Kemenkes
RS M. Djamil

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) AND MANAGEMENT PLAN (ESMP)

Development of Rumah Sakit Umum Pusat Dr. M. Djamil Padang



Funding
Asian Infrastructure Investment Bank (AIIB)

Implementer
Ministry of Health of the Republic of Indonesia

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ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) AND MANAGEMENT PLAN (ESMP)

DEVELOPMENT OF RUMAH SAKIT UMUM PUSAT DR. M. DJAMIL PADANG

Construction of Central Medical Unit (CMU) Building and Non-JKN Outpatient Building to expand service capacity and quality of an Indonesian government-owned teaching hospital

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TRUST Project

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This document is a Living Document and will be **updated periodically in line with the progress of the RSUP's Detail Engineering Design (DED), more detailed environmental studies (AMDAL), traffic management analysis (ANDAL), and input from the Asian Infrastructure Investment Bank (AIIB), the Ministry of Health of the Republic of Indonesia,** and other stakeholders.

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GLOSSARY

AMDAL (Analisis Mengenai Dampak Lingkungan Hidup)	The Indonesian Environmental Impact Assessment framework, mandated under Law No. 32/2009 and PP 22/2021. Comprises KA-ANDAL, ANDAL, and RKL-RPL.
Andalalin (Analisis Dampak Lalu Lintas)	Traffic Impact Analysis a mandatory Indonesian regulatory instrument assessing the effects of a proposed development on surrounding road networks.
B3 / Limbah B3 (Bahan Berbahaya dan Beracun)	Hazardous and Toxic Materials/Wastes under Indonesian law. In hospitals: infectious waste, expired pharmaceuticals, pathological waste, chemical waste, and incinerator residues.
ESIA-ESMP	Environmental and Social Impact Assessment — Environmental and Social Management Plan. The combined safeguards instrument required by the AIIB ESF (2024).
ESF (Environmental and Social Framework)	The AIIB's overarching policy framework (2024) governing environmental and social risk management. Comprises ESS1, ESS2, and ESS3.
GRM (Grievance Redress Mechanism)	A structured process for project-affected persons to raise concerns and receive timely responses. Required under AIIB ESF and ESS1.
Kemenkes (Kementerian Kesehatan RI)	Ministry of Health of the Republic of Indonesia parent ministry of RSUP Dr. M. Djamil Padang and institutional home of the TRUST Project Implementation Unit (PIU). Disburses AIIB loan proceeds for the development programme.
Living Document	A document management approach in which the ESIA-ESMP is issued in successive versions (v0.1, v0.5, v1.0) as data and approvals are progressively acquired. [PLACEHOLDER] entries mark gaps to be closed.
Master Plan KMK 1667/2024	The RSUP Dr. M. Djamil Padang Master Plan formalised through KMK No. HK.01.07/MENKES/1667/2024 (KAK Beauty Contest hal. 2). Establishes the development programme including construction of

	the Central Medical Unit Building and the Non-JKN Outpatient Building. The detailed phasing, capacity targets, and floor-plate breakdown akan diakuisisi dari dokumen Master Plan asli setelah Kick-off Meeting.
Pertek (Persetujuan Teknis)	Technical Approval an Indonesian environmental permit. Pertek BMAL for wastewater and Pertek BMUE for stack emissions.
PPK-BLU (Pola Pengelolaan Keuangan Badan Layanan Umum)	Public Service Agency financial governance model under which government-owned hospitals (including RSUP Dr. M. Djamil Padang as a Direktorat Jenderal Kesehatan Lanjutan UPT) operate, allowing autonomy in revenue retention and operational expenditure subject to performance metrics.
Rintek (Rincian Teknis)	Detailed Technical Document for B3 (hazardous waste) storage facilities, required under Indonesian environmental law.
RSMDJ (Rumah Sakit Umum Pusat Dr. M. Djamil Padang)	Government-owned teaching hospital under the Direktorat Jenderal Kesehatan Lanjutan, Kementerian Kesehatan RI, located at Jalan Perintis Kemerdekaan, Sawahan Timur, Padang City, Sumatera Barat 25217 (KAK Beauty Contest hal. 1, 3). Total site area 110,540 m² (existing)
TRUST Project	The Government of Indonesia's flagship initiative Hospital Construction and Development to Improve Access and Quality of Care in Order to Enhance the Capacity of Government-Owned Teaching Hospitals" (KAK Beauty Contest, p. 2) Funded by AIIB and implemented by Kementerian Kesehatan RI across eight teaching hospitals in six provinces — including Sumatera Barat (RSUP Dr. M. Djamil Padang).

ABBREVIATIONS

AIIB	Asian Infrastructure Investment Bank
BMAL	Baku Mutu Air Limbah — Wastewater Quality Standard
BMUE / BMEU	Baku Mutu Emisi Udara — Stack Emission Quality Standard
BPCB	Balai Pelestarian Cagar Budaya - Cultural Heritage Preservation Office
BPS	Badan Pusat Statistik - Central Statistics Agency
B3 (LB3)	Bahan Berbahaya dan Beracun (Limbah B3) — Hazardous and Toxic Materials (Wastes)
BLU	Badan Layanan Umum — Public Service Agency
BMKG	Badan Meteorologi, Klimatologi, dan Geofisika - Reference station: West Sumatra Province Station
BOR	Bed Occupancy Rate
CHMP	Cultural Heritage Management Plan
DED / DEDC	Detailed Engineering Design / DED Consultant
DLH	Dinas Lingkungan Hidup - Environmental Agency
DOTS	Directly Observed Treatment, Short-course
ESF	Environmental and Social Framework (AIIB, 2022)
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standards
FS	Feasibility Study
GBV / SEAH	Gender-Based Violence / Sexual Exploitation, Abuse, and Harassment
GHG	Greenhouse Gas
GRM	Grievance Redress Mechanism
HEPA	High-Efficiency Particulate Air
HVAC	Heating, Ventilation and Air Conditioning
IMB / PBG	Izin Mendirikan Bangunan / Persetujuan Bangunan Gedung, Building Construction Approval
IPAL	Instalasi Pengolahan Air Limbah — Wastewater Treatment Plant
IPPT	Izin Penggunaan Peruntukan Tanah, Land Use Permit
JKN	Jaminan Kesehatan Nasional — National Health Insurance scheme
KA-ANDAL	Kerangka Acuan ANDAL — Terms of Reference for the impact assessment

KBLI	Klasifikasi Baku Lapangan Usaha Indonesia, Indonesian Standard Classification of Business Fields
KJSU	Kanker, Jantung, Stroke, Uro/Nefro — National priority complex services
KKPR / PKKPR	Konfirmasi / Persetujuan Kesesuaian Kegiatan Pemanfaatan Ruang - Confirmation / Approval of Compliance with Land Use Activities
KMK	Keputusan Menteri Kesehatan – Minister of Health Decree
TUK	Tim Uji Kelayakan AMDAL - AMDAL Assessment Commission
TB / TB-RO	Multi-Drug-Resistant Tuberculosis / Tuberkulosis Resisten Obat
NIB	Nomor Induk Berusaha - Business Identification Number
NPWP	Nomor Pokok Wajib Pajak - Taxpayer Identification Number
OHS / K3	Occupational Health and Safety / Keselamatan dan Kesehatan Kerja
P3K / PPPK	Pegawai Pemerintah dengan Perjanjian Kerja - Government employee on contract
Pertek	Persetujuan Teknis - Technical approval
PIU	Project Implementation Unit
PNS	Pegawai Negeri Sipil - Civil Servant
PPDS	Program Pendidikan Dokter Spesialis - Specialist Doctor Education Programme
PPI	Pencegahan dan Pengendalian Infeksi - Infection Prevention and Control
RKL-RPL	Rencana Pengelolaan / Pemantauan Lingkungan - Environmental Management / Monitoring Plan
Rintek	Rincian Teknis, Technical Details Document
RSMDJ	Rumah Sakit Umum Pusat Dr. M. Djamil Padang, Dr. M. Djamil Hospital, Padang
RSPPU	Rumah Sakit Pendidikan Penyelenggara Utama - Primary Teaching Hospital
RTRW / RDTR	Rencana Tata Ruang Wilayah / Detail Tata Ruang - Spatial Plans
SEP	Stakeholder Engagement Plan
SIO	Surat Izin Operasional, Operational Permit
SK SOTK	Surat Keputusan Susunan Organisasi dan Tata Kerja, Decree on Organizational Structure and Work Procedures
SLO	Sertifikat Laik Operasi, Certificate of Operational Eligibility
SOP / SPO	Standard Operating Procedure / Standar Prosedur Operasional
TB	Tuberculosis

