



UzAssystem

SURKHANDARYA (1600 MW) CCPP PROJECT

Non-Technical Summary

ASE-UZA-571-REP-NTS-0003-00

Rev	Date	Purpose of issue	Issuer	Checker	Approver
0	25/07/2022	Initial issuance	B.KADIOĞLU M.ACIRLI	H.BEKAR	A. PONSARDIN

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Abbreviations & Definitions

%	Percent
°C	Centigrade Degree
AAS	Atomic Absorption Spectrometry
ACC	Air-Cooled Condenser
AEL	Air Emission Limits
AIIB	Asian Infrastructure Investment Bank
AQMS	Air Quality Monitoring Station
BREFs	Eu Best Available Techniques Reference Documents
BWO	Basin Water Office
CAREC	Central Asia Regional Economic Cooperation
CCGT	Combined Cycle Gas Turbine
CCCP	Combined Cycle Power Plant
CE	Critically Endangered
CH₄	Methane
CITES	Convention On International Trade In Endangered Species Of Wild Fauna And Flora
CR	Critical
dB	Decibel
DCS	Distributed Control System
dm	Decimeter
E	East
E&S	Environmental And Social
EHS	Environmental Health And Safety
EIA	Environmental Impact Assessment
EBRD	European Bank of Reconstruction and Development
EP	Equator Principles
ESIA	Environmental And Social Impact Assessment
ESMS	Environmental And Social Management System
ESP	Environmental and Social Policy
ESS	Environmental and Social Standards
EU	European Union
EU BAT	European Union Best Available Techniques
EW	Extinct In The Wild
EX	Extinct



F	Fluoride
FGD	Focus Group Discussions
g	Gram
GBV	Gender Based Violation
GDP	Gross Domestic Product
GIIP	Good International Industry Practice
GN	Guidance Notes
GOST	Gosudarstvennyy Standart
GOU	Government Of The Republic Of Uzbekistan
GSE	General Secondary Education
GT	Gas Turbine
HAZMAT	Hazardous Material
Hg	Mercury
HRSG	Heat Recovery Steam Generator
Hz	Hertz
IBA	International Bird Area
ICWC	Interstate Coordination Water Commission Of Central Asia
IEC	International Electrotechnical Comity
IFC-PS's	International Finance Corporation Project Standards
IFI	International Financial Institutions
ILO	International Labor Organization
IPCC	Intergovernmental Panel On Climate Change
ISO	International Organization for Standardization It Is a Worldwide Federation of National Standards Bodies (ISO Member Bodies). The Work Of Preparing International Standards Is Normally Carried Out Through ISO Technical Committees.
IT	Information Technology
IUCN	International Union For Conservation Of Nature
KBA	Key Biodiversity Area
kg	Kilogram
Khokim	The Heads Of Local District, City And Regional Administrator Appointed By The Central Government (Governor Of Region)
LA_{eq}	Equivalent Continuous Sound Level
LA_{max}	Maximum Equivalent Continuous Sound Level
LC	Least Concern
LCP	Large Combustion Plant
LRP	Livelihood Restoration Plan



MW	Megawatt Watt Is A Unit Of Power In The International System Of Units (1 MW = 10 ⁶ Watt)
NEGU	National Electric Grid of Uzbekistan
N₂O	Nitrous Oxide
NO₃-N	Nitrate Nitrogen
NTS	Non-Technical Summary
NW	Northwest
O'z DST	Uzbekistan State Standard
O'z O'U	Uzbekistan O'lchov Uslubiyati
O₂	Oxygen
OHL	Overhead Transmission Line
OHSAS	Occupational Health And Safety Assessment Series
OHS	Occupational Health and Safety
OM	Oliy Majlis Supreme Assembly Of Parliament Of Uzbekistan
OVOS	OVOS National Acronym For EIA
P	Phosphorus
PZVOS	National Acronym Of The Concept Statement On Environmental Impact
RUz	Republic of Uzbekistan
SanPin	Sanitary Norms And Regulations Of The Russian Federation
SC	State Committee
SCEEP	The State Committee on Ecology and Environmental Protection
SCNP	The Main Governmental Organization Responsible For Nature Protection In Uzbekistan
SEC	Statement on Environmental Consequences
SEE	State Environmental Expertise
SEP	Stakeholder Engagement Plan
SIA	Social Impact Assessment
SO₂	Sulfur Dioxide
SPT	Standard Test Method for Standard Penetration Test
ST	Steam Turbine
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission For Europe
UNFCCC	United Nations Framework Convention On Climate Change
UNGP	United Nations Guiding Principles On Business And Human Rights
UzRDB	Uzbekistan Red Data Book
Viloyat	Region
VOC	Volatile Organic Compounds

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VR	Vulnerable
VU	Vulnerable
W	West
WBG	World Bank Group
ZEP	National Acronym Of The Statement On Environmental Consequences
ZVOS	National Acronym Of The Statement On Environmental Impact



1. Background

1.1 Introduction

The Government of the Republic of Uzbekistan aims to modernize and increase electricity production in the country to foster economic growth. In addition, Uzbekistan is actively involved in energy trading with neighboring countries and is an active participant in the Central Asia Regional Economic Cooperation (CAREC). In 2008, the CAREC countries defined their long-term strategy for developing the region's energy sector as "to ensure energy security through the balanced development of the region's energy infrastructure and economic growth through energy trade." Uzbekistan would like to increase the amount of gas exported to the region, and so any reduction in domestic gas consumption means that there is more gas available for export.

In line with the national energy strategy, the Ministry of Energy has signed an agreement with Stone City Energy for designing, financing, building, commissioning, operating, and managing the 1,600MW power plant for 25 years.

Stone City Energy (hereinafter referred as the Project Company) B.V. is a special purpose company, which operates in the fields of electricity generation and distribution. The company was formed in May 2019 in the Netherlands with the headquarters in Rotterdam to serve as a base for the consortium that will finance, project, construct and operate combined cycle gas turbine power plants and distribution in Uzbekistan. The launch is scheduled for 2025. The project will introduce the latest technologies, including advanced HL class steam-gas units of the HL class (manufactured by Siemens Energy).

The CCPP (Combined Cycle Power Plant) that will be built in Surkhandarya is using the latest technologies and innovations and operates with an efficiency of 63%. In addition, it will allow saving 1.1 billion cubic meters of natural gas against an annual consumption of 2.2 billion cubic meters. The Surkhandarya CCPP is a stand-alone project that does not serve any specific industry but will increase the efficiency of the power generation sector in Uzbekistan, ensure grid stability and reliable power supply.

1.2 Land Ownership Status

The land provided for the Project is from Surkhandarya regional reserve and was not under possession by any individual and legal entity. According to the decision of the Surkhandarya Region Khokim, dated 30 August 2021, the Project area of 70 ha is allocated for the construction of a CCPP with the capacity of 1600 MW. The decision was disclosed through unified portal of Ministry of Justice (<https://e-qaror.gov.uz>).



