode materials. This opportunity may arise through the progressive decarbonisation of Morocco’s electricity system and the development of credible renewable-electricity procurement arrangements for industrial consumers. Given that purchased electricity is the dominant source of the Project’s operational Scope 1 and Scope 2 emissions, the extent to which lower-carbon electricity can be reliably accessed and appropriately attributed to the Project may materially influence its GHG performance, product carbon footprint and competitiveness in international battery supply chains.

4.3.3.1 POTENTIAL OPPORTUNITY AND OUTCOME

Continued expansion of renewable electricity generation in Morocco may progressively reduce the carbon intensity of the national electricity system and increase the availability of renewable or lower-carbon electricity options for industrial consumers. Morocco's NDC 3.0 identifies renewable-energy expansion, electricity-grid reinforcement and energy storage as important elements of the national mitigation pathway. It includes an objective to increase installed renewable-energy capacity to more than 15 GW by 2030, while the achievement and timing of these measures remain dependent on implementation, investment and supporting grid development.

This development is particularly relevant to the Project because artificial graphite production, especially graphitisation, is highly electricity intensive. Purchased electricity accounts for approximately 443,726.40 tCO_2e per year, or 96.7% of the Project's quantified operational Scope 1 and Scope 2 emissions. Improved access to renewable or lower-carbon electricity could therefore materially reduce the Project's Scope 2 emissions and GHG emissions intensity per tonne of finished anode material. It may also support lower product carbon footprints and improve the Project's ability to respond to relevant customer requirements in international battery supply chains.

The realisation of this opportunity will depend on the actual decarbonisation of Morocco's electricity system and the availability, cost, reliability and contractual accessibility of renewable or lower-carbon electricity for the Project. It will also depend on whether the relevant electricity attributes can be credibly assigned to the Project and recognised under the applicable corporate GHG and product carbon-footprint methodologies.

The quantitative screening uses the renewable share of electricity generation in Morocco as a directional indicator of the potential expansion of lower-carbon electricity supply under the CPS and NZE scenarios. A higher renewable share under the NZE Scenario indicates a greater potential opportunity for the Project to reduce electricity-related emissions. However, the indicator does not directly measure the electricity supplied to the Project, the availability of a suitable procurement arrangement or the emissions reduction that the Project may claim.

TABLE 4-9 ACCESS TO RENEWABLE AND LOWER-CARBON ELECTRICITY

Ref No.	Opportunity Type	Transition Opportunity Driver	Potential Financial Consequence	Short Term (2035)	Medium Term (2040)	Long Term (2050)
10	Energy Source	Access to renewable and lower-carbon electricity	OPEX	**High Opp**	**High Opp**	**High Opp**

4.3.3.2 QUALITATIVE REVIEW

Morocco's planned expansion of renewable-electricity capacity, electricity-grid infrastructure and energy storage may progressively increase the share of renewable generation within the national electricity system. Morocco's NDC 3.0 identifies a substantial expansion of renewable-energy capacity by 2030, supported by grid and storage development, as part of the country's

low-carbon transition. These measures provide a credible national policy basis for considering improved access to lower-carbon electricity as a potential opportunity for the Project. However, their implementation, timing and effect on electricity supplied to individual industrial consumers remain subject to investment, infrastructure development and applicable electricity-market arrangements.[37]

The opportunity is potentially material because purchased electricity represents approximately 96.7% of the Project's quantified operational Scope 1 and Scope 2 emissions. Electricity-intensive graphitisation is the principal driver of this exposure. Reducing the emissions associated with purchased electricity could therefore lower the Project's Scope 2 emissions, operational GHG emissions intensity and product carbon footprint, subject to the applicable accounting boundary and methodology.

Grid decarbonisation and contractual renewable-electricity procurement would affect the Project's GHG reporting through different mechanisms. A reduction in the average emissions intensity of the electricity grid may reduce the Project's location-based Scope 2 emissions when reflected in an updated and authoritative grid emission factor. Separately, qualifying power-purchase arrangements, supplier-specific electricity products or energy-attribute instruments may affect market-based Scope 2 emissions where they meet the applicable accounting and quality criteria.

The GHG Protocol Scope 2 Guidance establishes requirements for accounting for purchased electricity using location-based and market-based methods. It also specifies quality criteria for contractual instruments used in market-based reporting and recommends transparent disclosure of electricity purchases and related instruments. Accordingly, the Project should not assume that electricity marketed as renewable or green will automatically qualify for a lower market-based emission factor. The applicable contractual instrument, ownership and retirement of energy attributes, geographic market boundary, temporal relationship and prevention of double counting should be verified and documented.

The Project is also considering a 4.5 MW rooftop solar PV installation, expected to supply approximately 5% of its electricity demand. However, the installation is not included in the current project finance package and is expected to be developed at a later stage. It should therefore be treated as a potential future measure rather than an existing mitigation commitment. Its actual contribution should be confirmed through a detailed feasibility assessment covering available roof area, structural capacity, expected generation, connection arrangements, implementation schedule, ownership of electricity attributes and integration with the Project's power supply.

Even if lower-carbon electricity becomes available, the scale of the opportunity will depend on price, reliability, additional connection or metering requirements, contract duration, curtailment arrangements and compatibility with the Project's continuous and electricity-intensive operating profile. These factors should be assessed alongside the potential GHG benefit to determine whether a proposed electricity arrangement is technically and commercially suitable.

[37] Morocco's NDC 3.0 – Setting ambition in tripling renewables, coal phaseout, adaptation action and a spotlight on loss and damage

4.3.3.3 RECOMMENDATIONS

The quantitative screening rates Access to renewable and lower-carbon electricity as a High Opportunity in 2035, 2040 and 2050. This reflects the difference in Morocco's projected renewable share of electricity generation between the CPS and NZE scenarios, together with the Project's high dependence on purchased electricity. The rating indicates the relative significance of this opportunity and does not represent a forecast of the proportion of the Project's electricity demand that will be supplied from renewable sources.

Given the Project's electricity-intensive production profile, the recommendations in TABLE 4-10 focus on assessing feasible electricity-procurement options, verifying contractual and environmental attributes, maintaining reliable power supply, and integrating lower-carbon electricity into the Project's GHG and product carbon-footprint accounting.

TABLE 4-10 RECOMMENDATIONS TO ENHANCE THE OPPORTUNITY

Is this a Potential Opportunity to the Project?	Recommendations to Enhance the Opportunity
High Opportunity in 2035, 2040 and 2050	• Renewable-Electricity Procurement Assessment: Assess technically and commercially feasible options for obtaining renewable or lower-carbon electricity, including direct supply arrangements, power purchase agreements, qualifying supplier products, energy-attribute instruments and other arrangements available under Morocco's electricity-market framework. • Rooftop Solar Feasibility: Complete a detailed technical and financial feasibility assessment for the proposed 4.5 MW rooftop solar PV installation. Confirm expected annual generation, roof and structural suitability, grid connection, capital cost, implementation schedule, ownership arrangements and treatment of associated environmental attributes. • GHG Accounting and Attribute Verification: Establish documented procedures for verifying the eligibility, ownership and retirement of contractual electricity attributes. Report location-based and, where applicable, market-based Scope 2 emissions in accordance with the recognised GHG accounting methodology. • Electricity Reliability and Commercial Assessment: Evaluate renewable or lower-carbon electricity options against the Project's continuous electricity demand, including price, supply reliability, contract duration, curtailment, backup supply, metering and connection requirements. • Performance Monitoring: Monitor total electricity consumption, electricity consumption per tonne of finished anode material,

Is this a Potential Opportunity to the Project?	Recommendations to Enhance the Opportunity
	relevant grid emission factors, renewable-electricity procurement and associated Scope 2 emissions. Compare actual performance with the design-stage baseline. • Periodic Market Review: Periodically review developments in Morocco's renewable-electricity market, grid infrastructure, industrial electricity products and regulatory framework, and update the procurement strategy where technically and commercially feasible opportunities become available.

4.3.4 INCREASING DEMAND FOR LITHIUM-ION BATTERIES FOR ELECTRIC MOBILITY

The continued electrification of road transport represents a potential opportunity for the Project by supporting demand for lithium-ion batteries and associated artificial graphite anode materials. The scale of this opportunity will depend on the pace of electric-vehicle deployment, battery capacity and chemistry, anode-material selection, customer qualification and the Project's access to relevant geographic markets. As the relationship between transport electrification and demand for the Project's products is indirect, the assessment uses transport-sector electricity consumption as a directional indicator rather than as a direct forecast of Project sales or revenue.

4.3.4.1 POTENTIAL OPPORTUNITY AND OUTCOME

Continued growth in electric mobility may increase demand for lithium-ion batteries and associated anode materials. Artificial graphite is widely used as an anode material in lithium-ion batteries, and further deployment of battery-electric passenger vehicles, commercial vehicles and other electric transport applications could support demand for the Project's products. This may create opportunities for increased sales, production-capacity utilisation and revenue over the Project's operational life.

The opportunity is not expected to arise uniformly across all vehicle or battery markets. Its scale will depend on electric-vehicle deployment, average battery capacity, battery chemistry, anode-material selection, battery recycling, customer qualification, product performance and the Project's access to relevant markets. Competition from other artificial graphite producers, natural graphite suppliers and emerging anode technologies may also affect the proportion of aggregate battery demand that can be captured by the Project.

Worldwide transport-sector electricity consumption is used as a directional indicator of the scale and pace of transport electrification under the CPS and NZE scenarios. Higher electricity consumption under the NZE Scenario indicates greater deployment and use of electric transport and, consequently, greater potential demand for lithium-ion batteries and associated anode materials. However, the indicator includes electricity consumption across different transport modes and does not directly measure electric-vehicle sales, battery deployment, artificial graphite demand or the Project's future revenue.

The substantial difference in projected transport-sector electricity consumption between the CPS and NZE scenarios, combined with the potential revenue significance of electric-mobility demand to the Project, results in a High Opportunity rating across the assessed time horizons.

TABLE 4-11 INCREASING DEMAND FOR LITHIUM-ION BATTERIES FOR ELECTRIC MOBILITY

Ref No.	Opportunity Type	Transition Opportunity Driver	Potential Financial Consequence	Short Term (2035)	Medium Term (2040)	Long Term (2050)
11	Products and Services	Increasing demand for lithium-ion batteries for electric mobility	Revenue	**High Opp**	**High Opp**	**High Opp**

4.3.4.2 QUALITATIVE REVIEW

Continued expansion of electric mobility is expected to support growth in lithium-ion battery demand. The IEA's Global EV Outlook 2025 assesses trends in electric-vehicle deployment, battery demand and charging infrastructure and projects continued growth in electric mobility through 2030 under prevailing policy settings. This provides a credible basis for considering transport electrification as a potential downstream demand opportunity for battery-material producers. Electrification is also expanding beyond passenger vehicles. Global electric-bus sales increased by approximately 30% in 2024, while sales of electric medium- and heavy-duty trucks increased by almost 80% and exceeded 90,000 vehicles. Electric-truck deployment remained geographically concentrated, particularly in China, and adoption varied substantially by vehicle duty cycle and market. These developments nevertheless indicate that battery-electric technologies are expanding across a broader range of road-transport applications.[38]

As the Project will manufacture artificial graphite anode materials used in lithium-ion batteries, continued growth in electric mobility may support demand for its products. Potential Project-level benefits include increased sales, improved production-capacity utilisation, greater revenue stability and opportunities to establish relationships with international battery and automotive supply chains. The Project's location in Morocco may also support geographically diversified battery-material supply, subject to customer qualification, logistics, product quality and commercial competitiveness.