TPA / TPS	Tempat Pemrosesan Akhir / Penampungan Sementara - Final Disposal Site / Temporary Storage
TT	Tempat Tidur - Bed
UKL-UPL	Upaya Pengelolaan Lingkungan - Upaya Pemantauan Lingkungan (semester reports)

FOREWORD

The transformation of Indonesia's national healthcare system, as mandated under Law No. 17 of 2023 on Health and the Government of Indonesia's borrowing agreement with the Asian Infrastructure Investment Bank (AIIB), is implemented through the TRUST Project (Transforming and Upgrading Sub-specialty Teaching Hospitals). RSUP Dr. M. Djamil Padang (RSMDJ) is one of the selected national referral hospitals included in this programme to strengthen healthcare capacity, improve specialized medical services, and modernize hospital infrastructure.

This document presents the preliminary Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Plan (ESMP) prepared for the development of RSMDJ Padang. The development project is guided by the Hospital Master Plan under KMK No. HK.01.07/MENKES/1667/2024 and includes the construction of new healthcare facilities, procurement of medical equipment and support systems, implementation of smart-hospital infrastructure, and supporting institutional development programmes.

The project site is located within the existing RSMDJ complex at Jalan Perintis Kemerdekaan, Sawahan Timur, Padang City, Sumatera Barat, with a total site area of approximately 110,540 m². The development will be implemented within an active hospital environment; therefore, environmental and social safeguards are essential to ensure that construction and operational activities do not adversely affect patients, healthcare workers, visitors, surrounding communities, or hospital service continuity.

This ESIA-ESMP has been prepared in accordance with:

- Indonesian environmental and healthcare regulations;
- AIIB Environmental and Social Framework (ESF 2024);
- Applicable international good practices for healthcare facilities.

The assessment covers environmental and social baseline conditions, impact identification, mitigation measures, stakeholder engagement, occupational health and safety, traffic and access management, hazardous and medical waste management, wastewater management, climate considerations, and institutional implementation arrangements.

The document also serves as an initial safeguard framework to support further detailed assessment and project implementation planning. Several technical aspects - including detailed engineering design, final utility configuration, operational technical specifications, and additional baseline verification will be further refined and incorporated into ESIA v0.2 following coordination with RSMDJ management, the Ministry of Health, consultants, and relevant authorities.

Through this development programme, RSMDJ is expected to strengthen its role as a Class A National Referral and Teaching Hospital while improving healthcare accessibility, operational resilience, patient safety, and environmental sustainability for West Sumatra and surrounding regions.

Padang, August 2026

Project Implementation Unit Director

Directorate General of Tertiary Health Services
Ministry of Health, Republic of Indonesia

Dr. dr. Dovy Djanas, Sp.OG (K), MARS

EXECUTIVE SUMMARY

The Government of Indonesia through the Ministry of Health is implementing the TRUST Project (Transforming and Upgrading Sub-specialty Teaching Hospitals) as part of its strategic effort to strengthen the national healthcare referral system and improve equitable access to quality healthcare services across the country. The programme is financially supported by the Asian Infrastructure Investment Bank (AIIB) and focuses on upgrading selected national referral hospitals to enhance their capacity, quality of care, and readiness to address increasingly complex healthcare demands. One of the hospitals selected under this programme is RSMDJ Padang, a major referral and teaching hospital located in Padang City, West Sumatra. The development project at RSMDJ is intended to modernize healthcare infrastructure, improve specialized and sub-specialized medical services, strengthen hospital operational systems, and support the implementation of smart-hospital concepts integrated with advanced healthcare technologies. The project will be implemented within the existing hospital complex with an area of approximately 110,540 m² and includes the construction and renovation of hospital buildings, improvement of supporting facilities and utilities, installation of modern medical equipment, enhancement of accessibility and circulation systems, and development of digital healthcare infrastructure.

As the project will be carried out within an active healthcare environment, environmental and social considerations are regarded as essential components of project planning and implementation. A preliminary Environmental and Social Impact Assessment and Environmental and Social Management Plan (ESIA-ESMP) has therefore been prepared to identify potential environmental and social impacts that may arise during the construction and operational phases of the project. The assessment identified several potential impacts associated with construction activities, including noise, vibration, dust emissions, increased traffic congestion, temporary disruption of access within the hospital area, generation of construction waste, and occupational health and safety risks for workers. In addition, because the project is located within an operating hospital, there are also risks related to patient safety, infection control, continuity of healthcare services, and disturbances to surrounding communities. During the operational phase, the project may also contribute to increased generation of medical waste, wastewater, and hazardous materials requiring proper management and disposal systems.

To minimize and manage these impacts, the project incorporates various mitigation measures and management strategies in accordance with Indonesian regulations, the AIIB Environmental and Social Framework (ESF 2022), and international good practices for healthcare infrastructure projects. These measures include implementation of construction management procedures, traffic and access management plans, dust and noise control measures, occupational health and safety protocols, infection prevention and control systems, hazardous and medical waste management procedures, wastewater treatment improvements, emergency preparedness mechanisms, and stakeholder engagement programmes. The ESIA-ESMP also establishes environmental monitoring procedures, institutional responsibilities, reporting mechanisms, and grievance redress systems to ensure that safeguard commitments are effectively implemented throughout the project lifecycle.

Project-affected communities and other stakeholders may submit complaints or concerns through the Public Relations (PR) Unit of Dr. M. Djamil General Hospital (RSUP Dr. M. Djamil Padang), the Information Desk, the Project Liaison Officer, or other designated GRM channels. Complaints may be submitted in person, by telephone/hotline at 0751-8956666 / +628116662123, or by email at contact@rsdjamil.co.id. Written complaints may also be sent to RSUP Dr. M. Djamil Padang, Jl. Perintis Kemerdekaan, Sawahan Timur, Padang, West Sumatra. Anonymous complaints may be accepted, and sensitive complaints will be handled confidentially. A WhatsApp-based grievance channel will be provided following official confirmation from the Public Relations Unit of RSMDJ.

Further refinement of the ESIA-ESMP will be conducted during subsequent stages of project preparation and detailed engineering design to incorporate updated technical information and site-specific conditions. Overall, the development of RSMDJ Padang is expected to generate significant long-term benefits by improving healthcare service quality, strengthening regional referral systems, enhancing hospital resilience, and supporting sustainable healthcare development in West Sumatra and surrounding regions.