1.3 E&S Studies

The Surkhandarya CCCP 1600 MW Project is considered as Category I of environmental impact with a high risk according to the Law "On Environmental Expertise" and the Decree of the Cabinet of Ministers of 07.09.2020 No541 on "further improvement of the mechanism of environmental impact assessment". Hence, first stage of the Environmental Impact Assessment report (national acronym - PZVOS) was developed for this facility and a positive Conclusion of the State Environmental Expertise of the Republic of Uzbekistan No.04-01/10-08-1655 dated September 29, 2021 was obtained. As the Stage III of national EIA process the 'Statement on Environmental Consequences' ('ZEP' is the national acronym) represents the final stage of national EIA process and it will be conducted before the project is commissioned.

UzAssystem has been appointed by the Project Company in June 2021 to undertake an Environmental and Social Impact Assessment Report (ESIA) in compliance with the Asian Infrastructure Investment Bank (AIIB) Environmental and Social Policy (ESP) and International Finance Corporation (IFC) Standards for the Project.

In line with the international standards the Project is considered as "Category A" and the ESIA study has included following deliverables:

- Scoping Report
- ESIA Disclosure Package including:
 - ESIA Report including Environmental and Social Management Plan
 - This Non-Technical Summary (NTS)
 - Stakeholder Engagement Plan (SEP)

The ESIA Disclosure Package will be disclosed to public by the Project Company and the Lenders for a period 60 days. The NTS and SEP have been translated into Uzbek and Russian as per the relevant requirements of the international standards.

The ESIA Report has been prepared by Uzassystem based on the outcomes of the Scoping Report (finalized in July 2021), technical Project documentation provided by the Project Company, publicly available information, outcomes of the stakeholder consultations, findings of the baseline studies performed in 2021 and assessment of Project's likely impacts and/or risks in accordance with internationally accepted methodologies as part of the ESIA process. The ESIA Report will be updated based on the feedback received during the disclosure period and further surveys to be conducted in October 2022.

As part of the ESIA study, a stand-alone Stakeholder Engagement Plan is developed.

The Project Company will be responsible to implement described measures to mitigate the potential impacts in the ESIA Report. In addition, the Project Company is in charge to comply with the relevant national legislation, IFC PSs and AIIB Environmental and Social Policy and to ensure that all contractors that provide services to the Project Company duly follow these requirements throughout the project life.



1.4 Baseline Studies

The ESIA has been prepared by a review of relevant desktop information as well as a series of physical site surveys which have been summarized in the relevant environmental and social impact assessment Sections of this report. The environmental baseline surveys carried out as part of the ESIA included is given in Table 1.

Table 1: Environmental and Social Baseline Surveys

Site Surveys	Period
Terrestrial Ecology Surveys	17 th July 2021
Irrigation Reservoir(lake)	15 th July 2021
Soil Survey	15 th July 2021
Groundwater and surface water sampling	9-16 th July 2021
Sediment and lake sampling	13 th July 2021
Zooplankton and phytoplankton sampling	13 th July 2021
Noise Monitoring Survey	10 th to 14 th July 2021
Air Quality Monitoring Survey	10 th to 16 th July 2021
Socio Economic Data Collection	28 th July 2021
Stakeholder Consultations	This has been completed with different stakeholders on July 2021 through official letters, calls and public consultation meetings conducted.
Livelihood Restoration Surveys	15 th October 2021
Terrestrial Flora and Fauna Survey	April 2022
Planned Additional Site Surveys	
Air Quality Monitoring Survey	20 th 2022-20 th August 2022
Noise Monitoring Survey	20 th to 23 rd July 2022 -
Socio Economic Data Collection	July 2022-August 2022
Terrestrial Flora and Fauna Survey	September 2022
Aquatic Survey	September 2022

It should be noted that air quality measurements were performed in line with GOST Standards via a local accredited laboratory by taking into consideration of the following issues;

- During the operation stage, the same measurement method will be followed, to assess the current air quality and the results will be submitted to the competent authority to ensure that the proposed mitigation measures are effective.
- There are no existing major sources of emission in the vicinity of the project area, although, not wholly representative of long-term conditions, short-term



measurements were deemed as acceptable to check if there exist any extreme unexpected conditions in the ambient air quality.

Based on desktop studies and field surveys, potential environmental and social receptors that are likely to be affected by the proposed Project are determined as per the type of the Project related activities. Accordingly;

- Air Quality: The AoI for the likely impacts on air quality is determined as 7 km by considering wind direction and nearby settlements.
- Noise Level: The AoI for the likely impacts on noise levels is determined as 4 km by considering noise emissions and nearby receptors.
- Ecology: The AoI for the likely impacts on ecological features is determined as per the Uchkizil Reservoir and its surrounding including the Project area.
- Surface Water: The AoI for the likely impacts on surface water is determined as per the Uchkizil Reservoir.
- Socioeconomy: The AoI for the likely impacts on social features is determined as per the settlements around the Project area and utilization purposes of the Uchkizil Reservoir.



- Surface water quality measurement results show exceedances of macronutrients such as phosphorus as well as chemical oxygen demand and biological oxygen demand in the Uchkizil reservoir and the Zang Canal. The exceedances might be caused by the surface runoff due to utilization of fertilizers on agricultural lands and other agricultural activities. The exceedance of chloride, cadmium, and mineralization in groundwater might be caused by both natural and anthropogenic sources like agricultural activities.
- Assessment of soil contamination and sediment in the Uchkizil reservoir show that sulphates the standards while heavy metals don't exceed the background concentrations.
- Ecological surveys revealed that there are no critical and endangered species are observed in and around of the project area. There is no critical habitat in the project area.
- The main discussions during the Focus Group Discussions (FGDs) were focused on the job opportunities that can arise due to the implementation of the project. Majority of the participants raised that rather than part-time basis job opportunities, full time daily shifts are crucial for them to sustain their economic independency. The main economic income of the women group is seasonal working in the agricultural activities and/or part-time working for house cleaning.

2. Project Information

2.1 Project Location

The Project site is located in the Angor district of the Surkhandarya region of the Republic of Uzbekistan, on the northeastern coast of the Uchkizil Reservoir, which is an off-stream reservoir type used for irrigation. The earth dam type Uchkizil reservoir is in operation since 1957.

Distance of the Project area to the regional center of Uchkizil village is approximately 2.0 km, and 14 km to Termez city centre.



Figure 2: Project Location (Regional Context)

The Site is at an average elevation of 337 m above sea level whereas the level of the Uchkizil Reservoir reserve is 318 m above sea level.

The project area can be considered as a flat terrain and there is no agricultural and/or economic activity within the project area. Project area consists mainly typical representatives of the flora of sandy and saline deserts of the southern part of Central Asia. Photos showing the project site are presented below.

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Figure 3: Project Area – General View (July, 2022)

The nearest residential buildings are located in the south (Uchkizil Village, ~1.4 km) and the west (Kattakum Village, ~1.0 km) (see Figure 4).



Figure 4: Project Location



2.2 Project Characteristics

The proposed Project is a Combined Cycle Power Plant (CCPP) project. The CCPP consists of two combine cycle gas turbines and a steam turbine (one unit). The baseload capacity of the Project is 1,600 MWe. The fuel to be used at the plant is natural gas and it will be supplied from a pipeline to be constructed by the Government. The electrical high voltage system of the plant will have a 500 kV grid connection with an air-insulated switchyard to be constructed in the Project area. The plant will have two transformers (600 MVA), two auxiliary transformers (27/44 MVA), and various auxiliary transformers.