However, aggregate growth in electric-vehicle or battery demand will not necessarily result in a proportional increase in demand for the Project's products. The scale of the opportunity will depend on the battery chemistries and anode materials selected by manufacturers, average battery capacity, improvements in battery energy density and material efficiency, recycled-material use, qualification requirements and competition from other anode-material suppliers. Future development of silicon-containing anodes and other alternative anode technologies could also affect graphite intensity per unit of battery capacity, although the timing and scale of such changes remain uncertain.

The Project's ability to realise the opportunity will also depend on product-specific factors,

[38] Electric vehicle batteries – Global EV Outlook 2025 – Analysis - IEA

including consistency, purity, particle characteristics, electrochemical performance, production cost, supply reliability and product carbon footprint. Growth in the overall market may not benefit the Project if its products do not meet customer technical, sustainability or commercial requirements. Conversely, reliable product quality, lower-carbon electricity procurement and credible product carbon-footprint information may strengthen the Project's competitive position in international battery supply chains.

Worldwide transport-sector electricity consumption is used as a directional proxy for the scale and pace of transport electrification under the assessed scenarios. Higher transport electricity consumption under the NZE Scenario indicates greater deployment and use of electric transport and therefore a larger potential market for lithium-ion batteries. However, the indicator does not distinguish between vehicle types, battery capacities, battery chemistries or anode materials. It should not be interpreted as a direct forecast of artificial graphite demand, the Project's sales volumes or future revenue.

The High Opportunity rating reflects the substantial scenario difference in transport-sector electricity consumption and the potential revenue significance of electric-mobility demand. It does not indicate that the Project will automatically capture a corresponding share of battery-market growth. Realisation of the opportunity will require continued customer qualification, product development, market monitoring and commercial engagement.

4.3.4.3 RECOMMENDATIONS

The quantitative screening rates Increasing demand for lithium-ion batteries for electric mobility as a High Opportunity in 2035, 2040 and 2050. This reflects the substantial difference in projected transport-sector electricity consumption between the CPS and NZE scenarios, together with the potential revenue significance of continued electric-mobility growth. The rating represents the relative significance of the opportunity and does not constitute a forecast of Project sales or revenue.

The recommendations in TABLE 4-12 focus on improving the Project's ability to assess and capture electric-mobility demand through customer and market analysis, product qualification, technology monitoring, production planning and maintenance of competitive product carbon-footprint performance.

TABLE 4-12 RECOMMENDATIONS TO ENHANCE THE OPPORTUNITY

Is this a Potential Opportunity to the Project?	Recommendations to Enhance the Opportunity
High Opportunity in 2035, 2040 and 2050	• Customer and Market Assessment: Periodically assess expected and actual demand by customer, geography, vehicle segment, battery application and battery chemistry. Use this information to evaluate potential sales volumes, customer concentration, production-capacity utilisation and revenue exposure. • Customer Qualification and Commercial Engagement: Maintain structured engagement with battery-cell manufacturers and relevant downstream customers to understand future technical

Is this a Potential Opportunity to the Project?	Recommendations to Enhance the Opportunity
	specifications, qualification schedules, expected volumes, sustainability requirements and product carbon-footprint expectations. • Product Performance and Adaptability: Maintain product-development and quality-management capabilities to respond to changes in battery performance, chemistry, artificial graphite specifications and customer requirements. Assess the implications of silicon-containing and other emerging anode technologies for future product demand and technical specifications. • Production and Capacity Planning: Align production ramp-up, material procurement and future capacity decisions with substantiated customer demand and qualification progress. Avoid assuming that aggregate global growth in electric-vehicle demand will automatically translate into equivalent demand for the Project's products. • Competitive Carbon Performance: Continue to improve energy efficiency, evaluate credible renewable or lower-carbon electricity procurement and maintain reliable product carbon-footprint data. These measures may strengthen the Project's position where customers consider product-level carbon performance in supplier selection. • Technology and Market Monitoring: Monitor electric-vehicle deployment, battery capacity and chemistry trends, anode-material intensity, recycling developments, competing anode technologies and relevant policy changes in principal customer markets. • Opportunity Review Triggers: Reassess the opportunity where material changes occur in customer demand forecasts, qualification outcomes, battery chemistry, graphite intensity, competing anode technologies, market-access conditions or Project production performance.

4.3.5 INCREASING DEMAND FOR BATTERY ENERGY STORAGE

The expansion of battery energy storage represents a potential opportunity for the Project by supporting demand for lithium-ion batteries and associated artificial graphite anode materials. Battery storage can support the integration of variable renewable electricity and provide services such as energy shifting, capacity provision, frequency regulation and grid congestion management. However, the extent to which growth in installed battery-storage capacity translates into demand for the Project's products will depend on battery chemistry, anode-

material selection, storage duration, recycling, customer qualification and the Project's access to relevant markets.

4.3.5.1 POTENTIAL OPPORTUNITY AND OUTCOME

Continued deployment of battery energy storage may increase demand for lithium-ion batteries and associated anode materials. Artificial graphite is commonly used as an anode material in lithium-ion batteries, including batteries used in stationary energy-storage systems. By supplying artificial graphite anode materials, the Project may support the battery-material value chain associated with the integration of variable renewable electricity and the provision of power-system flexibility.

Growth in battery-storage deployment may create opportunities for increased sales, production-capacity utilisation and revenue over the Project's operational life. The opportunity may arise through demand from utility-scale, commercial and industrial, and other stationary battery-storage applications in Morocco and the Project's accessible international markets.

The scale of the opportunity will depend on the type and duration of storage deployed, battery chemistry, anode-material selection, battery lifetime, recycling and reuse, customer qualification, product performance, competition and access to relevant markets. Growth in installed storage capacity will not necessarily result in a proportional increase in demand for artificial graphite or the Project's products.

Worldwide installed battery-storage capacity is used as a directional indicator of the scale and pace of battery-storage deployment under the CPS and NZE scenarios. Higher installed capacity under the NZE Scenario indicates a larger potential market for battery materials under a more rapid low-carbon transition. However, the indicator does not distinguish between battery chemistries, storage durations, anode materials or suppliers and should not be interpreted as a direct forecast of the Project's sales or revenue.

The substantial difference in projected installed battery-storage capacity between the CPS and NZE scenarios, combined with the potential revenue significance of storage-related battery demand, results in a High Opportunity rating across the assessed time horizons.

TABLE 4-13 INCREASING DEMAND FOR BATTERY ENERGY STORAGE

Ref No.	Opportunity Type	Transition Opportunity Driver	Potential Financial Consequence	Short Term (2035)	Medium Term (2040)	Long Term (2050)
12	Products and Services	Increasing demand for battery energy storage	Revenue	**High Opp**	**High Opp**	**High Opp**

4.3.5.2 QUALITATIVE REVIEW

Battery storage is expected to play an increasingly important role in electricity systems with growing shares of variable renewable generation. Storage can support short-term energy shifting, capacity provision, frequency regulation and the management of network constraints, thereby improving the flexibility and reliability of power systems. The IEA identifies battery storage as a critical enabling technology for the rapid deployment of solar and wind generation

under low-carbon transition pathways.[39] [40]

The IEA estimates that global energy-storage capacity would need to increase sixfold to approximately 1,500 GW by 2030 to support the global objective of tripling renewable-energy capacity. In the IEA NZE Scenario, batteries account for approximately 90% of the required increase in storage capacity, with battery-storage capacity rising to approximately 1,200 GW by 2030. These projections provide a credible basis for considering battery-storage deployment as a significant potential source of downstream battery demand.[41]

For the Project, the opportunity arises because artificial graphite is commonly used in the anodes of lithium-ion batteries deployed in stationary energy-storage applications. Continued expansion of utility-scale and behind-the-meter battery storage could therefore support demand for artificial graphite anode materials. Potential Project-level benefits include increased sales, improved production-capacity utilisation, greater customer diversification and access to growing stationary-storage supply chains.

Morocco's NDC 3.0 uses 2010 as the historical reference year and establishes a business-as-usual emissions scenario extending to 2035. Under the NDC, Morocco aims to reduce economy-wide net greenhouse gas emissions in 2035 by 21.6% relative to the projected business-as-usual level through unconditional measures, increasing to 53% subject to additional international support. To support this transition, Morocco aims to more than triple its renewable-energy capacity to over 15 GW by 2030 and identifies grid reinforcement and large-scale energy storage as important enablers of electricity-sector decarbonisation. Planned measures include a 350 MW pumped-storage hydropower project and a 1,500 MW battery-storage programme. The resulting expansion of battery-storage deployment may increase demand for lithium-ion battery materials, including graphite used in battery anodes. As the Project will produce artificial graphite anode materials for batteries used in electric vehicles and large-scale energy-storage systems, growth in battery-storage deployment in Morocco and other accessible markets may support product demand, production-capacity utilisation and long-term market development.[42]

The relationship between aggregate battery-storage capacity and demand for the Project's products is nevertheless indirect. Installed storage capacity may comprise lithium-ion batteries with different cathode and anode chemistries, as well as non-lithium-ion technologies such as pumped hydropower, flow batteries, compressed-air storage and thermal storage. Even within lithium-ion storage, improvements in energy density, battery lifetime, material efficiency, recycling and second-life battery use may influence the quantity of new anode material required per unit of installed capacity.

The Project's ability to realise the opportunity will also depend on customer qualification, product specifications, production costs, product carbon footprint, supply reliability and competition from other artificial and natural graphite suppliers. Aggregate market growth will not automatically benefit the Project if its products do not meet the relevant technical, sustainability and commercial requirements of stationary battery manufacturers.

Worldwide installed battery-storage capacity is therefore used as a directional proxy for the

[39] https://www.iea.org/reports/electricity-grids-and-secure-energy-transitions
[40] https://www.irena.org/Publications/2019/Feb/Innovation-landscape-for-a-renewable-powered-future
[41] Batteries and Secure Energy Transitions – Analysis - IEA
[42] unfccc.int/sites/default/files/resource/MAR_LTS_Dec2021.pdf

scale and pace of storage deployment under the CPS and NZE scenarios. The indicator does not distinguish between storage applications, battery chemistries, storage durations, anode materials, recycling or suppliers. It should not be interpreted as a direct forecast of artificial graphite demand, Project sales volumes or revenue.

The High Opportunity rating in 2035, 2040 and 2050 reflects the substantial scenario difference in installed battery-storage capacity and the potential revenue significance of storage-related battery demand. It does not indicate that the Project will automatically capture a corresponding share of global battery-storage growth. Realisation of the opportunity will depend on customer qualification, product-market alignment, competitive performance and access to relevant battery-storage supply chains.