Background

RSUP Dr. M. Djamil Padang (RSMDJ) is a government-owned teaching and referral hospital operating under the Directorate General of Tertiary Health Services, Ministry of Health of Indonesia. The hospital is located at Jalan Perintis Kemerdekaan, Sawahan Timur, Padang City, West Sumatra, and occupies a total area of approximately 110,540 m².

Under the TRUST Project supported by the Ministry of Health and AIIB, RSMDJ has been selected as one of eight teaching hospitals prioritized for development and modernization. The project aims to improve healthcare infrastructure, expand medical service capacity, strengthen specialized and sub-specialized healthcare services, and enhance the quality and accessibility of healthcare for communities in West Sumatra and surrounding regions.

Scope and Approach of the Assessment

This ESIA–ESMP has been prepared to assess the potential environmental and social impacts of the proposed development of RSUP Dr. M. Djamil Padang (RSMDJ). The assessment follows the Asian Infrastructure Investment Bank (AIIB) Environmental and Social Framework (ESF), particularly Environmental and Social Standard 1 (ESS1) on Environmental and Social Assessment and Management. It is also aligned with applicable Indonesian environmental requirements, including AMDAL, Environmental Approval, and other relevant permits and technical approvals required by national and regional authorities.

The ESIA–ESMP is prepared as a Living Document. The assessment has been updated in ESIA with additional available information related to primary data, field survey results, stakeholder consultation outcomes, and confirmed Detailed Engineering Design (DED).

The scope of this assessment covers the proposed redevelopment of RSUP Dr. M. Djamil Padang, specifically the construction of two new buildings: the **Central Medical Unit (CMU) Building** and the **Non-JKN Outpatient Building**. The project also includes associated supporting infrastructure and

facilities, such as utility systems (water supply, wastewater, electricity, drainage, and telecommunications), medical equipment installation, smart hospital systems, operational facilities, internal roads, parking areas, landscaping, and other environmental and social interfaces connected to the project.

To facilitate the new development, several existing structures and facilities within the project area will be demolished. During the construction period, **internal patient transfer and staff relocation** will be implemented to maintain uninterrupted hospital services. Appropriate traffic management, safety measures, and operational coordination will be applied to minimize disruption to patients, hospital personnel, and visitors throughout the construction and transition phases.

The assessment approach combines several methods, including document review, verification of existing baseline conditions, stakeholder consultation, environmental and social screening, and preliminary impact assessment. The key aspects reviewed include air quality, noise, vibration, wastewater management, hazardous and domestic waste management, occupational health and safety, traffic and accessibility, labour and working conditions, stakeholder engagement, biodiversity, climate change, greenhouse gas emissions, and continuity of hospital operations during construction and future operation.

The ESIA–ESMP also reviews the project's regulatory and permitting status. This includes relevant AMDAL or UKL-UPL references, Environmental Approval, Technical Approvals, recommendations for hazardous waste temporary storage facilities, building and spatial permits, and hospital operational licenses. Further verification of permits and supporting documents will be carried out during ESIA v0.2 through coordination with RSMDJ management and relevant government authorities.

Table 1 Institutional Information Table

No.	Description	Information
1	Company Name / Institution	RSUP Dr. M. Djamil Padang (RSMDJ)
	Company / Institution Address	Jl. Perintis Kemerdekaan, Sawahan Timur, Padang Timur District, Padang City, West Sumatra
	Telephone / Fax	Telp. (0751) 32371 / Fax. (0751) 32371
	Website	www.rsudjamil.co.id
	Email	rsupdjamil@yahoo.com
2	Project / Activity Name	Hospital / Government Hospital Activity of RSUP Dr. M. Djamil Padang
	Project Location	Jl. Perintis Kemerdekaan, Sawahan Timur, Padang Timur District, Padang City, West Sumatra
	Project Location Coordinates	LS -0.94327321347537725 and BT 100.36272015235813
	Telephone / Fax	Telp. (0751) 32371 / Fax. (0751) 32371
	Email	rsupdjamil@yahoo.com
	AMDAL Environmental Permits Recommendation Number / Environmental Approval	Padang Mayor's Decree No. 72 of 2014 on the Environmental Permit for the Development Plan of RSUP Dr. M. Djamil

No.	Description	Information
3	Type of Business and/or Activity	Hospital / Government Hospital Activity (KBLI 86101)
4	Person in Charge of Business and/or Activity	Dr. dr. Dovy Djanas, Sp.OG(K)
	Position	President Director
5	Contact Person	
	Name	Dr. dr. Dovy Djanas, Sp.OG(K)
	Position	President Director
	Contactable Phone Number	-
	Office Telephone	(0751) 32371
6	Permits Currently Owned	NIB Number: 1271005052459
		KBLI 86101
		Technical document available for Hazardous Waste Temporary Storage Activity, Rintek TPS LB3
		Technical Approval document available for Hazardous Waste Treatment Using Autoclave
		Cooperation agreement document available for hazardous waste transportation and disposal for 2026 with PT Wastec International

The institutional information confirms that RSMDJ has clear administrative identity, project location, responsible management, and relevant environmental permits or technical approvals to support the proposed development. This information provides an important administrative and regulatory basis for the ESIA, particularly for verifying institutional responsibility, legal compliance, and environmental management readiness.

Key Findings from Operational Data Analysis

The preliminary review of available operational data shows that RSUP Dr. M. Djamil Padang (RSMDJ) is a major tertiary referral hospital with a high level of healthcare service activity. The hospital serves a large number of outpatients, maintains substantial inpatient capacity, and carries out intensive medical and supporting operations. These conditions indicate that RSMDJ has significant operational demands that are directly relevant to the Environmental and Social Impact Assessment (ESIA), particularly in relation to wastewater generation, hazardous and medical waste management, energy and water use, occupational health and safety, and the adequacy of existing environmental infrastructure.

Operational records from 2018 to 2023 show consistently high outpatient visits, confirming the hospital's strategic role as a regional and national referral healthcare facility. In addition, the availability of 750 inpatient beds and the high number of annual surgical procedures reflect the scale and intensity of hospital operations. These activities generate environmental and social pressures that need to be assessed as part of the ESIA, including increased wastewater flows, infectious and

hazardous waste generation, domestic waste, utility demand, traffic movement, and potential risks to workers, patients, visitors, and surrounding communities.

The available environmental operational information also indicates that RSMDJ has established several key environmental management facilities and arrangements. These include the wastewater treatment plant (IPAL), temporary hazardous waste storage facility (TPS Limbah B3), technical approval for autoclave-based hazardous waste treatment, and formal cooperation with licensed hazardous waste transporters and disposal providers. Cooperation with the Padang City Environmental Agency (DLH) for domestic waste management is also already in place. These existing systems provide an important starting point for evaluating current environmental management performance and identifying whether additional capacity, upgrades, or mitigation measures will be required for the proposed development.

The existing WWTP/IPAL has a maximum treatment capacity of approximately 350 m^3/day, while the recorded actual wastewater flow is approximately 121.50 m^3/day, representing about 34.7% of the available capacity. Based on the planned increase in hospital capacity from 800 to 1,353 beds, and assuming that wastewater generation increases proportionally to bed capacity, the future wastewater flow is preliminarily estimated at approximately 205.5 m^3/day. This represents an increase of approximately 84.0 m^3/day and would utilize about 58.7% of the existing WWTP/IPAL capacity, leaving a remaining hydraulic capacity of approximately 144.5 m^3/day.

For preliminary planning purposes, applying a 20% operational and peak-flow allowance results in an estimated design flow of approximately 246.6 m^3/day, equivalent to about 70.5% of the existing capacity. The preliminary comparison indicates that the WWTP/IPAL may remain hydraulically adequate. However, its final adequacy shall be verified during the Detailed Engineering Design stage, considering peak-flow conditions, wastewater generated by outpatient and supporting services, treatment performance, sludge production, equipment condition, and future operational requirements.