The main features of the power plant is presented Table 2 and the simplified project layout is presented in Figure 5.

Table 2: Main characteristics of the designed combined cycle power plant

Feature	Description
Type of technology	Combined Cycle Power Plant
The total area of the allocated land for construction	73.4 hectares.
Number of units of combined cycle plants	2
Power Generation	1600 MW
Capacity of each unit	Gas Turbine – 551 MW Gas Turbine – 551 MW Steam Turbine – 538 MW
Configuration	2 Gas Turbines + 2 Heat Recovery Steam Generators + 1 Steam turbine
CCGT type	Siemens
CCGT efficiency	60%
Working hours per year	8000 h
Fuel	Natural gas
Natural gas consumption per hour	283.000 m ³ /h
Annual consumption of natural gas	283.000 m ³ /h x 8.000 h per year = 2.264.000.000 m ³ /year
Condenser cooling type	Water cooled
Cooling tower type	Dry cooler system
Source water - cooling water	Source water comes from the lake "Uchkizil"Uchkizil Reservoir
Initial water	Uchkizil Reservoir
Source of Raw Water	Uchkizil Reservoirake



Feature	Description
Process water - for boilers	Process demineralized water will be supplied from our own demineralization plant through a connection to the demineralized water system
Stack height	65 m
Stack diameter	8,24 m
Auxiliary equipment	<ul style="list-style-type: none"> - Feed Water and Steam System - Fuel Gas System Incl. Gas Compressor Station - Dry Cooler System - Closed Condenser System - Water Treatment System - Waste Water System - Sampling System - Dosing System - Firefighting System - Lifting System - Electrical System - Standby Diesel Generator - C&I System - Civil Works System
Number and type of transformers	2 transformers 600 MVA, 2 auxiliaries 27/44 MVA, various auxiliary transformers

The overall electrical efficiency of the proposed CCGT unit is ~ 60%. The proposed CCGT unit belongs to a relatively new type of power plant operating on natural gas. Combined-cycle power plants are designed to obtain the maximum (primary and secondary from hot exhaust gases) amount of electricity.

The following elements of the plant will also be part of the Project:

- Site entrance and security building;
- Administration building, offices and amenities;
- Central Control Room;
- HVAC system;
- Electrical Systems;
- Laboratory;
- Workshops;
- Warehouse and stores;
- Emergency Diesel Generator;
- Fire-fighting system; and
- Other mobile plant and vehicles.



A dedicated firefighting team will be based on-site during operations. A simplified version of the project layout is presented in Figure 5.



Figure 5 Simplified Version of the Project Layout

2.3 Workforce Requirements

It is expected the number of construction workers will be around 2050 during the peak period of the construction. It is expected that approximately 30 % of the workforce could be available to unskilled staff whereas the rest will require technical qualifications. It is foreseen that the ratio of foreign workers will be close to the number of local people to be employed. It is anticipated that the EPC Contractor will have approximately 130 people and the Project Company will have 10-15 permanent staff at the site during the construction stage.

During the operation phase of the proposed project, it is anticipated that the number of the workforce will be around 300 staff.

It should be noted that the given number of the workforce may change depending on Project needs during the construction and operation activities.



2.4 Accommodation and Logistics

It is planned that there will not be any accommodation facilities within the construction area. Based on the previous experiences in similar projects, it is expected the EPC contractor will arrange accommodation off-site and will use the existing housing compounds located in Termez. Since the EPC contractor has not been awarded yet, the location of such accommodation is not readily determined. However, it will be ensured that the Project Company will specify the standards of facilities for worker accommodation in line with the IFC/EBRD Worker Accommodation Guidelines.

The EPC contractor will provide the transfer of the workers to the construction site and will perform a Traffic and Logistics Study to assess roads and determine access requirements via other modes of transport. It is foreseen that the existing M-39 main road will be adequate during the construction activities and no additional access road will be opened to reach the project site

2.5 Project Schedule

It is anticipated that the construction activities of the project will start in 4th Quarter of 2022 and commissioning and testing of the power plant will be in August 2024. The key milestones of project timeline are given below.

Table 3 Key Milestones

Milestones	Date
Limited Notice to Proceed	September 2022
Notice to Proceed	October 2022
Site Preparation and Mobilization	November 2022
GT 1 Erection and Commissioning	August 2024
GT 2 Erection and Commissioning	October 2024
Scheduled Project Commercial Operation Date	October 2025

2.6 Project Alternatives

The project forms part of the Ministry of Energy's plan to increase and modernize electricity production in the country.

The project also forms part of the Strategy of Action for the Five Priority Development Areas of Uzbekistan (2017 -2021) to introduce new technologies for generating thermal energy as the Project is being implemented as heat recovery in order to generate electricity.

In 2018, Uzbekistan ratified the Paris Agreement and adopted a national commitment to reduce GHG emissions per unit of GDP by 10% of the 2010 level by 2030. In addition, In 2020, the Ministry of Energy published its plans for the Power capacity development in Uzbekistan for the 2020-2030 period in a document called "Concept note for ensuring electricity supply in Uzbekistan in 2020-2030". The document talks in length about Uzbekistan's plans to rebuild its existing power plants, invite private power developers to take part in the power sector development to increase the power production capacity, lays out the



plans for reforms, etc. The Concept Note states that “*Construction of a 1300MW TPP utilizing CCGT technology is planned in Kashkadarya or **Surkhandarya** regions to be commissioned in 2025-2026.*”

Taking into consideration of Uzbekistan’s national electricity strategy, “Do-Nothing scenario” is considered as not applicable alternative, since it does not align with objectives of the Ministry of Energy. Besides, the project will lead decommissioning of inefficient existing thermal power plants and will contribute to the effective use of natural gas resources that will result in decreasing CO₂/kWh intensity.

The Project Company will meet the requirements described in the EU Best Available Techniques Reference Document prepared for Large Combustion Plants, 2017. The project will use most advanced technologies that are currently available to reduce environmental impacts.

2.7 Associated Facilities

The ESIA study evaluated the scope of the associated facilities in line with the AIIB Environmental and Social Policy. There are three facilities that are considered in the assessment.

- Air insulated substation, wherein the electric power will be evacuated from the Project.
- 9 km overhead transmission lines (OHL) connecting between the substation and the existing grid facilities.
- Gas pipelines and the gas distribution station that feeds the gas to the Project.

According to the analysis, the substation will be built within the project area, hence impacts and mitigations measures associated with the substation are included in the ESIA study. The 9-km OHL is considered Associated Facility in accordance with lenders’ standards while the gas pipelines are not. Thus, the gas pipelines are not considered in the scope of this ESIA study. However, the Project Company will not have any control or influence on the overhead transmission line. Therefore, a brief explanation on likely impacts and risks of the overhead electricity transmission lines are summarized in the ESIA study. Requirements in accordance with the national environmental legislation should be followed during the construction and operation of these facilities and relevant impact assessment studies are conducted. Mitigations for addressing those impacts and risks will be recommended to the proponent of the 9-km OHL.