4.3.5.3 RECOMMENDATIONS

The quantitative screening rates Increasing demand for battery energy storage as a High Opportunity in 2035, 2040 and 2050. This reflects the substantial difference in projected worldwide installed battery-storage capacity between the CPS and NZE scenarios, together with the potential revenue significance of storage-related battery demand. The rating represents the relative significance of the opportunity and does not constitute a forecast of Project sales or revenue.

The recommendations in TABLE 4-14 focus on evaluating and developing the Project's exposure to battery-storage markets through customer and market analysis, product qualification, technology monitoring, production planning and maintenance of competitive product performance.

TABLE 4-14 RECOMMENDATIONS TO ENHANCE THE OPPORTUNITY

Is this a Potential Opportunity to the Project?	Recommendations to Enhance the Opportunity
High Opportunity in 2035, 2040 and 2050	• Storage-Market and Customer Assessment: Periodically assess actual and forecast battery-storage demand by geography, customer, application, storage duration and battery chemistry. Evaluate the implications for potential sales, customer concentration, production-capacity utilisation and revenue. • Customer Qualification and Engagement: Engage with existing and prospective battery-cell and stationary-storage customers to understand technical specifications, qualification schedules, expected volumes, product carbon-footprint requirements and supply-chain expectations. • Product-Market Alignment: Assess whether the Project's artificial graphite products meet the performance, consistency, lifetime, safety and cost requirements of lithium-ion batteries used in stationary energy-storage applications. Maintain the capability to adapt product specifications where technically and commercially feasible.

Is this a Potential Opportunity to the Project?	Recommendations to Enhance the Opportunity
	• Technology Monitoring: Monitor developments in lithium-ion battery chemistries, anode technologies, long-duration storage, sodium-ion batteries, flow batteries, second-life batteries and other storage technologies that may affect future artificial graphite demand. • Production and Capacity Planning: Align production ramp-up, raw-material procurement and future capacity decisions with substantiated customer demand and qualification progress. Avoid assuming that aggregate growth in installed battery-storage capacity will automatically result in equivalent demand for the Project's products. • Competitive Carbon Performance: Continue improving energy efficiency, assess credible renewable or lower-carbon electricity procurement and maintain reliable product carbon-footprint information, particularly where stationary-storage customers consider lifecycle emissions and supply-chain sustainability in procurement decisions. • Opportunity Review Triggers: Reassess the opportunity where material changes occur in customer demand, storage technology, battery chemistry, anode-material intensity, recycling, second-life battery deployment, qualification outcomes or market-access conditions.

5. CLIMATE CHANGE RISK MANAGEMENT PLAN

This section presents the Climate Change Risk Management Plan ("CCRMP") for the Project. The CCRMP establishes the governance arrangements, management procedures, monitoring framework and Project-specific actions for managing physical and transition climate risks throughout the Project lifecycle.

Through implementation of the CCRMP, the Project Company will identify and assess climate-related risks that may affect the Project's assets, production equipment, utilities, energy and water supply, operational continuity, worker health and safety, environmental performance, supply chain and long-term financial resilience. Based on the assessment findings, the Project Company will implement proportionate measures to avoid, reduce, control, transfer or, where justified, accept identified risks and will monitor the implementation and effectiveness of these measures.

The CCRMP will be integrated into the Project's ESMS, design and procurement processes, operational procedures, emergency preparedness and response arrangements, and business-continuity planning. It will be updated, as necessary, following completion of detailed design, equipment selection and commissioning and will be periodically reviewed during Project operation.

5.1 DEFINED ROLES AND RESPONSIBILITIES

Climate change risk management will be integrated into the Project Company's organisational and management structure rather than implemented as a stand-alone function. Relevant responsibilities will be assigned to designated personnel before the commencement of operation and reflected in applicable job descriptions, management procedures and reporting lines. The Project Company may combine the responsibilities set out below where separate positions do not exist, provided that accountability, technical competence, reporting lines and oversight arrangements remain clearly defined.

TABLE 5-1 ROLES AND RESPONSIBILITIES

Roles	Responsibilities
Board of Directors / Senior Management	Provides overall oversight of material climate-related risks. Reviews significant climate risks, major capital requirements, GHG performance and implementation of the CCRMP. Ensures that climate-related considerations are integrated into the Project Company's risk-management and investment decision-making processes.
General Manager / Project Director	Accountable for implementation of the CCRMP at Project level. Ensures that adequate personnel, technical resources and budgets are available and that material climate-related issues are escalated to senior management.
EHS Manager	Coordinates implementation and periodic review of the CCRMP. Maintains the climate-risk register, coordinates GHG and climate-related reporting, tracks applicable regulatory and lender requirements, and monitors

Roles	Responsibilities
	implementation of mitigation and adaptation measures through the ESMS.
Engineering and Design Manager	Incorporates applicable climate-related requirements into design criteria, technical specifications, procurement documents and design reviews. Coordinates verification that Project design reflects the findings and recommendations of the CCRA.
Energy and Utilities Manager	Monitors electricity, fuel, water, compressed air, cooling and other utility consumption. Identifies and implements energy- and resource-efficiency opportunities and evaluates feasible renewable or lower-carbon energy-supply options.
Production Manager	Integrates energy efficiency, GHG reduction and applicable climate-risk controls into production planning and operating procedures. Monitors the performance of major energy-intensive processes and coordinates corrective actions where actual performance deviates materially from design assumptions or established targets.
Maintenance Manager	Implements preventive and predictive maintenance for equipment and systems relevant to energy efficiency and climate resilience. Ensures that relevant production, utility, protection and emergency systems remain functional and appropriately maintained.
Procurement and Supply Chain Manager	Integrates relevant climate-related requirements into supplier selection and contracting. Monitors material climate-related supply-chain risks and supports the development of alternative sourcing or contingency arrangements where required.
Finance and Risk Management Function	Evaluates the potential financial implications of material physical and transition climate risks. Supports climate-related capital planning, insurance reviews and integration of climate-related risks into the Project Company’s wider risk-management processes.
Human Resources and Training Function	Coordinates climate-related training and awareness activities. Ensures that relevant employees and contractors receive training on GHG management, resource efficiency, applicable climate-risk controls and emergency procedures.
Emergency Response Team	Implements emergency preparedness and response procedures for relevant climate-related events. Coordinates the protection of personnel and critical assets and liaises with the industrial-zone operator, emergency services and local authorities where necessary.

Roles	Responsibilities
Employees and Contractors	Follow applicable climate-risk management, energy-efficiency, water-management and emergency-response procedures. Report observed vulnerabilities, incidents, abnormal resource use and opportunities for improvement through established reporting channels.
External Experts and Consultants	Provide specialist climate assessment, engineering, energy, GHG accounting or assurance services where the required expertise is not available internally. Support periodic updates of climate-risk assessments and independent review of selected measures where appropriate.
Internal and External Auditors	Periodically review implementation of the CCRMP, climate-related data quality, compliance status and effectiveness of relevant controls. Report material findings and corrective actions to Project management.

5.2 GHG STRATEGY, POLICIES AND MANAGEMENT PROCEDURES

5.2.1 GHG REDUCTION STRATEGY

The Project's GHG reduction strategy will focus on managing its absolute GHG emissions and progressively reducing the GHG emissions intensity of anode-material production through efficient process design, operational optimisation, lower-carbon energy sourcing and continuous improvement.

Anode-material manufacturing may involve energy-intensive production stages, including thermal treatment, carbonisation, coating, drying, cooling, material handling and associated utility systems. Electricity and direct fuel use are therefore expected to represent important sources of the Project's operational GHG emissions. The Project Company will prioritise the avoidance of unnecessary energy demand, selection of energy-efficient equipment, optimisation of production processes, recovery and reuse of waste heat, and substitution of carbon-intensive energy sources where technically and financially feasible.

The Project Company will apply an emissions-reduction hierarchy. GHG emissions will first be avoided through appropriate process, equipment and energy-system selection and then reduced through operational controls and energy-efficiency improvements. Opportunities to recover energy, electrify suitable processes and procure renewable or lower-carbon electricity will subsequently be evaluated. Residual emissions will be monitored and periodically reviewed to identify further technically and financially feasible reduction opportunities.

Carbon credits will only be considered where BTR or the Project Company has formally adopted a relevant corporate climate target and where residual emissions cannot reasonably be avoided or reduced. Carbon credits will not substitute for technically and financially feasible reductions in the Project's own Scope 1 and Scope 2 emissions. Any future use of carbon credits will be subject to documented quality, eligibility, accounting and retirement criteria.

5.2.2 CLIMATE AND GHG POLICY

The Project Company will pursue GHG emissions reduction in line with Morocco's NDC and relevant national climate, energy-transition and low-carbon development policies. The Project Company will improve energy and resource efficiency, evaluate technically and financially feasible renewable and lower-carbon energy options, and seek to progressively reduce the GHG emissions intensity of anode-material production.

The Project Company will comply with applicable Moroccan legal and regulatory requirements relating to climate change, energy use, energy efficiency and GHG emissions, including applicable monitoring and reporting requirements. Material Scope 1 and Scope 2 GHG emissions will be quantified and monitored in accordance with a recognised GHG accounting methodology. The results will be used to establish performance indicators, identify reduction opportunities and support continuous improvement.

The findings and recommended measures of the CCRA will be incorporated into the Project's detailed design, procurement specifications, operational procedures, emergency preparedness and response arrangements, and ESMS, as applicable. Implementation will be supported by assigned responsibilities, measurable objectives, employee training, management review and appropriate internal and external reporting.

The Project Company will report its GHG emissions, reduction measures and progress against applicable targets to relevant authorities, lenders and BTR corporate functions in accordance with legal, financing and corporate reporting requirements. External disclosure will be undertaken where required under applicable legislation, financing agreements or BTR's approved corporate reporting framework.

Where BTR or the Project Company formally adopts a carbon-neutrality or net-zero target, the target will be supported by a clearly defined emissions boundary, baseline, target year, interim milestones, implementation pathway and governance arrangements.

5.2.3 MANAGEMENT APPROACH AND PROCEDURES

The Project Company will establish and maintain an operational GHG inventory in accordance with a recognised methodology, such as the GHG Protocol Corporate Standard. The inventory will cover material Scope 1 emissions from sources such as direct fuel combustion, refrigerant leakage, emergency generators, company-controlled vehicles and relevant production processes, if any, as well as Scope 2 emissions associated with purchased electricity. The organisational and operational boundaries, activity data, emission factors, calculation methods, assumptions, exclusions and data-quality controls will be documented. Where contractual renewable-electricity instruments are used, both location-based and market-based Scope 2 emissions will be reported in accordance with the applicable accounting methodology. Material Scope 3 categories, including purchased raw materials, inbound and outbound transportation and waste management, will be screened. Detailed quantification will be undertaken where the relevant categories are material and sufficiently reliable data are available, or where required under applicable regulatory, lender, corporate or customer requirements.