Overall, the operational data provide an important baseline for the ESIA. They help define the existing scale of hospital operations, identify current and potential environmental and social risks, estimate future operational loads, and support the preparation of appropriate mitigation and management measures under the Environmental and Social Management Plan (ESMP).

Table 2 Available Operational Data of RSMDJ Padang

No.	Data Category	Available Data
1	Outpatient Visits	2018: 873,469 visits
		2019: 883,682 visits
		2020: 621,553 visits
		2021: 795,786 visits
		2022: 780,687 visits
		2023: 869,338 visits
2	Bed Capacity	800 beds (existing)

No.	Data Category	Available Data
3	Surgical Procedures	2022: 10,517 procedures
		2023: 13,135 procedures
4	Wastewater / WWTP (IPAL) Flow Data	RSMDJ wastewater flow data available for 2024
		Maximum WWTP/IPAL capacity: 350 m³/day
5	Hazardous Waste Storage Technical Details	Technical approval documents for RSMDJ Hazardous Waste Temporary Storage Facility (TPS B3) available
6	Identified Hazardous Waste Types	Infectious clinical waste, expired pharmaceutical products, used batteries, electronic waste, used filters, WWTP sludge, pharmaceutical packaging waste, expired chemicals, and used lubricating oil
7	Technical Approval for Hazardous Waste Treatment	Technical approval document for autoclave-based hazardous waste treatment available
8	Hazardous Waste Transport and Disposal Cooperation	Transport and disposal agreement documents available for 2026
9	Domestic Waste Management Cooperation	Cooperation agreement between RSMDJ and Padang City Environmental Agency (DLH) available

Table 3 RSMDJ Workforce Composition

No.	Workforce Category	Civil Servant (PNS)	Candidate Civil Servant (CPNS)	Full-Time PPPK	Part-Time PPPK	Non-PNS Permanent	Non-PNS Contract	FK Unand	Partner / Mitra	Subtotal
1	General Practitioners	62	-	23	-	1	1	-	-	87
2	Specialist Doctors	120	42	-	-	3	1	90	31	287
3	Dentists	4	-	1	-	-	-	-	-	5
4	Nursing Staff	414	106	418	-	-	75	-	-	1,013
5	Midwives	43	-	22	-	1	-	-	-	66
6	Pharmacists	26	3	2	-	-	3	-	-	34
7	Pharmacy Assistants	27	-	79	-	1	13	-	-	120
8	Other Healthcare Personnel	153	48	144	3	2	7	-	-	357
9	Administrative and Supporting Staff	171	29	155	91	34	166	-	-	646
	Total Workforce	**1,020**	**228**	**844**	**94**	**42**	**266**	**90**	**31**	**2,615**

Source: https://intip.in/HumanResourcesData; 2026

Based on the available operational data, RSMDJ is a high-intensity tertiary referral hospital with substantial healthcare service demand. This is reflected in the high number of outpatient visits, the availability of 750 inpatient beds, and the large number of surgical procedures carried out annually.

This data indicates that RSMDJ operates at a significant scale and plays an important role as a regional and national referral healthcare facility.

The hospital's high level of activity is directly relevant to the Environmental and Social Impact Assessment (ESIA). A greater volume of patients, staff, and medical activities generally leads to higher demand for clean water, electricity, cooling systems, wastewater treatment, medical waste management, hazardous waste management, domestic waste services, and occupational health and safety controls. Therefore, the operational data provide an important basis for understanding the existing scale of hospital activities and for assessing the potential environmental and social impacts of the proposed development project.

The outpatient visit data from 2018 to 2023 show that RSMDJ consistently handled a high number of patients. Although outpatient visits decreased in 2020, the number increased again in the following years and reached 869,338 visits in 2023. In addition, the number of surgical procedures increased from 10,517 procedures in 2022 to 13,135 procedures in 2023. This increase indicates intensive healthcare service delivery, which may contribute to higher wastewater generation, infectious waste production, use of medical materials, energy consumption, and demand for supporting hospital services.

From an environmental management perspective, RSMDJ already has several supporting systems relevant to environmental impact control. These include wastewater treatment facilities with a maximum WWTP/IPAL capacity of 350 m^3/day, a hazardous waste temporary storage facility, technical approval for autoclave-based hazardous waste treatment, and formal cooperation with licensed hazardous waste transporters and disposal providers. Cooperation with the Padang City Environmental Agency (DLH) for domestic waste management is also already in place.

In the context of the ESIA, this information is important because it indicates the hospital's existing capacity to manage environmental aspects of its operations. These data can be used to assess whether the existing environmental management facilities are sufficient under current conditions and whether they need to be upgraded to support the proposed development. For example, the WWTP/IPAL capacity should be compared with actual wastewater flow of 121.50 m^3/day, and projected future wastewater loads after the project is implemented. Similarly, the hazardous waste management system should be reviewed to ensure that storage, treatment, transportation, and final disposal are conducted in accordance with applicable technical requirements and regulatory standards.

The workforce composition data are also relevant to the ESIA because RSMDJ employs a large workforce of 2,615 personnel. This indicates the need to manage social and labor-related aspects, including occupational health and safety, emergency preparedness, access and mobility arrangements, workplace risk management in medical areas, and protection of healthcare workers and supporting staff. The large workforce also affects domestic waste generation, sanitation needs, water consumption, energy use, and demand for supporting facilities.

Overall, the operational data of RSMDJ provide an important initial basis for developing the ESIA baseline, identifying environmental and social risks, estimating future operational loads, and formulating appropriate management measures in the Environmental and Social Management Plan

(ESMP). These data help ensure that the hospital development project not only supports improved healthcare services but is also implemented with due consideration of environmental capacity, occupational safety, regulatory compliance, and long-term operational sustainability.

Dominant Risks and Mitigation Strategies

The RSMDJ Padang development project may create several important environmental and social risks, especially because construction will take place inside an active hospital area. During the construction period, hospital services will continue to operate. This means that construction activities must be carefully managed so they do not disturb medical services, patients, visitors, hospital staff, or nearby communities.

The main risks identified at this stage of the ESIA v0.1 include noise and vibration from demolition works, excavation, and heavy equipment; dust and air emissions from construction activities and material transport; traffic congestion and temporary access disruption around the hospital; construction and hazardous waste generation; occupational health and safety risks for workers; and possible disturbance to patients, visitors, hospital staff, and surrounding residents.

These risks are particularly important because the project is located in a dense urban area and close to sensitive receptors. These include inpatient wards, ICU facilities, outpatient service areas, residential settlements, schools, and other public facilities. For this reason, the project will require strict mitigation measures during construction. Special attention must be given to maintaining ambulance routes, emergency access, patient circulation, and the continuity of hospital operations during each phase of construction.

The assessment also considers climate and seismic resilience. The new CMU Building and Non-JKN Outpatient Building are expected to support long-term healthcare services and strengthen the hospital's ability to continue operating during emergencies or disaster events in West Sumatra. Therefore, environmental and social safeguards need to be integrated into project planning, design, construction, and operation.

Several important actions still need to be completed in the next ESIA stage, ESIA v0.2. These include completing the M1 baseline survey, which covers ambient air quality, noise, surface water, groundwater, social baseline conditions, and traffic counts. The project also needs to obtain or update relevant permits and technical approvals, confirm detailed engineering design information, and verify operational environmental data and waste management systems. Further consultations will also be carried out with RSMDJ management, local government agencies, affected communities, and vulnerable groups to improve mitigation planning and stakeholder engagement.