3. Assessment and Management of E&S Impacts

3.1 Air Quality

During construction phase, local ambient air quality may potentially be affected by increased dust, particularly during the site preparation stage (site clearance and earthworks etc.) and by the exhaust gas of construction vehicles, equipment and temporary power generators. The typical air emissions resulting from these activities include nitrogen oxides (NO_x), sulphur dioxides (SO₂), carbon monoxide (CO), carbon dioxide (CO₂), volatile organic compounds (VOC), particulates and benzene, toluene, ethylbenzene and xylene (BTEX).

Sources of air emissions during construction phase include:

- Excavations and earthworks (dust),
- Vehicle movements on unpaved, or compacted roads and surfaces (dust);
- Particulate matter dispersion from uncovered truckloads;
- Vehicle and construction equipment emissions (e.g. NO_x, SO_x and CO, CO₂, VOCs, particulates and BTEX) and particulates from vehicles, generators and other mechanical equipment;
- Stored VOCs and other volatile hazardous materials (VOCs) and;
- Odour from temporary wastewater facilities, or containment.

Excavations and earthworks cause dust which typically comprises large diameter particles, settle rapidly and close to the source. In addition to vehicle movements on unpaved surfaces, dust generation from truck movements and particulate dispersion from truckloads would only occur where mitigation measures are not effectively implemented at the site, or by contractors bringing materials to the site.

Uncontained and/or un-sheeted trucks may be subject to losses of material where the containment is not effective (e.g. spills), or where wind or other air turbulence may disturb the contents and result in dispersion of materials. Such impacts have the potential to degrade local air quality in the immediate area of such movements.

The operation of construction vehicles and fuel consuming construction equipment will be the only sources of gaseous emissions during construction phase

Dusty material stockpiles (i.e. any fine powders and sand) dust generating activities will be to be located away from the site boundaries and be contained to avoid dust dispersion during storage or use. Exhaust fumes and particulates emitted from trucks and vehicles will be minimized by ensuring the use of good condition vehicles (e.g. compliant to vehicle emission requirements).

Activities associated with the operational phase of the Project will result in the emissions of gaseous pollutants from the operation of the CCGT power blocks. These emissions will occur under combined cycle operating modes using natural gas fuel only. Impacts from the CCGT are likely to be associated with emissions from the two main stacks associated with the HRSG.



During the operation phase, the key pollutants arising from natural gas combustion and emitted via the stacks will be oxides of nitrogen (NO and NO₂) and carbon monoxide (CO). The use of natural gas is generally accepted as being preferred over fuel oils or other solid fuels and there will be no (or negligible) emissions content of SO₂ and no particulates.

A detailed air quality dispersion modelling assessment has been undertaken to determine impacts associated with the proposed Project. The key pollutants considered in this assessment are: oxides of nitrogen (NO_x) and carbon monoxide (CO) are the key pollutants emitted from combustion of natural gas that may potentially lead to exceedances of any relevant standards. Predicted concentrations are compared with the most stringent applicable standards and guidelines incorporated into Uzbekistan law and, the International Finance Corporation (IFC) guidelines.

According to modelling results, for all periods highest level concentration values are under both National Ambient Air Quality Standards, IFC/WB EHS Guideline Fundamental Principles and EU Environmental Standards.

During commissioning, the stack emissions will be tested for NO, NO₂, CO to ensure that the control systems are operating correctly and that emission values comply with applicable standards and guidelines.

During operation there will be continuous emission monitoring system (CEMS) of stack emissions of NO, NO₂ and CO to ensure compliant conditions are maintained through appropriate process controls.

3.2 GHG Emissions and Climate Change

During the construction and operation phases, significant amount of direct and indirect GHG gases (namely CH₄, CO₂, N₂O, SF₆, HFCs, PFCs and NF₃) are released due to earthworks, cement and steel use, maintenance activities, stationary combustion of natural gas, vehicles and equipment that works with diesel fuel. Greenhouse gases of the project through its life cycle calculated by establishing a system boundary with cradle to gate approach. Having considered only on-site emissions, all GHG emission estimations are calculated in CO₂ equivalent with conversion factors of EPA by using existing data.

Table 4: Summary of GHG emissions estimated for construction phase

Item	Estimated GHG in tons of CO ₂ equivalent (for 1-year activity)
Scope 1 – combustion of fuel	244.5
Scope 2 – purchased electricity	1573
Scope 3 – water supply	4.3
Annual Total	1822 tons of CO₂ equivalent

The total estimated GHG emission for operation phase is summarized in the table below.



Item	Estimated GHG in tons of CO2 equivalent (for 1-year activity)
Scope 1 – combustion of fuel	4.63 x10⁶
Scope 2 – purchased electricity	230.6
Scope 3 – natural gas supply	826,182
Scope 3 – water supply	89.4
Annual Total	5.46 x 10⁶ tons of CO2/year
Total Emission during operation phase (25 years)*	5.46 x 10⁶ x 25 = 136.5 x 10⁶ tons = 0.136 Gigatons

A Climate Risk Assessment has been carried out which identified the major climate risks will include increased temperature, water scarcity, change in water temperature, increased flooding and flash flooding and extreme weather events. The Project has adopted climate resilience design, including a closed-loop cooling system for condensers minimizing process water consumption. Additional climate change adaptation measures are recommended to the design team.

3.3 Noise and Vibration

The main noise sources during construction phase are the heavy machineries to be used in construction activities. Construction activities in relation to noise and vibration are likely to include:

- Site Preparation
- Civil Works
- Construction and mechanical Installation;
- Internal Road Paving/Compacting; and
- Works at associated facilities; and
- Movement of vehicles (on and off-site)

Four receptors were selected in regards to assessment of noise generated during the construction and operation of the projects. Three of these receptors are residential areas in the vicinity of the project area whereas the remaining one is the waste processing facility approximately 250 m away from the project area.

Based on the calculations, noise levels during construction phase of the project is under the limit values specified for the day and night time in both national and international limits. In addition to this, it is stated in IFC's EHS Guidelines that noise levels should not result in a maximum increase in background levels of 3 dB at the nearest receptor location off-site. and the calculations revealed that there is no any increase in background levels of 3 dB.



In regards to operation, the design of the project includes selection of state-of-art technologies to have low noise level equipment to prioritise the reduction of noise at the source. Where noise levels exceed 80dB(A), additional mitigation measures will be taken to reduce noise at source. Additionally, noise protection devices will be provided to personnel on-site and the area marked as a high-noise zone where ear protection is mandatory. Based on the calculations, noise levels during operation phase of the project are under the limit values specified for the day and night time in both national and international limits.

3.4 Water Resources and Wastewater Management

During construction, the main activities that could negatively impact the aquatic life and water quality can be listed as follows:

- Laying of the outfall and water intake pipelines to the reservoir;
- Water usage for construction and domestic purposes
- Groundwater dewatering discharge on the reservoir banks from the construction activities on site;
- Habitat fragmentation as a result of construction of the intake and outfall.
- Discharge of dust into air and water due to heavy duty vehicles and working machines activities.
- Erosion due to soil movement in case unappropriated management of top soil, surplus soil, dumpsites and borrow pits.