Once the final process design has been confirmed, the Project Company will establish a design-stage energy and GHG baseline based on the planned production capacity, expected electricity and fuel consumption, operating hours, process and utility energy balances, refrigerant use and applicable emission factors. The baseline will identify the Project's principal sources of

energy consumption and GHG emissions and will be verified and adjusted, where necessary, using actual operational data once production has stabilised. Based on the verified baseline, the Project Company will establish measurable and time-bound targets for material areas of climate and resource performance, including, as applicable, Scope 1 and Scope 2 emissions, GHG emissions intensity, energy and water consumption intensity, renewable-electricity use and implementation of identified improvement measures.

The Project Company will maintain a climate-risk register documenting the physical and transition risks identified through the CCRA and subsequent reviews, together with the affected assets or business functions, initial and residual risk ratings, selected risk responses, controls, responsibilities and implementation timelines. Risk responses will be selected based on the nature, likelihood, consequences and residual level of each risk. Mitigation and control will generally be prioritised before transfer or acceptance. The selected response, responsible function, implementation timeframe and residual risk rating will be documented in the climate-risk register. Material residual risks and overdue actions will be escalated to the appropriate level of management.

Climate-related considerations will also be integrated into the Project's management-of-change process. Proposed material changes to production technology, process parameters, production capacity, energy sources, major equipment, water systems, site arrangements, suppliers or logistics will be reviewed to determine whether they affect the Project's GHG emissions or physical climate-risk profile. Where a material effect is identified, the relevant baseline, climate-risk register and management measures will be updated before implementation. Relevant employees and contractors will receive training appropriate to their responsibilities, including training on GHG data management, resource-efficient operating practices and applicable climate-risk controls.

The Project Company will also monitor material transition risks arising from changes in energy prices, climate-related regulations, customer requirements, product carbon-footprint expectations and trade-related carbon measures. Relevant GHG data and notification requirements will be incorporated into material supplier and service contracts where appropriate. Environmental and GHG information will be obtained from key suppliers where required to support Scope 3 screening, product carbon-footprint calculations, customer reporting or compliance with applicable requirements.

TABLE 5-2 RISK RESPONSES METHODOLOGY

Risk Response	Details
Mitigation	Mitigation involves taking actions to avoid or reduce the causes or consequences of climate-related risks, including measures to reduce GHG emissions and measures to reduce exposure or vulnerability to physical climate hazards. The Project Company will implement the following measures, as applicable: • Emission and resource-source identification: Identify and periodically review material sources of GHG emissions and resource consumption, including purchased electricity, direct fuel combustion, production processes, refrigerant leakage and transportation. • Energy and process efficiency: Apply technically and financially feasible measures such as energy-efficient equipment, process

Risk Response	Details
	optimisation, preventive maintenance and waste-heat recovery. • Lower-carbon energy: Evaluate renewable-electricity procurement, on-site renewable generation, process electrification and other lower-carbon energy options. • Supply-chain management: Obtain relevant climate and GHG information from key suppliers, assess material value-chain emissions and encourage improvements in supplier environmental performance. • Employee engagement: Provide training and awareness programmes and implement operating procedures that promote energy conservation, efficient resource use and environmental accountability. • Carbon credits: Consider carbon credits only for residual emissions under a formally adopted corporate climate target. Carbon credits will not replace technically and financially feasible reductions in the Project's Scope 1 and Scope 2 emissions. Project-specific physical climate mitigation and adaptation measures will be addressed separately based on the findings and recommended measures of this CCRA.
Transfer	Risk transfer involves transferring or sharing part of the financial or operational consequences of climate-related risks with an external party. The Project Company will apply the following approaches, where appropriate: • Insurance: Periodically review the adequacy of insurance coverage for climate-related property damage, equipment failure, supply interruption and business interruption, taking into account the Project's risk profile and available insurance products. • Contractual arrangements: Include appropriate provisions in contracts with key suppliers, contractors, service providers and utility providers to define responsibilities for climate-related delays, interruptions, damages, notification requirements, force majeure events and continuity arrangements. • Warranties and performance guarantees: Use warranties and performance guarantees, where appropriate, to allocate risks associated with equipment performance under applicable operating and environmental conditions. • External technical services: Retain external specialists where necessary to provide climate assessments, engineering reviews, modelling or other specialist services. The use of insurance, contractual arrangements or external expertise will not transfer the Project Company's overall responsibility for climate-risk management. Risk transfer will complement, rather than replace, reasonable preventive and risk-reduction measures.

Risk Response	Details
Acceptance	Risk acceptance acknowledges that certain residual climate-related risks may remain after feasible mitigation, control and transfer measures have been considered. The following requirements will apply: • Risk-tolerance assessment: Confirm that the residual risk falls within the Project Company's approved risk tolerance and does not compromise legal compliance, worker safety, critical assets, environmental performance or operational continuity. • Treatment assessment: Demonstrate that additional mitigation or transfer is technically impracticable, unavailable or disproportionate to the expected reduction in risk. • Contingency planning: Establish appropriate monitoring, contingency, recovery or business-continuity arrangements for accepted risks. • Scenario analysis: Where relevant, assess whether critical functions can be maintained or restored following a climate-related disruption. • Approval and escalation: Document the justification for acceptance and obtain approval at the appropriate management level. High or otherwise material residual risks will be escalated to senior management. Risk acceptance will not be used to justify non-compliance with applicable legal, lender or internal requirements.
Control	Risk control involves systematically managing and monitoring climate-related risks to maintain them within approved levels. The Project Company will implement the following controls, as applicable: • Risk monitoring: Periodically review physical and transition risks, relevant climate information, regulatory developments, energy-market conditions, technology developments and customer requirements. • Operational controls: Incorporate applicable controls into design documentation, operating procedures, inspection and maintenance programmes, management-of-change procedures, emergency arrangements and corrective-action systems. • Reviews and audits: Conduct internal reviews and, where appropriate, external audits to evaluate whether mitigation and adaptation measures remain effective and are properly implemented. • Corrective-action management: Record identified deficiencies, assign responsibilities and deadlines, and track corrective actions through to closure. • Reporting: Report material climate-related risks, incidents, performance trends, overdue actions and management responses through established reporting arrangements. • Training: Provide relevant employees and contractors with training on applicable climate risks, operating controls and response procedures.

Risk Response	Details
	Project-specific physical climate-risk controls and associated monitoring requirements will be incorporated based on the findings and recommended measures of this CCRA.

5.3 MONITORING METRICS AND APPROACH TO SUPPORT IMPLEMENTATION

The Project Company will implement a monitoring framework to evaluate GHG emissions, energy and water performance, implementation of climate-related measures and the overall effectiveness of the CCRMP. The framework will cover the mitigation-related indicators set out below and Project-specific physical climate risk and resilience indicators derived from this CCRA.

5.3.1 KEY PERFORMANCE INDICATORS (KPIS)

The following KPIs will be used to monitor GHG emissions, emissions-reduction performance, energy and water efficiency, implementation of climate-related measures and operational resilience. Baselines, targets and monitoring frequencies dependent on final equipment specifications or stable production data will be confirmed during detailed design, commissioning or early operation, as applicable.

- GHG Emissions: The Project Company will quantify and monitor total Scope 1 and Scope 2 GHG emissions in tonnes of carbon dioxide equivalent (tCO_2e) in accordance with a recognised GHG accounting methodology. Scope 2 emissions will be reported using the location-based method and, where qualifying renewable-electricity procurement arrangements are used, the market-based method. The GHG inventory will cover material emission sources, including purchased electricity, direct fuel combustion, refrigerant leakage, emergency generators, company-controlled vehicles and relevant process emissions, if any.
- Emissions-Reduction Performance: The Project Company will monitor progress against its established GHG reduction targets and action plans. Performance will be assessed against the verified operational baseline using indicators such as total Scope 1 and Scope 2 emissions, GHG emissions intensity per tonne of anode material, and the completion rate of approved emissions-reduction measures. Material deviations from established targets will be investigated and addressed through corrective actions.
- Energy Efficiency: The Project Company will monitor total electricity and fuel consumption and their respective intensity per tonne of anode material. Energy performance will be tracked for major production and utility systems, including thermal treatment, carbonisation, coating, drying, cooling, ventilation, compressed air, pumping and material handling, where relevant. The monitoring results will be used to identify abnormal consumption, evaluate process efficiency and support energy-efficiency improvement measures.
- Renewable and Lower-Carbon Energy: The Project Company will monitor the proportion of electricity supplied through qualifying renewable-electricity arrangements and the associated location-based and market-based Scope 2 emissions, where applicable. Progress in assessing and implementing on-site solar photovoltaic generation, direct

renewable-electricity supply, power purchase agreements or other traceable lower-carbon electricity arrangements will also be tracked.

- Water and Resource Efficiency: The Project Company will monitor total water consumption, water consumption per tonne of anode material, and the quantity and proportion of water reused or recycled. Refrigerant replenishment and confirmed leakage will also be monitored in kilograms and converted into tCO_2e, where applicable. These indicators will support the identification of abnormal consumption, leakage and opportunities for improved resource efficiency.
- Implementation of Climate Measures: The Project Company will monitor the number and proportion of approved climate mitigation and resilience measures completed within their specified timeframes. Overdue measures, implementation constraints and required corrective actions will be recorded and reported to the responsible management functions.
- Operational Resilience: [Project-specific operational resilience KPIs to be inserted based on the physical climate risks and recommended measures identified in this CCRA.]
- Training and Preparedness: The Project Company will monitor the number and proportion of relevant employees and contractors who complete required climate-related training. Training indicators will cover, as applicable, GHG data management, energy- and water-efficient operating practices, implementation of climate-risk controls and climate-related emergency preparedness.
- Climate-Related Incidents and Corrective Actions: The Project Company will record climate-related incidents, near misses and associated operational downtime. It will also monitor the proportion of climate-related corrective actions completed within the specified timeframe. Material incidents, repeated events and overdue corrective actions will be escalated through the Project Company's management and risk-reporting procedures.

5.3.2 DATA COLLECTION AND REPORTING

Climate and resource-performance data will be obtained from controlled operational sources, including electricity and fuel meters, production records, water meters, refrigerant purchase and maintenance records, renewable-electricity documentation, equipment inspection and maintenance records, training records and incident-management systems. Major production lines and utility systems will be sub-metered where their energy or resource consumption is material and where the resulting information will support operational control and performance improvement.

The Project Company will define responsible data owners, collection frequencies, units of measurement, data sources, conversion factors, emission factors, calculation methodologies and quality-control procedures. Material assumptions, estimates, exclusions, uncertainties and data gaps will be transparently recorded. Data will be subject to periodic internal review, and material errors or inconsistencies will be investigated, corrected and documented.

CEMS data will be used only where relevant to regulated air pollutants or directly measurable process emissions. The Project's overall GHG inventory will primarily be calculated using metered electricity and fuel consumption, relevant process and production data, refrigerant records and recognised emission factors.