At this stage, the preliminary mitigation measures include dust control, limitation of noisy works to appropriate hours, preparation of a traffic management plan, regular environmental monitoring, proper waste segregation and disposal through licensed service providers, occupational health and safety controls, worker code of conduct, grievance and communication channels, and phased construction planning. These measures are intended to reduce disruption to hospital operations, protect patients and surrounding communities, and ensure that the project is implemented in a safe and environmentally responsible manner.

RINGKASAN EKSEKUTIF

Tinjauan Umum Proyek

Pemerintah Indonesia melalui Kementerian Kesehatan sedang mengimplementasikan Proyek TRUST (Transforming and Upgrading Sub-specialty Teaching Hospitals) sebagai bagian dari upaya strategisnya untuk memperkuat sistem rujukan kesehatan nasional dan meningkatkan aksesibilitas yang merata terhadap layanan kesehatan berkualitas di seluruh wilayah Indonesia. Program ini mendapat dukungan pendanaan dari Asian Infrastructure Investment Bank (AIIB) dan berfokus pada peningkatan kapasitas rumah sakit rujukan nasional terpilih untuk memperkuat kemampuan, kualitas perawatan, serta kesiapsiagaan dalam menghadapi tuntutan layanan kesehatan yang semakin kompleks. Salah satu rumah sakit yang terpilih dalam program ini adalah RSMDJ Padang, sebuah rumah sakit rujukan utama dan rumah sakit pendidikan yang terletak di Kota Padang, Sumatera Barat. Proyek pengembangan di RSMDJ bertujuan untuk memodernisasi infrastruktur layanan kesehatan, meningkatkan layanan medis spesialistik dan subspesialistik, memperkuat sistem operasional rumah sakit, serta mendukung penerapan konsep smart-hospital yang terintegrasi dengan teknologi kesehatan canggih. Proyek ini akan dilaksanakan di dalam kompleks rumah sakit yang ada saat ini dengan luas area sekitar 110.540 m², yang mencakup pembangunan dan renovasi gedung rumah sakit, peningkatan fasilitas pendukung dan utilitas, pemasangan peralatan medis modern, peningkatan aksesibilitas dan sistem sirkulasi, serta pengembangan infrastruktur kesehatan digital.

Proyek ini akan dilaksanakan di lingkungan pelayanan kesehatan yang sedang aktif beroperasi, sehingga pertimbangan lingkungan dan sosial dianggap sebagai komponen esensial dalam perencanaan dan pelaksanaan proyek. Oleh karena itu, dokumen Penilaian Dampak Lingkungan dan Sosial serta Rencana Pengelolaan Lingkungan dan Sosial (Environmental and Social Impact Assessment and Environmental and Social Management Plan / ESIA-ESMP) awal telah disusun untuk mengidentifikasi potensi dampak lingkungan dan sosial yang mungkin timbul selama tahap konstruksi dan operasional proyek. Penilaian tersebut mengidentifikasi beberapa potensi dampak yang berkaitan dengan kegiatan konstruksi, meliputi kebisingan, getaran, emisi debu, peningkatan kemacetan lalu lintas, gangguan akses sementara di dalam area rumah sakit, timbulan limbah konstruksi, serta risiko keselamatan dan kesehatan kerja (K3) bagi para pekerja. Selain itu, karena proyek ini berlokasi di dalam rumah sakit yang beroperasi, terdapat pula risiko yang berkaitan dengan keselamatan pasien, pengendalian infeksi, keberlanjutan layanan kesehatan, serta gangguan terhadap masyarakat sekitar. Pada tahap operasional, proyek ini juga dapat berkontribusi pada peningkatan timbulan limbah medis, air limbah, dan bahan berbahaya dan beracun (B3) yang memerlukan sistem pengelolaan dan pembuangan yang memadai.

Untuk meminimalkan dan mengelola dampak-dampak tersebut, proyek ini mengintegrasikan berbagai langkah mitigasi dan strategi pengelolaan sesuai dengan peraturan perundang-undangan di Indonesia, Kerangka Kerja Lingkungan dan Sosial AIIB (Environmental and Social Framework / ESF 2022), serta praktik-praktik internasional yang baik untuk proyek infrastruktur kesehatan. Langkah-langkah tersebut mencakup penerapan prosedur manajemen konstruksi, rencana pengelolaan lalu lintas dan akses, tindakan pengendalian debu dan kebisingan, protokol K3, sistem pencegahan dan pengendalian

infeksi (PPI), prosedur pengelolaan limbah B3 dan limbah medis, peningkatan pengolahan air limbah, mekanisme kesiapsiagaan tanggap darurat, serta program keterlibatan pemangku kepentingan. Dokumen ESIA-ESMP ini juga menetapkan prosedur pemantauan lingkungan, tanggung jawab kelembagaan, mekanisme pelaporan, dan sistem penanganan keluhan (grievance redress mechanism) guna memastikan komitmen perlindungan (safeguard) diterapkan secara efektif sepanjang siklus hidup proyek.

Masyarakat yang terdampak proyek dan pemangku kepentingan lainnya dapat menyampaikan keluhan atau aspirasi melalui Unit Hubungan Masyarakat (Humas) RSUP Dr. M. Djamil Padang, Meja Informasi, Petugas Penghubung Proyek (Project Liaison Officer), atau saluran GRM lain yang telah ditetapkan. Keluhan dapat disampaikan secara langsung, melalui telepon/hotline di nomor (0751-8956666 / +628116662123, atau melalui email di contact@rsdjamil.co.id. Keluhan tertulis juga dapat dikirimkan ke RSUP Dr. M. Djamil Padang, Jl. Perintis Kemerdekaan, Sawahan Timur, Padang, Sumatera Barat. Keluhan anonim dapat diterima, dan keluhan yang bersifat sensitif akan ditangani secara rahasia. Saluran pengaduan melalui WhatsApp akan disediakan setelah adanya konfirmasi resmi dari Humas RSMDJ.

Penyempurnaan lebih lanjut terhadap dokumen ESIA-ESMP akan dilakukan pada tahap persiapan proyek berikutnya dan perencanaan teknis terperinci (Detailed Engineering Design / DED) untuk memasukkan informasi teknis terbaru dan kondisi spesifik lokasi. Secara keseluruhan, pengembangan RSMDJ Padang diharapkan dapat memberikan manfaat jangka panjang yang signifikan dengan meningkatkan kualitas layanan kesehatan, memperkuat sistem rujukan regional, meningkatkan ketahanan rumah sakit, serta mendukung pembangunan kesehatan yang berkelanjutan di Sumatera Barat dan wilayah sekitarnya.

Latar Belakang

RSUP Dr. M. Djamil Padang (RSMDJ) merupakan rumah sakit pendidikan dan rujukan milik pemerintah yang beroperasi di bawah Direktorat Jenderal Pelayanan Kesehatan Lanjutan (Tertier), Kementerian Kesehatan Republik Indonesia. Rumah sakit ini berlokasi di Jalan Perintis Kemerdekaan, Sawahan Timur, Kota Padang, Sumatera Barat, dan menempati total area seluas kurang lebih 110.540 m².

Di bawah Proyek TRUST yang didukung oleh Kementerian Kesehatan dan AIIB, RSMDJ telah terpilih sebagai salah satu dari delapan rumah sakit pendidikan yang diprioritaskan untuk pengembangan dan modernisasi. Proyek ini bertujuan untuk meningkatkan infrastruktur layanan kesehatan, memperluas kapasitas pelayanan medis, memperkuat layanan kesehatan spesialistik dan subspesialistik, serta meningkatkan kualitas dan aksesibilitas layanan kesehatan bagi masyarakat di Sumatera Barat dan sekitarnya.