At the construction stage of the Plant, water is mainly needed to prepare mortars, as well as to irrigate the territory in order to reduce dusting on the construction site. In addition, household and drinking water needs will consist of drinking needs, showers, and cooking. The water needs during construction phase will be supplied from the nearby districts via trucks. The drinking water will be supplied by bottled water from the market.

Therefore, no water is planned to be supplied from both Uchkizil reservoir and groundwater during the construction phase of the Project. On the other hand, the water will be supplied from the Uchkizil Reservoir during the commissioning phase.

The total water consumption during the construction is calculated as 168.98 m³/day (29,347.88 m³/year), of which for production needs - 8.773 m³/day. or 3202.5 m³/year; household and drinking needs - 91.44 m³/day (33,375.6 m³/year), irrigation of the territory - 146.8 m³/day (14680.0 m³/year).

Total water consumption for commissioning phase is approximately 93,000 m³ in total.

Termez wastewater treatment plant has a capacity of 25,000 m³/ day as of 2020. Domestic wastewater emerged from the construction phase of Project will only occupy 0.3% of Termez Wastewater treatment capacity.

Table 5: Water consumption and wastewater generation during construction and commissioning phases



Type	Amount	Source/Disposal
Water Consumption – Construction Phase		
Construction	8.773 m ³ /day	From nearby district via trucks
Household and Drinking	91.44 m ³ /day	Household - from nearby districts Drinking – from bottled water (market)
Irrigation of the Territory	146.8 m ³ /day	From nearby districts via trucks
Water Consumption – Commissioning		
Commissioning	93,000 m ³	From Uchkizil Reservoir
Wastewater Generation		
Domestic Wastewater	91.44 m ³ /day	Deposition – water proof septic tank Discharge – WWTP in Termez

In terms of compliance with the requirements of the resolution of the Cabinet of Ministers of the RUz, the Project Company will ensure the implementation of appropriate measures to ensure the protection of waters from pollution, clogging and depletion, as well as improve the state and regime of water use in Uchkizil Reservoir. In particular, in the water protection zone with a width of at least 150 meters from industrial buildings and structures to the water edge of Lake Uchkizil, tree and shrub plantations will be planted with the exception of any economic and other activities. As per water protection zone requirements, any type of Project buildings, temporary/permanent waste storage area, equipment storage area, parking area etc. shall not be placed in the 150 m water protection zone.

“Permit for special water use” will be obtained to withdraw water from the Uchkizil Reservoir and discharge water into the reservoir from the Basin Irrigation Systems Department prior to commissioning phase.

Mitigation measures to reduce impacts on water quality for construction phase are given below:

- The Project will consult with the Uchkizil Reservoir to confirm the need and applicability for water discharge permits/licenses necessary for the successful construction of the Project. Such discharge permits/licenses will be associated with effluent discharges (including stormwater and treated sanitary/domestic sewage). The Special Terms and Conditions associated with each Water Use Permit will be followed, and adherence to such will be monitored and confirmed through routine inspections and/or audits;
- Method Statements detailing spill emergency response and clean-up procedures for spills will be developed including process, responsibilities, training and drill needs.
- Training regarding proper methods for transporting, transferring and handling hazardous substances that have the potential to impact surface and groundwater resources will be undertaken.
- Areas where spillage of soil contaminants occurs will be excavated (to the depth of contamination) and suitably rehabilitated. If any other minor spillage occurs, the



spillage will be cleaned immediately and the contaminated area will be rehabilitated. All contaminated material will be suitably disposed of.

- The washing of Project vehicles in and around any surface water bodies will be prohibited. All Project vehicles will be washed at designated wash bays on site. These wash bays should include oil/grease and sediment traps for grey water.
- The ad hoc maintenance of vehicles in and around the construction area will be prevented. All vehicles will be maintained at a designated workshop. The workshop should include containment berms and an oil/grease trap.
- All construction areas and associated facilities will be maintained in a good and tidy condition; debris and wastes will be contained in such a way that they cannot become entrained in surface run off during periods of heavy rain.
- Where practical, exposed surfaces and friable materials will be covered / sheeted.
- To the furthest extent practicably possible, construction activities will be conducted > 150 m away from water bodies as defined in "Regulation on procedure of establishing water protection zones and sanitary protection zones for water bodies".
- Sufficient toilets at active work areas will be provided for site staff and workers and these will be serviced regularly by a competent and suitably qualified person.
- The sewage treatment system will be managed in a manner that results in zero discharge of raw sewage to the environment, and if treated sewage is discharged into the environment then this should conform to recognized Uzbekistan discharge standards prior to discharge (which will be prescribed in effluent discharge permits).
- All wastewater which may be contaminated with oily substances will be managed in accordance with an approved Waste Management Plan, and no hydrocarbon-contaminated water will be released into the environment.
- Fixed fuel storage infrastructure will be on flat, impermeable surface and surrounded by a bund with a volume of 110 percent of the volume of the storage tank(s), and fuel transfer at fixed stations will be performed on a concrete surface draining to a mechanical oil separator.
- Chemicals storage and dispensing areas will be located as far as possible from surface water bodies, and in no instance should they be located drained on an irrigation channel. Storage will be on flat, impermeable surface and surrounded by a bund or enclosed storage. To avoid siltation of rivers and other surface water bodies, soil stockpile will be located away from surface water bodies.

The water intake structure will be at a sufficient depth below minimum water level to avoid collisions with boats and intake of warm surface water and at sufficient distance from the bed of the reservoir to avoid the intake of sediments and sludge. The water intake velocity will be limited with 0.15 m/s and a bubble curtain shall be applied to prevent fish and fauna to enter the intake.

The discharge point will be at a sufficient distance from the shore to promote mixing with the main water body. Following the detailed design together with performing a bathymetry, hydraulic and nearshore topography survey, the exact locations will be determined and necessary relevant permits will be obtained from the national authorities.



During the operation stage, domestic wastewater will be treated by sanitary water treatment system and treated water will be sent to the irrigation water storage tank, which will provide water for greenbelt within the project area. Since close loop cooling system will be used in the plant, there will be no cooling water discharge to the Uchkizil reservoir. Industrial wastewater will be treated by the Industrial Wastewater Treatment System and treated water will meet the national discharge standards and then be discharged in the Uchkizil reservoir.

Table 6: Water consumption and wastewater generation during operational phase

Type	Amount	Source/ Disposal
Water Consumption – Operation Phase		
Production	1,667 m ³ /day	From Uchkizil Reservoir
Household and Drinking	98 m ³ /day	Household - from Uchkizil Reservoir Drinking – from bottled water
Wastewater Generation		
Domestic Wastewater	21 m ³ /day	To Sanitary wastewater treatment → Disposal : Irrigation water tank
Production	1,066 m ³ /day	To Industrial wastewater treatment system → Disposal : Uchkizil Reservoir

3.5 Soil, Geology, and Groundwater

Soil contamination during construction work is possible with the spill of oil products used as fuel for mobile vehicles and construction equipment. However, the pollution will be minor and localized. Due to poor solubility, oil products will have a low migration capacity and will not pose a hazard to groundwater. The likelihood of a fire occurring due to fuel spills is also low. In general, during the construction period, soils and groundwater contaminated with oil products will have a minor risk to the environment and personnel safety.