Operational energy, water and production-performance information will generally be reviewed monthly. GHG emissions will be consolidated at least annually, with more frequent calculations undertaken where required to support operational decisions, target monitoring, regulatory obligations, lender reporting or BTR's corporate reporting procedures.

5.3.3 INTERNAL REPORTING AND ESCALATION

Climate-related performance information will be communicated through the Project Company's established operational and management reporting channels. Relevant Production, Maintenance, Energy and Utilities, Procurement and EHS functions will review the indicators under their responsibility and report material deviations, incidents and overdue actions to the designated management level.

Consolidated climate-related performance will be reported periodically to the General Manager / Project Director and relevant BTR corporate functions. Material residual risks, significant climate-related incidents, persistent deviations from approved targets and overdue corrective actions will be escalated in accordance with the Project Company's risk-management and escalation procedures.

5.3.4 CONTINUOUS IMPROVEMENT

The Project Company will periodically compare actual energy, water and GHG performance against design assumptions, established operational baselines and approved targets. Material deviations will be investigated to determine their underlying causes, and corrective or improvement measures will be assigned, tracked and completed within an appropriate timeframe.

Periodic energy and water reviews or audits will be undertaken to identify additional efficiency opportunities. The Project Company will also monitor relevant developments in production technology, energy markets, renewable-energy procurement, climate regulation, GHG accounting standards, customer expectations and product carbon-footprint requirements. Technically and financially feasible improvements will be incorporated into updated targets, action plans and operating procedures.

Lessons learned from detailed design, commissioning, operational experience, incidents, audits and corrective actions will be used to update the CCRMP. Feedback from employees, contractors, technical specialists and other relevant parties will also be considered where it can improve climate-related performance or management effectiveness.

5.4 PROJECT-SPECIFIC MITIGATION AND RESILIENCE MEASURES

The Project Company will implement Project-specific measures to manage the climate-related risks identified through this CCRA. Section 5.4.1 sets out the principal measures for managing the Project's GHG emissions and supporting lower-carbon production. Section 5.4.2 establishes the arrangements for implementing the physical climate resilience recommendations identified in Section 3.4. Detailed hazard-specific risks, affected risk areas and recommended actions are presented in the relevant subsections of Section 3.4 and are not repeated in this section.

5.4.1 CLIMATE CHANGE MITIGATION MEASURES

The Project Company will incorporate energy-performance requirements into the design, procurement, commissioning and operation of major production and utility equipment.

Particular attention will be given to thermal treatment, carbonisation, coating, drying, cooling, ventilation, compressed air, pumping and material-handling systems. Energy-efficient motors, variable-frequency drives, efficient cooling and ventilation systems and effective thermal insulation will be adopted where technically and financially feasible. Appropriate metering and sub-metering will be installed for material energy-consuming production lines and utility systems.

During operation, the Project Company will optimise process temperatures, residence times, equipment loading, production scheduling and start-up and shutdown arrangements. Preventive and predictive maintenance will be implemented to minimise efficiency losses associated with furnaces, dryers, cooling systems, compressors, motors, pumps, ventilation equipment and other material energy-consuming systems. Periodic energy reviews and audits will be used to compare actual performance against design assumptions, operational baselines and established targets and to identify additional opportunities for improvement.

Opportunities to recover heat from high-temperature process exhaust and cooling streams will be evaluated during detailed design and subsequent operational reviews. Potential uses may include material preheating, drying, hot-water production or other suitable process requirements. Technically and financially feasible waste-heat recovery measures will be incorporated into the detailed design or subsequent improvement plans. Where immediate installation is not feasible, the Project Company will consider reserving appropriate space and system interfaces to facilitate future installation.

The Project Company will avoid unnecessary dependence on coal, fuel oil and other carbon-intensive fuels. The technical and financial feasibility of electrifying process heat and utility systems will be evaluated, and available lower-carbon alternatives will be assessed with reference to their technical suitability, reliability, safety, availability and associated GHG emissions. Long-life thermal equipment will be selected with consideration of its potential compatibility with future electrification or lower-carbon energy sources. Technology choices that would materially restrict feasible future decarbonisation will be avoided where reasonable alternatives are available.

The Project Company will assess the technical and commercial feasibility of on-site solar photovoltaic generation, direct renewable-electricity supply, power purchase agreements and other traceable renewable-electricity procurement arrangements. Renewable-electricity claims will be supported by credible contractual documentation and energy-attribute instruments consistent with the applicable GHG accounting methodology. Renewable-electricity options will be periodically reassessed as Morocco’s electricity market, grid infrastructure and renewable-energy framework develop.

Cooling and air-conditioning systems will use refrigerants with lower global-warming potential where technically suitable, safe and commercially available. An inventory of refrigerant-containing equipment and associated refrigerant quantities will be maintained. Refrigerant purchases, replenishment, recovery and disposal will be recorded, equipment will be routinely inspected for leakage, and identified leaks will be repaired in a timely manner.

5.4.2 CLIMATE RESILIENCE MEASURES

The Project Company will manage the physical climate risks identified in this CCRA through the implementation of the Project-specific recommendations set out in Section 3.4. These recommendations address the Project’s exposure and vulnerability to extreme heat, extreme

cold, pluvial flooding, extreme winds, wildfire-weather conditions, and water stress and drought. The relevant risk ratings affected risk areas and recommended next steps are presented in Sections 3.4.1 to 3.4.6 and will not be repeated in this section.

Priority will be given to the risks identified as most material to the Project, particularly water stress and drought, pluvial flooding and extreme heat. The Project Company will also maintain proportionate controls for extreme winds, wildfire-weather conditions and occasional extreme cold. The applicable recommendations will be incorporated into detailed design, procurement, construction and maintenance requirements, operating procedures, preventive-maintenance programmes, emergency preparedness and response arrangements, and business-continuity planning, as appropriate.

The principal Project-specific resilience measures and their corresponding assessment sections are summarised below:

- Extreme heat: Thermal resilience of critical electrical, control, cooling, ventilation and wastewater-treatment systems will be verified, and occupational heat-stress controls will be implemented as described in Section 3.4.1.3.
- Extreme cold: Proportionate cold-weather protection, condensation management, equipment inspection and worker-protection measures will be maintained as described in Section 3.4.2.3.
- Extreme rainfall and pluvial flooding: Site drainage and pumping capacity, flood protection of critical equipment, stormwater and wastewater management, emergency containment and construction-phase drainage controls will be verified and implemented as described in Section 3.4.3.3.
- Extreme winds: Structural and non-structural wind resilience, equipment-specific operating limits, stop-work requirements and inspection procedures for exposed assets and activities will be maintained as described in Section 3.4.4.3.
- Wildfire-weather conditions: Proportionate fire-prevention, smoke and particulate management, weather monitoring and emergency-response measures will be maintained as described in Section 3.4.5.3.
- Water stress and drought: Water-use efficiency, recycling and reuse, external supply monitoring, contingency water arrangements and staged water-scarcity response measures will be implemented as described in Section 3.4.6.3.

For each material action, the climate-risk register will identify the relevant hazard and affected asset or function, responsible owner, implementation timeframe, required evidence of completion, monitoring arrangements and residual risk rating. Measures dependent on final design, equipment selection, utility-provider information or commissioning data will remain open in the climate-risk register until the required verification has been completed.

The implementation and effectiveness of the resilience measures will be periodically reviewed through inspections, performance monitoring, incident review, management review and, where appropriate, internal or external audit. The measures will be updated following material changes in Project design or operation, significant climate-related events, material utility interruptions, or relevant changes in climate projections or applicable requirements.

5.5 EXTERNAL REPORTING AND CCRMP REVIEW

The Project Company will prepare consolidated climate-related reports covering material physical and transition climate risks, Scope 1 and Scope 2 GHG emissions, GHG emissions intensity, energy and water performance, progress against established targets, implementation of mitigation and resilience measures, climate-related incidents, corrective actions and material residual risks. The reporting boundary, calculation methodologies, emission factors, assumptions, exclusions and material data limitations will be documented, as applicable.

Relevant information will be submitted to competent Moroccan authorities, lenders and BTR corporate functions in accordance with applicable legal, financing and corporate requirements. External disclosure will be undertaken where required by applicable legislation, financing agreements, BTR's corporate reporting framework or approved Project commitments. Climate-related reporting will be coordinated with the Project Company's wider environmental, social and corporate reporting processes to ensure consistency and avoid unnecessary duplication.

The CCRMP will be reviewed following material changes in detailed design, equipment selection, production processes, production capacity or energy arrangements; after commissioning and stabilisation of production; following material climate-related incidents; and when relevant legal, regulatory, corporate or lender requirements change. During operation, the CCRMP will be formally reviewed at least once every three years unless more frequent review is required.

Updates will reflect actual energy, water and GHG performance, changes in the Project's climate-risk profile, implementation of the measures identified through this CCRA, audit findings, incidents, regulatory developments and lessons learned. Material revisions will be approved by the designated Project management authority and communicated to relevant employees, contractors and external parties responsible for implementation.

6. COMPATIBILITY WITH NATIONAL CLIMATE COMMITMENTS

Morocco's climate policy commitment is built on successive Nationally Determined Contributions (NDCs) under the United Nations Framework Convention on Climate Change (UNFCCC), complemented by sectoral strategies on energy transition, water resource management, forestry, and sustainable economic development. These commitments aim to reduce national greenhouse gas emissions and strengthen resilience to climate impacts, in line with the Paris Agreement objectives. Governance mechanisms include a national climate commission for coordination, integration of climate objectives into sectoral plans, and monitoring systems aligned with UNFCCC transparency requirements.

Morocco has progressively raised its climate ambition through successive NDCs. Its first NDC, submitted in 2016, established an unconditional target to reduce GHG emissions by 17% below the business-as-usual ("BAU") scenario by 2030, increasing to 42% with international support. In 2021, Morocco submitted an updated NDC that increased these targets to 18.3% and 45.5%, respectively. [43] On 30 September 2025, Morocco submitted its NDC 3.0, covering the period from 2026 to 2035. It establishes an unconditional economy-wide target to reduce net GHG emissions by 21.6% below the BAU scenario by 2035 and a further conditional reduction of 31.4%, bringing the overall reduction target to 53%, subject to additional international support. The NDC covers the energy, industrial processes and product use, agriculture, forestry and other land use, and waste sectors. [44]

The transformation of Morocco's electricity system is central to these commitments. Morocco is targeting more than 52% renewable energy in installed electricity-generation capacity by 2030, while NDC 3.0 aims to increase installed renewable-energy capacity to more than 15 GW by 2030, supported by additional storage and grid development. It also identifies a phase-out of coal-fired power generation by 2040 conditional on international support. Continued power-sector decarbonisation remains necessary because coal accounted for approximately 64% of Morocco's electricity generation in 2023.[45] Industry is directly covered by Morocco's economy-wide mitigation commitments. The consistency of new industrial developments with the national climate pathway therefore depends on their process efficiency, the carbon intensity of the electricity and fuels consumed, their direct process emissions and their ability to progressively reduce emissions over their operating lives. These considerations are particularly relevant to energy-intensive manufacturing activities, including lithium-ion battery-material production.