Ruang Lingkup dan Pendekatan Penilaian

Dokumen ESIA–ESMP ini disusun untuk menilai potensi dampak lingkungan dan sosial dari rencana pengembangan RSUP Dr. M. Djamil Padang (RSMDJ). Penilaian ini mengacu pada Kerangka Kerja Lingkungan dan Sosial (Environmental and Social Framework / ESF) AIIB, khususnya Standar

Lingkungan dan Sosial 1 (Environmental and Social Standard 1 / ESS1) tentang Penilaian dan Pengelolaan Lingkungan dan Sosial. Penilaian ini juga diselaraskan dengan ketentuan lingkungan hidup yang berlaku di Indonesia, termasuk AMDAL, Persetujuan Lingkungan, serta perizinan dan persetujuan teknis terkait lainnya yang dipersyaratkan oleh otoritas nasional maupun daerah.

Dokumen ESIA–ESMP ini disusun sebagai Living Document (dokumen dinamis). Penilaian dalam ESIA telah diperbarui dengan informasi tambahan yang tersedia terkait data primer, hasil survei lapangan, hasil konsultasi pemangku kepentingan, serta DED yang telah dikonfirmasi.

Ruang lingkup penilaian ini mencakup rencana rekayasa ulang/pengembangan kembali RSUP Dr. M. Djamil Padang, khususnya pembangunan dua gedung baru: Gedung Central Medical Unit (CMU) dan Gedung Rawat Jalan Non-JKN. Proyek ini juga mencakup infrastruktur dan fasilitas pendukung terkait, seperti sistem utilitas (pasokan air bersih, air limbah, listrik, drainase, dan telekomunikasi), instalasi peralatan medis, sistem rumah sakit pintar (smart hospital), fasilitas operasional, jalan internal, area parkir, lansekap, serta hal terkait lingkungan dan sosial lainnya yang terhubung dengan proyek.

Untuk memfasilitasi pembangunan baru ini, beberapa struktur dan fasilitas yang ada di dalam area proyek akan dibongkar. Selama masa konstruksi, **pemindahan pasien secara internal dan relokasi staf** akan dilaksanakan untuk menjaga kelangsungan pelayanan rumah sakit agar tidak terputus. Manajemen lalu lintas, tindakan keselamatan, dan koordinasi operasional yang tepat akan diterapkan untuk meminimalkan gangguan terhadap pasien, personel rumah sakit, dan pengunjung selama tahap konstruksi dan transisi.

Pendekatan penilaian mengombinasikan beberapa metode, meliputi peninjauan dokumen, verifikasi kondisi rona lingkungan awal (baseline), konsultasi pemangku kepentingan, penapisan (screening) lingkungan dan sosial, serta penilaian dampak awal. Aspek-aspek utama yang ditelaah meliputi kualitas udara, kebisingan, getaran, pengelolaan air limbah, pengelolaan limbah B3 dan limbah domestik, K3, lalu lintas dan aksesibilitas, tenaga kerja dan kondisi kerja, keterlibatan pemangku kepentingan, keanekaragaman hayati, perubahan iklim, emisi gas rumah kaca, serta keberlanjutan operasional rumah sakit selama masa konstruksi dan operasional di masa depan.

ESIA–ESMP ini juga meninjau status regulasi dan perizinan proyek. Ini mencakup acuan AMDAL atau UKL-UPL yang relevan, Persetujuan Lingkungan, Persetujuan Teknis, rekomendasi tempat penyimpanan sementara (TPS) limbah B3, perizinan bangunan dan tata ruang, serta izin operasional rumah sakit. Verifikasi lebih lanjut atas izin dan dokumen pendukung akan dilakukan pada tahap ESIA v0.2 melalui koordinasi dengan manajemen RSMDJ dan instansi pemerintah terkait.

Table 4 Informasi Kelembagaan

No.	Deskripsi	Informasi
1	Nama Perusahaan / Lembaga	RSUP Dr. M. Djamil Padang (RSMDJ)
	Alamat Perusahaan / Lembaga	Jl. Perintis Kemerdekaan, Sawahan Timur, Kecamatan Padang Timur, Kota Padang, Sumatera Barat
	Telepon / Faks	Telp. (0751) 32371 / Faks. (0751) 32371
	Situs Web	www.rsudjamil.co.id

No.	Deskripsi	Informasi
	Pos-el (Email)	rsupdjamil@yahoo.com
2	Nama Proyek / Kegiatan	Kegiatan Rumah Sakit / Rumah Sakit Pemerintah RSUP Dr. M. Djamil Padang
	Lokasi Proyek	Jl. Perintis Kemerdekaan, Sawahan Timur, Kecamatan Padang Timur, Kota Padang, Sumatera Barat
	Koordinat Lokasi Proyek	LS -0.94327321347537725 dan BT 100.36272015235813
	Telepon / Faks	Telp. (0751) 32371 / Faks. (0751) 32371
	Pos-el (Email)	rsupdjamil@yahoo.com
	Izin Lingkungan / Persetujuan Lingkungan	Keputusan Wali Kota Padang No. 72 Tahun 2014 tentang Izin Lingkungan Rencana Pembangunan RSUP Dr. M. Djamil
3	Jenis Usaha dan/atau Kegiatan	Kegiatan Rumah Sakit / Rumah Sakit Pemerintah (KBLI 86101)
4	Penanggung Jawab Usaha / Kegiatan	Dr. dr. Dovy Djanas, Sp.OG(K) - Direktur Utama
5	Personel Contact Person	Dr. dr. Dovy Djanas, Sp.OG(K) (Direktur Utama) Telp. Kantor: (0751) 32371
6	Izin yang Saat Ini Dimiliki	• Nomor NIB: 1271005052459 (KBLI 86101) • Dokumen Rintek TPS LB3 tersedia • Persetujuan Teknis Pengolahan Limbah B3 Autoklaf tersedia • Perjanjian Kerjasama Pengangkutan & Pemusnahan Limbah B3 (PT Wastec International, 2026)

Informasi kelembagaan ini mengonfirmasi bahwa RSMDJ memiliki identitas administratif, lokasi proyek, manajemen penanggung jawab, serta izin lingkungan atau persetujuan teknis relevan yang jelas untuk mendukung rencana pengembangan. Informasi ini memberikan dasar administratif dan regulasi yang penting bagi ESIA, khususnya untuk memverifikasi tanggung jawab kelembagaan, kepatuhan hukum, dan kesiapan pengelolaan lingkungan.

Temuan Utama dari Analisis Data Operasional

Peninjauan awal terhadap data operasional yang tersedia menunjukkan bahwa RSUP Dr. M. Djamil Padang (RSMDJ) adalah rumah sakit rujukan tersier utama dengan tingkat aktivitas pelayanan kesehatan yang tinggi. Rumah sakit ini melayani banyak pasien rawat jalan, memiliki kapasitas rawat inap yang besar, serta menjalankan operasi medis dan pendukung yang intensif. Kondisi ini mengindikasikan bahwa RSMDJ memiliki tuntutan operasional signifikan yang relevan langsung dengan Penilaian Dampak Lingkungan dan Sosial (ESIA), khususnya terkait dengan timbulan air limbah, pengelolaan limbah B3 dan medis, penggunaan energi dan air, keselamatan dan kesehatan kerja, serta kecukupan infrastruktur lingkungan yang ada.