The presence and use of such dangerous and hazardous chemicals increase the probability of accidental spills or releases of minor quantities of these materials into the receiving hydrological environments. Further, site preparation activities and associated construction of infrastructure can result in increased sediment loads in reservoir. Any leaks/damage to the soil and groundwater will be prevented through appropriately designed storage options. Any leaks/damage to the soil and groundwater will be prevented through appropriately designed storage options.

3.6 Waste Management

During construction, waste will be generated during earthworks, construction of the fences, paths and buildings.

Typical construction wastes include concrete, asphalt, scrap steel, glass, plastic, wood, packaging materials and domestic waste from construction workers (i.e. relating to food consumption). Concrete may be found in two forms on the construction site; structural



elements containing reinforced concrete, while foundations (such as surface level concrete slabs) have mass non-reinforced concrete.

Household wastewater generated during construction is planned to be directed to a temporarily installed storage tank (a waterproof cesspool) with subsequent removal to the nearest treatment facilities in the city of Termez. The EPC Contractor will also seek other options such as establishment of package (small-scale) wastewater treatment plant in accordance with the requirements set in the national legislation.

The operation of the proposed Project will generate small amounts of non-hazardous domestic waste from the operation of the administration facilities and from activities of the employees.

This waste can be classified as both recyclable and non-recyclable. Recyclable waste includes paper, tin cans, plastics, cartons, rubber, and glass, while non-recyclables will consist mainly of food residues and other organic waste. Other solid non-hazardous waste generated during operation will be landscaping waste and uncontaminated replacement parts and packaging.

Hazardous waste to be generated during the operation stage will be stored in allocated impervious hard standing areas in sealed containers stored with impermeable bases, sufficient containment and separation capacity, sun/rain shelter, separate drainage system, good ventilation and equipped with spill kits & spill response procedures. This area must be placed away from any sources of ignition. Waste containers will be marked with appropriate warning labels to accurately describe their contents and detailed safety precautions. Labels will be waterproof, securely attached, and written in English and other languages as required such as Uzbek and Russian. Wherever possible, chemicals will be kept in their original container.

3.7 Ecology

The terrestrial ecology surveys have been conducted in July-2021 and April-2022, which refers to summer and spring seasons, respectively. The surveys cover both the Project area and the its surrounding.

Physiographically, the Project area is located in the south of Uzbekistan, in the Surkhandarya intermountain area (Surkhan-Sherabad valley), inclined from north to south, to the floodplain of the Amudarya river. In the north and west, the Surkhan-Sherabad valley is limited by the Gissar ridge, the height of the axial part of which exceeds 4,000 m above sea level and its southwestern spurs, including the Chulbair Mountains (the highest elevation 3,812 m above sea level), Baysuntau (3,920 m), Susyzttau (2,124 m), Tyubere-Oland (2,139 m) and the ridge Kugitang (3,137 m).

The area is adjacent to the western end of the Kattakum sandy massif, which is home to rare and endemic plant and animal species. The landscape of the peripheral part of the Kattakum sands is a wavy or slightly hilly sandy plain, the central part is occupied by a rather extensive massif of semi-fixed hilly sands (the height of the hillocks is 3–7 m), among which there are small saline settlements. The Uchkizil Reservoir has an area of about 10 km² and a depth of maksimum 37 m, a sandy bottom, and mostly low and gentle sandy and sandy loam shores, but its northern coast, adjacent to the Project area, has relatively steep, eroded slopes, composed of outcrops of gypsum and saline depressions.



According to the typology of vegetation used in Uzbekistan, the predominant type of vegetation in the Kattakum sands is psammophilic vegetation of sandy deserts (Psammophyta), on the outcrops of sandstones, gypsophilic vegetation (Gypsophyta), and along the coast of the Uchkizil Reservoir and in saline depressions among the sands, there is fragmentary saline vegetation (Halophyta).

The preliminary list of the flora of the Kattakum sands, compiled on the basis of reports, literature, herbarium data and photographs taken by field team during the field survey includes 131 species, mainly typical representatives of the flora of sandy and saline deserts of the southern part of Central Asia. The vast majority of species are native; the number of alien plant species is extremely insignificant. According to the estimates, anthropogenically disturbed areas occupy about 1/3 of the project area.

Only 3 species included in the Red Book of Uzbekistan (*Allium rhodanthum*, *Dipcadi turkestanicum*, *Oligochaeta vvedenskyi*) are noted based on literature and herbarium data for the sandy massifs of Kattakum and Khaudaktau in the central part of the Surkhan-Sherabad valley, the first two of them are known only from Khaudaktau and have not been noted for the past several decades, despite special searches. Nevertheless, there is a possibility of finding these species in the Kattakum sands (not excluding the project area).

There are 27 species of reptiles belonging to 12 families on a relatively small and rather highly urbanized project area.

A total of 149 bird species can be identified for the region around the project area, which are rare or listed. The only endemic bird of Uzbekistan, *Podoces panderi* does not live here. Among them, 21 species have IUCN statuses (NT-10 species, VU - 7 species and EN - 4 species). 33 species are included in the Red Book of Uzbekistan (2019) 4 species with the EN status, 23 - VU and 6 NT species. During the field surveys, 49 bird species were recorded, 26 of them directly in the planned area.

Approximately 22 species of mammals belonging to 6 families have been recorded in project area and its surrounding area based on available literature sources.

The territory is potentially inhabited by 6 species of mammals included in the Red Book of the Republic of Uzbekistan; *Otonycteris hemprichi*, *Vulpes corsak turkmenicus*, *Vormela peregusna*, *Lutra lutra seistanica*, *Hyaena hyaena*, *Felis margarita*, *Caracal caracal michaelis*, *Vormela peregusna*. and the 5 species are included CITES (*Lutra lutra*, *felis chaus*, *Felis lybica*, *Felis margarita*, *Caracal caracal michaelis*). Two species are Central Asian endemics that *Rhinolophus bocharicus* and *Allactaga severtzovi*. *Gazella subgutturosa* that used to inhabit the area has been completely exterminated.

A Preliminary Critical Habitat Assessment was performed based on the outcomes of the surveys conducted in July 2021 and April 2022. None of plants and animals species observed during the field survey in the project area meet the criteria for CHA. *Neophron percnopterus* (Egyptian Vulture), temporarily visits the the project area for feeding, since there is a household waste dump nearby the project area. This specie also does not meet the criteria for CHA, since its number is less than 0.5% of the global population. There are no nesting sites for the Egyptian Vulture in the project area. The rest of the plant and animal species that are observed in the project area listed in the National Red Book of the Republic of Uzbekistan (2019) have local conservation statuses of NT and VU which do not meet the CHA



criteria. No animal species are observed from literary sources that have high IUCN Red List statuses that meet CHA criteria.