Adaptation and climate resilience are also central to Morocco's climate commitments, historically accounting for more than 60% of climate-related expenditure. This emphasis reflects Morocco's high vulnerability to water scarcity, desertification, and climate-sensitive sectors such as agriculture and tourism. Water resources have declined from 22 billion m^3 in the 1970s to less than 15 billion cubic meters today, and per capita availability has fallen from 2,600 m^3 in 1960 to approximately 700 m^3 per person in 2025. Agriculture consumes more than 80% of water withdrawals, exacerbating stress during drought periods.[46] Priority

[43] Nationally Determined Contribution - NDC | Climate Policy Database
[44] Morocco's NDC 3.0 – Setting ambition in tripling renewables, coal phaseout, adaptation action and a spotlight on loss and damage
[45] https://www.imalinitiative.org/post/morocco-s-ndc-3-0-setting-ambition-in-tripling-renewables-coal-phaseout-adaptation-action-and-a
[46] New Data Shows Morocco at High Climate Risk as Water Resources Fall Sharply

adaptation measures include expanding desalination and wastewater reuse, modernising irrigation systems, constructing dams and aquifer recharge facilities, and implementing coastal protection and fisheries modernisation programs. Morocco also plans to expand forest cover by planting 600,000 ha and protecting 1.5 million hectares from erosion.[47] Economic studies estimate that water scarcity could reduce Morocco's GDP by 0.7% under moderate warming and up to 1.3% under high warming scenarios by 2050, underscoring the importance of integrating water-efficient technologies into industrial projects.[48]

These priorities are consistent with the World Bank's Morocco Country Climate and Development Report, which identifies the management of water scarcity and drought, increased resilience to flooding and economy-wide decarbonisation as three central elements of Morocco's climate-resilient development pathway.[49]

Against this national policy context, the Project's compatibility with Morocco's mitigation commitments has been assessed with reference to its contribution to low-carbon value chains, operational GHG emissions, energy sources, technology choices and potential for carbon-intensive lock-in.

6.1 ALIGNMENT WITH MITIGATION GOALS

The anode materials produced by the Project will form part of the supply chain for batteries used in electric mobility and energy-storage applications, which support the wider transition towards low-GHG energy and transport systems. The Project is therefore broadly consistent with Morocco's objective of developing higher-value industrial activities associated with low-carbon technologies.

However, the Project's contribution to the battery value chain does not, in itself, establish alignment with the mitigation goals of the Paris Agreement. Anode-material manufacturing is an energy-intensive industrial activity, and the alignment assessment must therefore consider the Project's own operational GHG emissions, energy sources, technology choices and potential for carbon-intensive lock-in.

Against this national policy context, the Project's operational energy consumption, GHG emissions performance and ability to avoid carbon-intensive lock-in are directly relevant to its compatibility with Morocco's mitigation pathway.

The Project's principal operational emissions are expected to arise from purchased electricity and direct fuel consumption associated with production processes and supporting utilities. Their significance will depend on the final process configuration, equipment selection, production profile and energy-supply arrangements. Morocco's planned expansion of renewable electricity may progressively reduce the carbon intensity of grid electricity, but future grid decarbonisation should not be treated as the sole basis for demonstrating alignment. Changes in the Project's electricity-related emissions should be assessed using updated and authoritative grid emission factors or supported by documented renewable-electricity procurement arrangements.[50]

Section 5 establishes the Project's Climate Change Risk Management Plan, including the

[47] World Bank Document
[48] New Data Shows Morocco at High Climate Risk as Water Resources Fall Sharply
[49] Morocco Country Climate and Development Report
[50] unfccc.int/sites/default/files/2025-10/MOROCCO NDC 3.0 30.9.25.pdf

arrangements for GHG accounting, energy and emissions management, performance monitoring, evaluation of lower-carbon energy options and management of transition and lock-in risks. Implementation of the CCRMP will provide the basis for verifying whether the Project's actual energy use and GHG performance remain consistent with its design assumptions and Morocco's low-GHG development pathway.

Based on the available information, the Project is not expected to undermine Morocco's national mitigation objectives. Its contribution to the battery-material value chain is consistent with the direction of Morocco's low-carbon industrial transition, and the Project is not among the activities identified as universally inconsistent with the mitigation goals of the Paris Agreement. Nevertheless, this conclusion is conditional on the final process and energy configuration avoiding material and unnecessary dependence on carbon-intensive fuels or infrastructure and on effective implementation of the GHG and energy-management arrangements established in the CCRMP.

Subject to verification of the final process and energy configuration and effective implementation of the CCRMP, the Project is considered capable of alignment with Morocco's national mitigation commitments and the mitigation goals of the Paris Agreement. This conclusion will be reviewed if the final configuration introduces material carbon-intensive lock-in or if actual operational performance differs materially from the established energy and GHG baseline.

6.2 ALIGNMENT WITH ADAPTATION AND CLIMATE-RESILIENCE GOALS

Morocco's national climate commitments identify water security, drought resilience, management of extreme rainfall and flooding, climate-resilient infrastructure, and protection of public and occupational health from climate-related hazards as important adaptation priorities. These priorities are directly relevant to the Project because the physical CCRA identifies water stress and drought, extreme rainfall and pluvial flooding, extreme heat and extreme winds as the principal hazards requiring Project-level management. Wildfire-weather conditions are identified as an emerging but comparatively lower risk, while extreme cold and localised erosion can be managed through proportionate routine controls.

Water stress and drought represent the Project's most significant chronic physical climate risk. The Project will rely on water supplied through the Tanger Med Utilities network for cooling, relevant production and environmental-control activities, cleaning, domestic use and firefighting. Although the Project does not propose direct abstraction from a natural water body, dependence on an external utility supply does not remove its exposure to regional water scarcity, prolonged drought, growth in competing demand or potential supply restrictions. The Project's alignment with Morocco's water-resilience priorities will therefore depend principally on effective water-demand management, reliable external supply, maintenance of circulating-water systems, implementation of technically feasible recycling and reuse measures, and establishment of contingency arrangements for water-supply constraints.

The Project design includes features that can support water resilience, including recirculation of cooling water, separate domestic and industrial wastewater-treatment systems, potential reuse of suitably treated wastewater, and monitoring and control arrangements for water and wastewater systems. These features are consistent with Morocco's policy direction of improving water-use efficiency and expanding wastewater reuse. However, their contribution to climate resilience should be verified through completion of a comprehensive Project water balance,

confirmation of actual recycling and reuse rates, assessment of external supply reliability, and development of staged operating procedures for drought and temporary water-supply restrictions.

The Project is also exposed to extreme rainfall and pluvial flooding. The proposed separation of stormwater and wastewater, wastewater equalisation capacity, liquid-level alarms, standby pumping, accident-water containment and rainwater-monitoring facilities provide a basis for reducing the potential consequences of intense rainfall and localised flooding. These measures are directionally consistent with Morocco's objectives for improved flood-risk management and climate-resilient infrastructure. Their adequacy nevertheless remains dependent on verification of site grading, drainage and pumping capacity, finished floor and equipment elevations, protection of critical electrical and control equipment, and the capacity of containment systems under the extreme rainfall conditions identified in the CCRA.

Projected increases in the duration and frequency of extreme-heat conditions may affect outdoor workers, cooling and ventilation systems, electrical and control equipment, and wastewater-treatment performance. The Project's planned occupational heat controls, equipment monitoring, ventilation, cooling-water recirculation and preventive-maintenance arrangements support Morocco's climate-resilience and health-protection objectives. During detailed design and commissioning, the ambient-temperature ratings and thermal margins of critical equipment should be confirmed against the projected climate conditions, with additional thermal-management or operating controls implemented where required.

Extreme-wind risks are concentrated primarily in construction and temporary maintenance activities, work at height, lifting operations, temporary structures and wind-sensitive non-structural components. Compliance with applicable structural design requirements, together with equipment-specific wind limits, stop-work criteria, securing of temporary materials and post-event inspection, will support consistency with the national objective of strengthening infrastructure resilience and emergency preparedness.

The CCRMP provides the management framework through which these adaptation and resilience measures will be incorporated into design verification, procurement, operating procedures, preventive maintenance, emergency preparedness, climate-risk monitoring and management review. It also requires outstanding matters dependent on detailed design or commissioning information to be recorded in the climate-risk register and tracked through to closure.

Based on the available information, the Project's proposed design and management approach are broadly consistent with the direction of Morocco's national adaptation and climate-resilience priorities. This conclusion is conditional on timely implementation of the Project-specific measures identified through the physical CCRA and confirmation of the outstanding technical matters, particularly the Project water balance, external water-supply reliability, drainage and flood-protection capacity, equipment temperature margins, and wind resistance of exposed and non-structural components.

Alignment should not be treated as a one-time determination. The Project Company should review this conclusion following completion of detailed design and commissioning, after material climate-related incidents or utility interruptions, and where material changes occur in Project operations, water-supply conditions, national adaptation policy or relevant climate projections. Where the review identifies increased exposure or insufficient performance of

existing controls, the CCRMP and associated resilience measures should be updated accordingly.

6.3 OVERALL CONCLUSION

This Climate Change Risk Assessment has evaluated the Project's exposure to physical and transition climate risks and reviewed the proposed arrangements for managing these risks throughout the Project lifecycle.

The principal physical climate risks requiring Project-level management are water stress and drought, extreme rainfall and pluvial flooding, extreme heat, and extreme winds. Water stress and drought represent the most significant chronic risk because the Project depends on externally supplied water for cooling, selected production and environmental-control activities, cleaning, sanitation and firefighting. Extreme rainfall may affect drainage, low-level equipment, wastewater systems and site access, while extreme heat may affect workers, cooling systems, electrical equipment, ventilation and wastewater treatment. Extreme-wind risks are concentrated primarily in construction activities, lifting, work at height, temporary structures and wind-sensitive non-structural components. Wildfire exposure remains comparatively low but warrants continued monitoring.

The Project includes measures that provide a basis for managing these risks, including recirculating cooling water, wastewater treatment and potential reuse, stormwater and wastewater separation, emergency containment, equipment monitoring, standby systems and occupational health and safety controls. Their effectiveness should be confirmed through detailed design, commissioning and operational monitoring, particularly in relation to water balance, drainage capacity, equipment design margins and utility reliability.

The Project is exposed to transition risks associated with its substantial electricity demand and Scope 2 emissions, including potential increases in energy and compliance costs and the need for investment in energy-efficiency and lower-carbon technologies. At the same time, growth in electric mobility and energy-storage markets may create opportunities for the Project through increasing demand for anode materials.

Overall, the Project is considered capable of managing the identified climate risks, subject to effective implementation of the Climate Change Risk Management Plan and completion of the recommended technical verification and management actions. The Project is broadly consistent with the direction of Morocco's low-carbon industrial transition, although continued compatibility with national mitigation and adaptation priorities will depend on measurable progress in energy efficiency, GHG management, lower-carbon electricity sourcing, water resilience and climate-risk monitoring.