Catatan operasional dari tahun 2018 hingga 2023 menunjukkan angka kunjungan rawat jalan yang konsisten tinggi, mempertegas peran strategis rumah sakit ini sebagai fasilitas pelayanan kesehatan rujukan regional dan nasional. Selain itu, ketersediaan 750 tempat tidur rawat inap dan tingginya

jumlah prosedur bedah tahunan mencerminkan skala dan intensitas operasional rumah sakit. Aktivitas-aktivitas ini menimbulkan tekanan lingkungan dan sosial yang perlu dinilai sebagai bagian dari ESIA, termasuk peningkatan debit air limbah, timbulan limbah infeksius dan B3, limbah domestik, kebutuhan utilitas, pergerakan lalu lintas, serta potensi risiko bagi pekerja, pasien, pengunjung, dan masyarakat sekitar.

Informasi operasional lingkungan yang ada juga menunjukkan bahwa RSMDJ telah membangun beberapa fasilitas dan pengaturan pengelolaan lingkungan utama. Ini mencakup Instalasi Pengolahan Air Limbah (IPAL), Tempat Penyimpanan Sementara Limbah B3 (TPS Limbah B3), persetujuan teknis pengolahan limbah B3 berbasis autoklaf, serta kerja sama resmi dengan pengangkut dan pengolah limbah B3 berizin. Kerja sama dengan Dinas Lingkungan Hidup (DLH) Kota Padang untuk pengelolaan limbah domestik juga telah berjalan. Sistem yang ada saat ini menjadi titik awal penting untuk mengevaluasi kinerja pengelolaan lingkungan saat ini dan mengidentifikasi apakah diperlukan kapasitas tambahan, peningkatan/upgrading, atau tindakan mitigasi untuk rencana pengembangan tersebut.

IPAL yang ada saat ini memiliki kapasitas pengolahan maksimum sekitar 350 m^3/hari, sedangkan debit air limbah aktual yang tercatat adalah sekitar 121,50 m^3/hari, atau memanfaatkan sekitar 34,7% dari kapasitas yang tersedia. Berdasarkan rencana peningkatan kapasitas rumah sakit dari 800 menjadi 1.353 tempat tidur, dan dengan asumsi bahwa timbulan air limbah meningkat secara proporsional terhadap kapasitas tempat tidur, perkiraan awal debit air limbah di masa depan adalah sekitar 205,5 m^3/hari. Ini menunjukkan kenaikan sekitar 84,0 m^3/hari dan akan memanfaatkan sekitar 58,7% dari kapasitas IPAL yang ada, sehingga menyisakan sisa kapasitas hidrolik sekitar 144,5 m^3/hari.

Untuk tujuan perencanaan awal, penerapan alokasi beban puncak dan operasional sebesar 20% menghasilkan perkiraan debit desain sekitar 246,6 m^3/hari, atau setara dengan sekitar 70,5% dari kapasitas yang ada. Perbandingan awal ini menunjukkan bahwa IPAL yang ada mungkin masih memadai secara hidrolik; namun, kecukupan akhir harus diverifikasi pada tahap *Detailed Engineering Design* (DED) dengan mempertimbangkan kondisi beban puncak, air limbah yang dihasilkan dari layanan rawat jalan dan pendukung, kinerja pengolahan, produksi lumpur (sludge), kondisi peralatan, serta kebutuhan operasional di masa mendatang.

Secara keseluruhan, data operasional memberikan rona awal (baseline) yang penting bagi ESIA. Data ini membantu menentukan skala operasional rumah sakit saat ini, mengidentifikasi risiko lingkungan dan sosial yang ada maupun yang berpotensi timbul, mengestimasi beban operasional di masa depan, serta mendukung penyusunan tindakan mitigasi dan pengelolaan yang tepat dalam Rencana Pengelolaan Lingkungan dan Sosial (ESMP).

Table 5 Data Operasional RSMDJ

No.	Kategori Data	Data yang Tersedia
1	Kunjungan Rawat Jalan	• 2018: 873.469 kunjungan • 2019: 883.682 kunjungan • 2020: 621.553 kunjungan • 2021: 795.786 kunjungan

No.	Kategori Data	Data yang Tersedia
		• 2022: 780.687 kunjungan • 2023: 869.338 kunjungan
2	Kapasitas Tempat Tidur	800 tempat tidur (eksisting)
3	Prosedur Bedah	• 2022: 10.517 tindakan • 2023: 13.135 tindakan
4	Data Debit Air Limbah / IPAL	• Data debit air limbah RSMDJ tersedia untuk tahun 2024 • Kapasitas maksimum IPAL: 350 m³/hari
5	Rincian Teknis Penyimpanan Limbah B3	Dokumen persetujuan teknis TPS B3 RSMDJ tersedia
6	Jenis Limbah B3 Teridentifikasi	Limbah klinis infeksius, produk farmasi kedaluwarsa, baterai bekas, limbah elektronik, filter bekas, lumpur IPAL, kemasan farmasi, bahan kimia kedaluwarsa, dan oli pelumas bekas
7	Persetujuan Teknis Pengolahan Limbah B3	Dokumen persetujuan teknis pengolahan limbah B3 berbasis autoklaf tersedia
8	Kerja Sama Pengangkutan & Pemusnahan Limbah B3	Dokumen perjanjian pengangkutan dan pemusnahan tersedia untuk tahun 2026
9	Kerja Sama Pengelolaan Limbah Domestik	Perjanjian kerja sama antara RSMDJ dan Dinas Lingkungan Hidup (DLH) Kota Padang tersedia

Table 6 Komposisi Tenaga Kerja RSMDJ

No.	Kategori Tenaga Kerja	PNS	CPNS	PPPK Full	PPPK Paruh	Non-PNS Tetap	Non-PNS Kontrak	FK Unand	Mitra	Total
1	Dokter Umum	62	-	23	-	1	1	-	-	87
2	Dokter Spesialis	120	42	-	-	3	1	90	31	287
3	Dokter Gigi	4	-	1	-	-	-	-	-	5
4	Tenaga Keperawatan	414	106	418	-	-	75	-	-	1.013
5	Bidan	43	-	22	-	1	-	-	-	66
6	Apoteker	26	3	2	-	-	3	-	-	34
7	Asisten Apoteker	27	-	79	-	1	13	-	-	120
8	Tenaga Kesehatan Lainnya	153	48	144	3	2	7	-	-	357
9	Staf Administrasi & Pendukung	171	29	155	91	34	166	-	-	646
	Total Tenaga Kerja	**1.020**	**228**	**844**	**94**	**42**	**266**	**90**	**31**	**2.615**

Sumber: https://intip.in/HumanResourcesData; 2026

Berdasarkan data operasional yang ada, RSMDJ merupakan rumah sakit rujukan tersier dengan intensitas tinggi dan permintaan layanan kesehatan yang besar. Hal ini tercermin dari tingginya angka kunjungan rawat jalan, ketersediaan 750 tempat tidur rawat inap, serta banyaknya tindakan bedah yang dilakukan setiap tahun. Data ini menunjukkan bahwa RSMDJ beroperasi dalam skala besar dan memegang peranan penting sebagai fasilitas pelayanan kesehatan rujukan regional dan nasional.

Tingkat aktivitas rumah sakit yang tinggi ini relevan secara langsung dengan Penilaian Dampak Lingkungan dan Sosial (ESIA). Volume pasien, staf, dan aktivitas medis yang lebih besar umumnya menyebabkan peningkatan kebutuhan air bersih, listrik, sistem pendingin, pengolahan air limbah, pengelolaan limbah medis, pengelolaan limbah B3, layanan limbah domestik, serta pengendalian K3. Oleh karena itu, data operasional ini menjadi dasar penting untuk memahami skala kegiatan rumah sakit saat ini dan untuk menilai potensi dampak lingkungan dan sosial dari rencana proyek pembangunan.