The mitigation measures to be implemented within the scope of the project are as follows:

- The Green Belt edge should be defined using local tree species that create a visual barrier within the scope of the project. The landscape should also be used to help integrate a Green Belt boundary with the existing edge, which aims to maximize consistency over a longer distance.
- Cleared areas no longer required for construction activities shall be rehabilitated by re-seeding with locally found grasses and shrubs to increase soil stability.
- Boundaries of the construction areas, including traffic routes, should be limited only to designated sites.
- Land clearance should be kept of natural vegetation at a minimum and restricted to designated sites.
- All vehicles and equipment are to be restricted to within the project boundaries and only along the approved access road route.
- During vegetation clearance or felling, any animals found should be removed and released to safe refugia.
- Hazardous materials used during the construction stage shall be adequately managed, in order to minimize the potential risk of spillage and therefore potential contamination of the ecosystem.
- Speed of vehicles shall be limited, in order to limit the emission of dust in nonpaved accessed roads and in order to limit the risk of accidents with fauna.

3.8 Socio-economy

The ESIA study identified several positive and negative impacts likely to arise during the construction of the Project. These impacts are;

- Employment generation,
- Local economic development,
- Labour influx,
- Impacts on social services

The primary economic impact during construction is likely to result from employment creation during this phase. This Project is expected to create employment opportunities during the construction phase for unskilled and applicably skilled workers. To prevent social conflicts between local employee and expats, should be paid attention to the balance between in the employment shares.



In addition to the direct monetary increase to the families of the employed, the money paid to the workers will also stimulate the local economy with a multiplier effect, so that the money earned from the locally spent Project will recirculate within the local economy.

The Project construction will require involvement of significant workforce (direct and contracted) Approximately 30% of the workforce is estimated to be non-qualified and 70% of will be qualified. The Contractor prioritise localisation of workforce (including subcontractors through contractual requirements) and it is anticipated that 50 % of the workforce will be national people. This policy will maximise the use of local workers and reduce the influx of non-local workers to the area.

3.9 Livelihood Restoration

During the social site surveys conducted in 2021 and 2022, no legal and/or informal landusers are observed within the project area. Although the project does not have any impact on livelihood, a framework Livelihood Restoration Plan is presented within the ESIA Report to ensure that the Project company will follow the requirements set in this plan, in case required.

3.10 Community Health and Safety

Potential impacts of the project on community health and safety arise from the necessity of accomodation of the workforce, illnesses and diseases, and sexually tranmistted diseases due to increase in local population.

The Project construction will require involvement of significant workforce and the maximum workforce will be around 2050 during the peak construction period. Approximately 30% of the workforce will be unskilled and the remaining will be either skilled or semi-qualified staff.

The provision of accommodation for self-sufficient workers accommodation will be the responsibility of the contractor. It is expected that the workforce required for the construction activities will accommodate in nearby cities and there will no accommodation in the project area. All worker accommodation facilities will be designed and operated in accordance with IFC Workers Accommodation Guidance. The workforce will be transferred to the project area by shuttle buses.

It is anticipated that 50% of the workforce will be third-party nationals. Temporary migration of such workforce might lead to conflicts between the local community and project workers due to cultural, religious and behavioral issues.

Risks associated with hazardous materials or chemical storages will be managed during construction phase according to good international industrial practices on HAZMAT management

Material transport vehicles, shuttle buses, and vehicles transporting the waste generated at construction sites may result in increased traffic on off-site roads during the construction period.



The project area will require site-based security at the gates and on patrol around the site and access road during construction in order to prevent the public from trespassing to the construction areas. This is so as to minimize the potential for construction site incidents or damage of construction machinery. It is anticipated that the security personnel will be unarmed.

The Contractor will develop a Worker Influx Management Plan to provide a clear set of actions that will be undertaken for the management and mitigation, monitoring and evaluation of impacts related to worker influx in the Project area. The employees during the construction phase shall undergo a Code of Conduct training to ensure smooth coordination with the neighboring community.

Additional management and mitigation measures will be in accordance with the World Bank guidance note on Managing the Risks of Adverse Impacts on Communities from Temporary Project Induced Labor Influx (WB, 2016).

All persons housed in the local community to be transported to and from the site daily by project transportation as per centrally managed mass worker transit program.

4. Environmental and Social Management System

The Project will establish Environmental and Social Management Systems (ESMS) in order to effectively manage the environmental and social impacts of the project from the land preparation and construction phase to the closing phase. During the creation of the ESMS, the following subject / documents will be taken into consideration.

- Compliance with relevant national laws and regulations and EU directives
- IFC PSs
- AIIB Environmental and Social Policy
- IFC EHS General Guidelines
- Environmental and Social Action Plan (ESAP) prepared within the scope of the ESIA study

The defined measures to eliminate impacts and risks identified at various stages of the project should be adopted not only by the Project Company, but also by the EPC Contractor and, if any, Sub-Contractors. The Company Owner will be responsible for the implementation of the issues in the ESIA by all parties.

The Project Company will appoint an ESMS Manager who will be responsible for the establishment, implementation and maintenance of the ESMS. The ESMS Manager and his team will work closely with the employees of the project owner and contractors to ensure the most effective implementation of the ESMS.

The Project Company. will prepare the necessary procedures to establish and maintain an effective internal and external communication mechanism. Efficient communication will be provided through the website of the project owner and mechanisms such as meetings.

5. Stakeholder Engagement

5.1 Project Stakeholders

The details of the stakeholders defined for the project are presented in the SEP and the list of the stakeholders is as below:

Stakeholder Group	Definitive Stakeholders	Specific Interest /Relevance/Influence
Project Affected People	<ul style="list-style-type: none"> • Residents of Uchkizil Mahalla (within 5 km radius of the project area) • Residents of Kattaqum Mahalla (within 5 km radius of the project area) • Residents of Bahor Mahalla (within 10 km radius of the project area) • Residents of Dehqonbirlashuv Mahalla (within 10 km radius of the project area) • Residents of Ilgor Mahalla (within 10 km radius of the project area) • Residents of Karvon Mahalla (within 10 km radius of the project area) • Residents of Kayran Mahalla (within 10 km radius of the project area) • Residents of Khalqobod Mahalla (within 10 km radius of the project area) • Residents of Ilgor Mahalla (within 10 km radius of the project area) • Residents of Madaniyat Mahalla (within 10 km radius of the project area) • Residents of Markaz Mahalla (within 10 km radius of the project area) 	<ul style="list-style-type: none"> - Affected/potentially affected from Project-related E&S risks and impacts that will be managed through the Project ESMS - Management of E&S impacts - Cooperation to maximise benefits and planning for local employment and the supply of goods and services