APPENDIX A-1 DEFINITIONS OF ALL CLIMATE HAZARDS INCLUDED WITHIN THIS ASSESSMENT

Climate Hazard	Definition	Standard Climate Indicator Used to Represent that Climate Hazard
Extreme Heat	Extreme heat is defined as a period of time when temperatures are much hotter and/or more humid than long-term averages. Because some places are hotter than others, this depends on what's considered average for a particular location at that time of year (WMO, 2021).	**Warm Spell Duration Index (WSDI)**: ***Baseline & Projections:*** The annual number of days contributing to unusually warm events where six or more consecutive days experience a maximum temperature (TX) of greater than the 90th percentile of the historical averages for that time of year. - ***Baseline period****:* 1985-2014 - ***Unit:*** Days - ***Future time horizons***: 2030s (2015-2044), 2050s (2035-2064)
		Maximum Daily Temperature ***Baseline & Projections:*** The highest daily maximum temperature within a time horizon. - ***Baseline period****:* 1985-2014 - ***Unit:*** Days ***Future time horizons***: 2030s (2015-2044), 2050s (2035-2064)
		Human Heat Stress Index ***Baseline & Projections:*** The number of days when the apparent temperature is above 35°C. - ***Baseline period****:* 1985-2014 - ***Unit:*** Days ***Future time horizons***: 2030s (2015-2044), 2050s (2035-2064)
Extreme Cold	Extreme cold is defined as a period of time when temperatures are much cooler than long-term averages. Because some places are colder than others, this depends on what's considered average for a particular location at that time of year (WMO, 2021).	**Minimum Daily Temperature** ***Baseline & Projections:*** The lowest daily minimum temperature within a time horizon. - ***Baseline period****:* 1985-2014 - ***Unit:*** Days ***Future time horizons***: 2030s (2015-2044), 2050s (2035-2064)

Climate Hazard	Definition	Standard Climate Indicator Used to Represent that Climate Hazard
Riverine Flooding	Riverine flooding can occur over a wide range of river and catchment systems. Floods in river valleys occur mostly on flood plains or wash lands as a result of flow exceeding the capacity of the stream channels and spilling over the natural banks or artificial embankments (WMO, 2011). High levels of rainfall and increased flow velocity often contribute to river flooding events.	**Riverine flooding inundation depth:** ***Baseline & Projections:*** Baseline & Projections: The maximum inundation depth experienced within a 150 m x 150 m area that is associated with a 1-in-500-year fluvial (riverine) flooding event. - ***Baseline year****:* 2020 - ***Unit:*** Metres - ***Future time horizons***: 2030s (2015-2044), 2050s (2035-2064)
Extreme Rainfall Flooding	Extreme rainfall flooding occurs where high-intensity rainfall exceeds the capacity of the drainage systems. Intense rainfall over the urban area may cause flooding of streets and property in low-lying areas, in old waterways, underpasses and depressions in highways. Often such flooding is exacerbated by debris that clogs inlets to pipes and channels, or outlets of retention basins (WMO, 2011).	**Pluvial flooding inundation depth:** ***Baseline & Projections:*** The maximum inundation depth experienced within a 150 m x 150 m area that is associated with a 1-in-500-year pluvial (extreme-rainfall-induced) flooding event. - ***Baseline period****:* 2020 - ***Unit:*** Metres - ***Future time horizons***: 2030s (2015-2044), 2050s (2035-2064)
		Maximum 1-day rainfall: ***Baseline & Projections:*** The annual maximum amount of rainfall to fall in a single day (24 hours) with a 500-year return period. - ***Baseline period****:* 2020 - ***Unit:*** Metres - ***Future time horizons***: 2030s (2015-2044), 2050s (2035-2064)
Coastal Flooding	In coastal areas, storm surges caused by tropical cyclones, tsunamis or rivers swollen by exceptionally high tides can cause	**Coastal flooding inundation depth:** ***Baseline:*** The maximum inundation depth associated with a 1-in-500-year

Climate Hazard	Definition	Standard Climate Indicator Used to Represent that Climate Hazard
	coastal flooding. Storm surges and high winds coinciding with high tides are the most frequent cause of this type of flooding. The surge itself is the result of the raising of sea levels due to low atmospheric pressure (WMO, 2011).	coastal flooding event within a 150 m x 150 m area as a result of historical sea level rise, land subsidence, storm surges and/or high tide events. ***Projections:*** The maximum inundation depth associated with a 1-in-500-year coastal flooding event within a 150 m x 150 m area as a result of projected sea level rise, land subsidence, storm surges and/or high tide events. - ***Baseline year:*** 2020 - ***Unit:*** Metres - ***Future time horizons***: 2030s (2015-2044), 2050s (2035-2064)
Tropical Cyclones	The general term for a strong, cyclonic-scale disturbance that originates over tropical oceans. Distinguished from weaker systems by exceeding a threshold wind speed. A tropical storm is a tropical cyclone with one-minute average surface winds between 18 and 32 m s-1. Beyond 32 m s-1, a tropical cyclone is called a hurricane, typhoon or cyclone, depending on geographic location (IPCC, 2018). The Saffir-Simpson Hurricane Wind Scale is a 0 (Tropical Storm) to 5 (High-Intensity Cyclones) categorisations based on the hurricane's intensity. The scale provides examples of the type of damage and impacts in the United States associated with winds of the indicated intensity (NOAA, 2021).	**Maximum tropical cyclone wind speed: *Baseline:*** The maximum sustained wind speed associated with being within 200 km of a tropical cyclone event. ***Projections:*** The maximum sustained wind speed associated with being within 200 km of a tropical cyclone, based on cyclone basin-specific tropical cyclone projections generated using AR6 global mean surface temperature projections. - ***Baseline period****:* 1980-2020 - ***Unit:*** Knots - ***Future time horizons***: 2030s (2015-2044), 2050s (2035-2064)
Rainfall-Induced Landslides	Landslides are local events and usually unexpected. They occur when earthquake, heavy rain, rapid snow, ice melt or an overflowing crater lake loosens vulnerable parts	**Rainfall-Induced Landslide Index (RILI):** ***Baseline & Projections:*** The annual number of days with a potential chance

Climate Hazard	Definition	Standard Climate Indicator Used to Represent that Climate Hazard
	of the landscape on steep slopes, resulting in large amounts of earth, rock, sand or mud flowing swiftly down slope. Hillsides or mountain sides that are bare or have had their vegetation cover degraded through clearance or by forest or brush fires may be especially at risk. They can reach speeds of over 50 km/h and can bury, crush or carry away people, objects and buildings (WMO, 2021). The assessment focuses on the risk of climate driven landslides, i.e., extreme rainfall.	of a rainfall-induced landslide event. This index is developed using antecedent rainfall index (weighted summation of daily rainfall amounts) and landslide susceptibility (based on slope, faults, geology, forest loss, and road networks). - ***Baseline period**:* 1985-2014 - ***Unit:*** Number of days with a potential chance of a landslide event - ***Future time horizons***: 2030s (2015-2044), 2050s (2035-2064)
Wildfire Weather	A wildfire is categorised as such by any unplanned and/or uncontrolled vegetation fire, including management-ignited vegetation fires that exceed the restrictions in the fire plan and require suppression actions (UN, 2021).	**Forest Fire Danger Index (FFDI):** ***Baseline & Projections:*** The annual number of days with fire-permitting climatic conditions. This index is based on the McArthur Forest Fire Danger Index (FFDI; widely used in Australia for several decades) and combines a record of dryness, based on rainfall and evaporation, with meteorological variables for wind speed, temperature and humidity. - ***Baseline period:*** 1985-2014 - ***Unit:*** Number of days with fire-permitting climatic conditions - ***Future time horizons***: 2030s (2015-2044), 2050s (2035-2064)
		Historical Maximum Burned Area (Baseline only): The maximum area that has been burned by any fire type within a 30km^2 area. - ***Baseline period:*** 1989-2018 - ***Unit:*** Hectares

Climate Hazard	Definition	Standard Climate Indicator Used to Represent that Climate Hazard
Water Stress & Drought	Water stress is typically defined by water availability and use. Water stress occurs when the demand for water exceeds the available amount during a certain period or when poor quality restricts its use (EEA, no date). Drought is a prolonged dry period in the natural climate cycle that can occur anywhere in the world. It is a slow-onset phenomenon caused by a lack of rainfall (WMO, 2021).	**Water Stress:** ***Baseline:*** Water stress measures the ratio of total water withdrawals to available renewable surface and groundwater supplies. Water withdrawals include domestic, industrial, irrigation, and livestock consumptive and non-consumptive uses. Available renewable water supplies include the impact of upstream consumptive water users and large dams on downstream water availability. ***Projections:*** Projected water stress estimates the future competition for water resources and is defined as the ratio of demand for water by human society divided by available water. - ***Baseline period:*** 1960-2014 - ***Unit:*** Categorical - ***Future time horizons***: 2030s (2015-2044), 2050s (2035-2064)

APPENDIX A-2 KEY CONSIDERATIONS AND SUPPORTING QUESTIONS WHEN CONDUCTING PHYSICAL CCRA'S – AS PER EP4 GUIDANCE

What are the current and anticipated Physical Risks of the Project's operations?	
<u>Acute</u> Increased frequency and severity of: **- Wildfires** **- Flooding - Storms/Cyclones** **- Heatwaves** **<u>Chronic</u>** - Changes in precipitation patterns resulting in **drought or water stress** - **Rising mean temperatures** **- Sea level rise** (i.e. in coastal zones, designated flood zones, areas vulnerable to storm surge)	**What are potential Physical Risks for the Project?** • Based on current climate conditions and long-term climate projections (if available), are there any potential Physical Risks that are known or forecast to get worse in the Project's location? • Is the Project highly reliant on a resource that could be impacted by climate change, like water or changes to land use? • Is the Project in a location more vulnerable to climate change, such as a low-lying area, coastal area or flood zone? • Is this Project in an industry or geographic location where climate and weather variation are already having impacts? Are such impacts likely to be exacerbated over time? **How could the identified Physical Risks impact on the Project?** • What would be the impact? Damage to assets, loss of operation, delays for customers, impact on suppliers, increased operating costs, or impact on the surrounding business, environment and communities? • How material would this be to the Project's operations? Supply chain? Revenues (if known)? • Would climate vulnerabilities and risks inform the design, siting and analysis of alternatives of the Project? Would physical climate impacts result in impacts on community, business or customers? e.g., greater competition over water resources • Would physical climate impacts increase the vulnerability of certain groups? • Would these impacts be severe enough to affect the license to operate of the Project Sponsor or the Project?

ERM is a leading global provider of environmental, health, safety, risk, social consulting services and sustainability related services. We have more than 8,000 people in 35+ countries and territories working out of over 140 offices. ERM is committed to providing a service that is consistent, professional and of the outstanding quality to create value for our clients.

Shanghai Office

Suite 2005A,
Litong Plaza,
No. 1350 Sichuan North Road,
Shanghai 200080 China

T: +86 21 5385 3050

Beijing Office

Unit A, 10th Floor, Tower B,
Gateway Plaza,
No. 18 Xia Guang Li,
North Road East Third Ring,
Chaoyang District,
Beijing 100027 China

T: +86 10 8440 0686

Guangzhou Office

Room 120, 66th Floor,
No. 28 Zhujiang East Road,
Tianhe District,
Guangzhou 510000, China

T: +86 20 6299 5392

www.erm.com

APPENDIX D POTENTIAL BIRD LIST IN THE REGION

Scientific name	Common name	Phenological status	IUCN June 2024	National status (Law 29-05)
Alectoris barbara	Barbary Partridge	RB	LC	Game species
Coturnix coturnix	Common Quail	BM/RB, PM, WV	LC	Game species
Mareca strepera	Gadwall	WV, OB	LC	Game species
Anas platyrhynchos	Mallard	RB, WV	LC	Game species
Spatula clypeata	Northern Shoveler	WV, PM, OB	LC	Game species
Anas acuta	Northern Pintail	WV, PM, OB	LC	Game species
Anas crecca	Common Teal	WV, PM	LC	Game species
Marmaronetta angustirostris	Marbled Duck	RB, WV, PM	NT	P
Aythya ferina	Common Pochard	WV, PM, OB	VU	Game species
Aythya nyroca	Ferruginous Duck	RB, WV	NT	P (CCI)
Oxyura leucocephala	White-headed Duck	WV, RB, PM?	EN	P (Anx I)
Ciconia nigra	Black Stork	PM, OW	LC	P (Anx I)
Ciconia ciconia	White Stork	PM, BM, WV	LC	PI
Plegadis falcinellus	Glossy Ibis	PM, WV, OB	LC	P
Platalea leucorodia	Eurasian Spoonbill	PM, WV, RB	LC	P (Anx II)
Ixobrychus minutus	Common Little Bittern	PM, BM, OW	LC	P
Nycticorax nycticorax	Black-crowned Night Heron	PM, BM, OW	LC	P
Bubulcus ibis	Cattle Egret	RB, PM, WV	LC	P
Ardea cinerea	Grey Heron	PM, WV, OB	LC	P
Ardea purpurea	Purple Heron	PM, BM, OW	LC	P
Egretta garzetta	Little Egret	RB, PM, WV	LC	P
Pernis apivorus	European Honey-buzzard	PM	LC	P (Anx II)
Elanus caeruleus	Black-winged Kite	RB	LC	P (Anx II)
Milvus milvus	Red Kite	WV, FB/RB?	LC	P (Anx I)
Milvus migrans	Black Kite	PM, BM, OW	LC	P (Anx II)
Neophron percnopterus	Egyptian Vulture	PM, BM, OW	EN	P (Anx I)
Gyps fulvus	Griffon Vulture	PM, WV, FB/OB	LC	P (Anx II)
Aegypius monachus	Cinereous Vulture	PAV, FB	NT	P (Anx I)
Circaetus gallicus	Short-toed Snake Eagle	PM, BM, OW	LC	P (Anx II)
Circus aeruginosus	Western Marsh–harrier	RB, WV, PM	LC	P (Anx II)
Circus cyaneus	Hen Harrier	WV	LC	P (Anx II)
Circus pygargus	Montagu's Harrier	PM, BM	LC	P (Anx II)

Accipiter nisus	Eurasian Sparrowhawk	RB, WV, PM	LC	P (Anx II)
Accipiter gentilis	Northern Goshawk	RB, WV	LC	P (Anx II)
Buteo buteo	Eurasian Buzzard	WV	LC	P (Anx II)
Buteo rufinus	Long-legged Buzzard	RB	LC	P (Anx II)
Aquila fasciata	Bonelli's Eagle	RB	LC	P (Anx I)
Hieraaetus pennatus	Booted Eagle	PM, BM, OW	LC	P (Anx II)
Falco naumanni	Lesser Kestrel	PM, BM, OW	LC	P (Anx I)
Falco tinnunculus	Common Kestrel	RB, PM, WV	LC	P (Anx II)
Falco eleonorae	Eleonora's Falcon	BM, PM	LC	P (Anx I)
Falco columbarius	Merlin	WV	LC	P (Anx II)
Falco subbuteo	Eurasian Hobby	PM, BM, OW	LC	P (Anx II)
Falco peregrinus	Peregrine Falcon	RB, PM, WV	LC	P (Anx I)
Tetrax tetrax	Little Bustard	RB, WV	NT	P (Anx I)
Porphyrio porphyrio	Purple Swamphen	RB	LC	P (Patr)
Gallinula chloropus	Common Moorhen	RB, WV	LC	NP
Fulica cristata	Red-knobbed Coot	RB	LC	P
Fulica atra	Eurasian Coot	RB, WV	LC	Game species
Grus grus	Common Crane	WV	LC	P
Charadrius hiaticula	Common Ringed Plover	PM, WV	LC	P
Charadrius alexandrinus	Kentish Plover	RB, PM, WV	LC	P
Scolopax rusticola	Eurasian Woodcock	WV	LC	Game species
Gallinago gallinago	Common Snipe	WV, PM	LC	Game species
Limosa limosa	Black-tailed Godwit	PM, WV	NT	Game species
Numenius arquata	Eurasian Curlew	PM, WV	NT	P
Tringa totanus	Common Redshank	PM, WV	LC	P
Tringa nebularia	Common Greenshank	PM, WV	LC	P
Columba livia	Rock Dove	RB	LC	Game species
Columba palumbus	Common Woodpigeon	RB, WV	LC	Game species
Streptopelia turtur	European Turtle-dove	BM, PM, OW	VU	Game species
Streptopelia decaocto	Eurasian Collared-dove	RB	LC	NP
Tyto alba	Common Barn-owl	RB	LC	P (Anx II)
Otus scops	Cyprus Scops-owl	PM, BM, OW?	LC	P (Anx II)

Strix aluco mauritanica	Maghreb Tawny Owl	RB	LC	P (Anx II)
Athene noctua	Little Owl	RB	LC	P (Anx II)
Asio otus	Long-eared Owl	RB	LC	P (Anx II)
Asio flammeus	Short-eared Owl	WV, PM	LC	P (Anx II)
Tachymarptis melba	Alpine Swift	PM, BM	LC	P
Apus apus	Common Swift	PM, BM, OW	LC	P
Apus pallidus	Pallid Swift	BM, PM	LC	P
Apus caffer	White-rumped Swift	BM, PM	LC	P
Coracias garrulus	European Roller	PM, BM	LC	P
Alcedo atthis	Common Kingfisher	RB, WV	LC	P
Merops apiaster	European Bee-eater	PM, BM, OW	LC	P
Upupa epops	Common Hoopoe	PM, BM, OW	LC	P
Jynx torquilla	Eurasian Wryneck	PM, WV	LC	P
Picus vaillantii	Maghreb Green Woodpecker	RB	LC	P (Patr)
Lanius meridionalis	Iberian Grey Shrike	PAV	VU	NP
Lanius senator	Woodchat Shrike	BM, PM	NT	P
Oriolus oriolus	Eurasian Golden Oriole	BM, PM	LC	P
Coloeus monedula	Western Jackdaw	RB	LC	NP
Corvus corone	Carrion Crow	PAV	LC	NP
Corvus corax	Common Raven	RB	LC	NP
Cyanistes caeruleus	Eurasian Blue Tit	PAV?	LC	NP
Calandrella brachydactyla	Greater Short-toed Lark	PM, BM, OW	LC	P
Galerida cristata	Crested Lark	RB	LC	P
Galerida theklae	Thekla's Lark	RB	LC	P
Alauda arvensis	Eurasian Skylark	WV, RB	LC	NP
Pycnonotus barbatus	Common Bulbul	RB	LC	NP
Hirundo rustica	Barn Swallow	PM, BM, OW	LC	P
Ptyonoprogne rupestris	Eurasian Crag Martin	WV, RB	LC	P
Delichon urbicum	Northern House Martin	PM, BM, OW	LC	P
Cecropis daurica	Red-rumped Swallow	PM, BM, OW	LC	P
Cettia cetti	Cetti's Warbler	RB, WV?	LC	P
Phylloscopus collybita	Common Chiffchaff	WV, PM	LC	P

Phylloscopus bonelli	Western Bonelli's Warbler	BM, PM, OW	LC	P
Cisticola juncidis	Zitting Cisticola	RB, WV	LC	P
Sylvia borin	Garden Warbler	PM, OW	LC	P
Curruca undata	Dartford Warbler	RB, WV	NT	P
Curruca conspicillata	Spectacled Warbler	BM/RB, PM, WV	LC	P
Curruca melanocephala	Sardinian Warbler	RB, WV	LC	P
Turdus merula	Eurasian Blackbird	RB, WV?	LC	NP
Turdus philomelos	Song Thrush	WV, PM	LC	Game species
Erithacus rubecula	European Robin	WV, RB	LC	P
Luscinia megarhynchos	Common Nightingale	BM, PM	LC	P
Phoenicurus moussieri	Moussier's Redstart	RB	LC	P
Saxicola rubetra	Whinchat	PM, OW	LC	P
Saxicola rubicola	European Stonechat	RB, WV	LC	P
Oenanthe oenanthe	Northern Wheatear	PM, OW	LC	P
Oenanthe leucura	Black Wheatear	RB	LC	P
Passer domesticus	House Sparrow	RB, WV	LC	NP
Motacilla flava	Western Yellow Wagtail	PM, BM/RB, WV	LC	P
Motacilla cinerea	Grey Wagtail	RB, WV	LC	P
Motacilla alba	White Wagtail	WV, RB, PM	LC	P
Anthus pratensis	Meadow Pipit	WV, PM	LC	P
Anthus trivialis	Tree Pipit	PM, OW	LC	NP
Fringilla coelebs africana	Common Chaffinch	RB, WV	LC	P
Serinus serinus	European Serin	RB, WV	LC	P
Chloris chloris	European Greenfinch	RB, WV	LC	P (CCI)
Carduelis carduelis	European Goldfinch	RB, WV	LC	P (CCI)
Linaria cannabina	Common Linnet	RB, WV	LC	P
Coccothraustes coccothraustes	Hawfinch	RB, WV	LC	P
Emberiza sahari	House Bunting	RB	LC	NP

ERM is a leading global provider of environmental, health, safety, risk, social consulting services and sustainability related services. We have more than 8,000 people in 35+ countries and territories working out of over 140 offices. ERM is committed to providing a service that is consistent, professional and of the outstanding quality to create value for our clients.

Shanghai Office

Suite 2005A,
Litong Plaza,
No. 1350 Sichuan North Road,
Shanghai 200080 China

T: +86 21 5385 3050

Beijing Office

Unit A, 10th Floor, Tower B,
Gateway Plaza,
No. 18 Xia Guang Li,
North Road East Third Ring,
Chaoyang District,
Beijing 100027 China

T: +86 10 8440 0686

Guangzhou Office

Room 120, 66th Floor,
No. 28 Zhujiang East Road,
Tianhe District,
Guangzhou 510000, China

T: +86 20 6299 5392

www.erm.com