<p>Other interested parties</p>	<ul style="list-style-type: none"> • Termiz Khokimiyat • Angor Khokimiyat • District Health Department • Department of Cultural Heritage of Surkhandarya Region • Department of Cultural Heritage of Surkhandarya Region • Termiz Archaeological Museum • Termiz District Education Department • Termiz District Health Department • Angor District Health Department • Angor District Agriculture Department • Angor District Educational Department • Angor District Cadastre Department • Amu Surkhan Regional Inspection Department • Angor District Labour Department • Angor District Road Construction and Transportation • Angor MonoCentre Official Training Centre (Ministry of Labour) • Angor District Youth Department • Termiz District Agriculture Department • Termiz District Labour Department • Termiz District Municipal Department • Termiz District Cadastre Department • Academic/educational institutions 	<ul style="list-style-type: none"> - Influence on Project-related permitting processes - Coordination of Project activities and processes, and stakeholder engagement activities - Management of environmental and social impacts - Emergency preparedness and coordination - Management of cumulative impacts
<p>Disadvantaged and vulnerable</p>	<p>Women</p> <p>Youth</p> <p>Female headed households</p> <p>Fishermen</p> <p>People with disabilities</p> <p>People with irregular income</p>	<ul style="list-style-type: none"> - Affected/potentially affected from Project-related E&S risks and impacts that will be managed through the Project ESMS - Ensuring that sensitive and disadvantaged Persons / Groups have access to sufficient information about the Project, ensuring that these persons / groups

		benefit equally from the benefits of the Project
Local businesses, suppliers, other industrial projects	Local companies	<ul style="list-style-type: none"> - Positively affected from potential Project benefits/opportunities - Supply of local goods and services related to the project - Coordination of infrastructure services - Management of cumulative impacts
Local media	National and local newspapers, local magazines and TV channels	Project information sharing with stakeholders

5.2 Stakeholder Engagement Activities to Date

According to the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 541 dated 07.09.2020 "On further improvement of the mechanism for assessing environmental impact", objects of I and II categories of environmental impact are subject to the procedure for passing public hearings about environmental impact. In accordance with, the Public Hearing Meeting was conducted in Angor District 17 of August 2021.

Besides, during the ESIA study, qualitative and quantitative techniques were applied for public disclosure as Household Survey, Local Authority Disclosure and Focus Group Discussion. Household survey covered 83 household, which of 57 were in Angor and 26 of them were in Termez.

Local Authority Disclosure were conducted among 8 local authority representatives in Angor and Termez districts from 22 to 29 July, 2021.

First Focus Group Discussion (FGD) was held in Uchkizil with 24 attendances, who were the representative of Khokiyat, district statistic department, district health department, labor and social protection, mahalla on 28 July 2021.

At the same day the 2nd FGD was held in Angor with 37 attendances, who were the representative of Khokimiyat, district statistic department, district health department, finance and investment department, labor and social protection, mahalla.

The main concerns raised during the first social site survey were related to the usage of Uchkizil Reservoir which has significant importance to the local people regarding irrigation,



and recreational activities. The competent authority has mentioned that Uchkizil Reservoir can provide up to 220 million m³ water. The annual amount of water required during the operation stage is negligible when compared to the capacity of the Uchkizil Reservoir. Therefore, it is not expected to have adverse impact on Uchkizil reservoir and on the irrigation system.

5.3 Stakeholder Engagement Plan

The ESIA Report includes a stand-alone SEP which is prepared based on the social site surveys. The SEP aims to establish and maintain constructive dialogue between the Project and the local communities, other stakeholders and interested groups.

The Project Company will assist and collaborate with the EPC Contractor to implement the SEP throughout the construction phase of the Project. The implementation of the SEP throughout the operation phase of the Project will be under the responsibility of the Project Company.

All stakeholders (individuals, groups, or entities) directly and/or indirectly affected by the Project or have a direct or indirect influence/impact on the Project are identified in the SEP. Besides, to establish and maintain a constructive relationship through public consultation and information disclosure, relevant mechanisms and tools are defined in the SEP. In addition, the SEP establishes external and internal mechanisms that will ensure timely and appropriate implementation of actions for the management of grievances and feedback received.

5.4 Grievance Mechanism

Grievance Redress Mechanism (GRM) will be developed enable stakeholders to raise grievances to the project and seek redress when stakeholders perceive an adverse impact arising from the project activities. The mechanism sets out clear systematic steps for affected individuals and communities to submit complaints and feedback and simultaneously for the Project in responding to queries, feedbacks and complaints received. GRM will be applied to guarantee the project is responsive to any concerns and grievances particularly from affected stakeholders and communities.

A GRM will be available to construction, commissioning and operation personnel, workers, project staff and people living or working in the areas impacted by the project activities. Any impacted or concerned person or group of people about the project activities have the right to participate in the GRM and be encouraged to use it. Moreover, the developed GRM does not replace the public mechanisms for filing complaints and resolving conflicts in the legal system of Uzbekistan, but, on the contrary, seeks to minimize its use as much as possible.

The external and internal grievance collection channels to be used during the construction and operation phases are described in Table 7. The Project Owner will review and adapt these channels, as appropriate and consistent with their internal/institutional procedures and mechanisms, within the SEP to be updated prior to start of operation phase and implemented throughout the operation phase.



Table 7. External and Internal Grievance Collection Channels for Construction and Operation Phases

Grievance Collection Channels	Explanation
Project Phone Line	+ 998 90 370 53 59
Project Web-site	www.stonecityenergy.com
Project E-mail	office@stonecityenergy.com
Official Letter Address	Tashkent, Almazar district, Sagban 30 dead-end str., 7 Uzbekistan
Grievance forms and boxes	Grievance forms and boxes will be placed in all mahallas affected from Project and at relevant work sites.
Project Owner Social Manager	Social Manager will collect grievances during stakeholder meetings, through phone calls, e-mails, etc. and manage them as per Project SEP.
EPC Contractor Community Liaison Officer (CLO)	CLOs will collect grievances during public and individual meetings, through phone calls, e-mails, etc. and manage them as per Project SEP. Where required, CLOs will help stakeholders on how to fill in grievance forms.
Legal System	Please see Section Error! Reference source not found.

Besides, According to the law, affected persons can submit their grievances through the Virtual reception of the President of the Republic of Uzbekistan, which has an online portal. From February 2018, the online version is updated and presented on this online portal. All citizens of the country can use different options for their appeals.

- By calling the phone number 0-800-210-00-00 or the short number 10-00;
- By using the online portal and filling out a special request form on the website pm.gov.uz;
- By visiting the People's Reception Office. The address of the 14 People's Reception offices in each district of the Bukhara region are provided on its site.

AIIB's Project-affected People's Mechanism (PPM) applies to this Project. The PPM has been established by AIIB to provide an opportunity for an independent and impartial review of submissions from Project-affected people who believe they have been or are likely to be adversely affected by AIIB's failure to implement the ESP in situations when their concerns cannot be addressed satisfactorily through the Project-level GRM or the processes of AIIB's Management. Information on AIIB's PPM is available at: <https://www.aiib.org/en/policies-strategies/operational-policies/policyon-theproject-affected-mechanism.html>.

5.5 Contact Information for the Stakeholders

Contact Information	
Name	Stone City Energy B.V.
Address	Tashkent, Almazar district, Sagban 30 dead-end str., 7

Surkhandarya CCPP Project (1600 MW)



Non-Technical Summary /25/07/2022

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