Data kunjungan rawat jalan dari tahun 2018 hingga 2023 menunjukkan bahwa RSMDJ secara konsisten melayani jumlah pasien yang tinggi. Meskipun kunjungan rawat jalan sempat menurun pada tahun 2020, jumlahnya kembali meningkat pada tahun-tahun berikutnya hingga mencapai 869.338 kunjungan pada tahun 2023. Selain itu, jumlah tindakan bedah meningkat dari 10.517 tindakan pada tahun 2022 menjadi 13.135 tindakan pada tahun 2023. Peningkatan ini mengindikasikan pemberian layanan kesehatan yang intensif, yang dapat berkontribusi pada peningkatan timbulan air limbah, produksi limbah infeksius, penggunaan bahan medis, konsumsi energi, serta permintaan akan layanan pendukung rumah sakit.

Dari perspektif pengelolaan lingkungan, RSMDJ telah memiliki beberapa sistem pendukung yang relevan dengan pengendalian dampak lingkungan. Ini mencakup fasilitas pengolahan air limbah dengan kapasitas IPAL maksimum 350 m^3/hari, TPS limbah B3, persetujuan teknis pengolahan limbah B3 berbasis autoklaf, serta kerja sama resmi dengan pengangkut dan pengolah limbah B3 berizin. Kerja sama dengan Dinas Lingkungan Hidup (DLH) Kota Padang untuk pengelolaan limbah domestik juga telah berjalan.

Dalam konteks ESIA, informasi ini penting karena menunjukkan kapasitas rumah sakit saat ini dalam mengelola aspek-aspek lingkungan dari operasionalnya. Data ini dapat digunakan untuk menilai apakah fasilitas pengelolaan lingkungan yang ada sudah mencukupi dalam kondisi saat ini dan apakah perlu ditingkatkan untuk mendukung rencana pengembangan. Sebagai contoh, kapasitas IPAL harus dibandingkan dengan debit air limbah aktual sebesar 121,50 m^3/hari, serta proyeksi beban air limbah di masa depan setelah proyek diimplementasikan. Demikian pula, sistem pengelolaan limbah B3 harus ditinjau ulang untuk memastikan bahwa penyimpanan, pengolahan, pengangkutan, dan pemusnahan akhir dilakukan sesuai dengan persyaratan teknis dan standar regulasi yang berlaku.

Data komposisi tenaga kerja juga relevan dengan ESIA karena RSMDJ mempekerjakan tenaga kerja dalam jumlah besar, yaitu 2.615 personel. Hal ini menunjukkan perlunya pengelolaan aspek sosial dan ketenagakerjaan, termasuk K3, kesiapsiagaan tanggap darurat, pengaturan akses dan mobilitas, manajemen risiko tempat kerja di area medis, serta perlindungan bagi tenaga kesehatan dan staf pendukung. Jumlah tenaga kerja yang besar ini juga memengaruhi timbulan limbah domestik, kebutuhan sanitasi, konsumsi air, penggunaan energi, dan permintaan akan fasilitas pendukung.

Secara keseluruhan, data operasional RSMDJ memberikan dasar awal yang penting untuk menyusun rona lingkungan (baseline) ESIA, mengidentifikasi risiko lingkungan dan sosial, mengestimasi beban operasional masa depan, dan merumuskan langkah-langkah pengelolaan yang tepat dalam Rencana Pengelolaan Lingkungan dan Sosial (ESMP). Data ini membantu memastikan bahwa proyek pengembangan rumah sakit tidak hanya mendukung peningkatan layanan kesehatan, tetapi juga

dilaksanakan dengan mempertimbangkan daya dukung lingkungan, keselamatan kerja, kepatuhan regulasi, dan keberlanjutan operasional jangka panjang.

Risiko Dominan dan Strategi Mitigasi

Proyek pengembangan RSMDJ Padang dapat menimbulkan beberapa risiko lingkungan dan sosial yang penting, terutama karena konstruksi akan berlangsung di dalam area rumah sakit yang sedang aktif. Selama masa konstruksi, layanan rumah sakit akan tetap beroperasi. Hal ini berarti kegiatan konstruksi harus dikelola dengan cermat agar tidak mengganggu layanan medis, pasien, pengunjung, staf rumah sakit, maupun masyarakat sekitar.

Risiko utama yang teridentifikasi pada tahap ESIA v0.1 ini meliputi kebisingan dan getaran dari pekerjaan pembongkaran, penggalian, dan alat berat; emisi debu dan udara dari aktivitas konstruksi dan pengangkutan material; kemacetan lalu lintas dan gangguan akses sementara di sekitar rumah sakit; timbulan limbah konstruksi dan limbah B3; risiko K3 bagi pekerja; serta potensi gangguan terhadap pasien, pengunjung, staf rumah sakit, dan warga sekitar. Risiko-risiko ini menjadi sangat penting karena proyek berlokasi di area perkotaan yang padat dan berdekatan dengan penerima dampak yang sensitif (sensitive receptors). Ini mencakup ruang rawat inap, fasilitas ICU, area pelayanan rawat jalan, permukiman warga, sekolah, dan fasilitas umum lainnya. Untuk alasan ini, proyek akan memerlukan tindakan mitigasi yang ketat selama masa konstruksi. Perhatian khusus harus diberikan untuk menjaga rute ambulans, akses darurat, sirkulasi pasien, dan keberlanjutan operasional rumah sakit pada setiap tahap konstruksi.

Penilaian ini juga mempertimbangkan ketahanan terhadap iklim dan gempa bumi. Gedung CMU baru dan Gedung Rawat Jalan Non-JKN diharapkan dapat mendukung layanan kesehatan jangka panjang serta memperkuat kemampuan rumah sakit untuk terus beroperasi selama kondisi darurat atau bencana di Sumatera Barat. Oleh karena itu, perlindungan lingkungan dan sosial perlu diintegrasikan ke dalam perencanaan, perancangan, konstruksi, dan operasional proyek.

Beberapa tindakan penting masih perlu diselesaikan pada tahap ESIA berikutnya, yaitu ESIA v0.2. Ini mencakup penyelesaian survei rona awal M1, yang meliputi kualitas udara ambien, kebisingan, air permukaan, air tanah, kondisi rona sosial, dan pencacahan lalu lintas. Proyek ini juga perlu memperoleh atau memperbarui izin dan persetujuan teknis terkait, mengonfirmasi informasi DED, serta memverifikasi data lingkungan operasional dan sistem pengelolaan limbah. Konsultasi lanjutan juga akan dilakukan dengan manajemen RSMDJ, instansi pemerintah daerah, masyarakat terdampak, dan kelompok rentan untuk meningkatkan perencanaan mitigasi dan keterlibatan pemangku kepentingan.

Pada tahap ini, langkah-langkah mitigasi awal mencakup pengendalian debu, pembatasan pekerjaan bising pada jam-jam yang sesuai, penyusunan rencana manajemen lalu lintas, pemantauan lingkungan secara berkala, pemilahan dan pemusnahan limbah yang benar melalui penyedia jasa berizin, pengendalian K3, kode etik pekerja, saluran komunikasi dan penanganan keluhan, serta perencanaan konstruksi bertahap. Langkah-langkah ini bertujuan untuk mengurangi gangguan terhadap operasional rumah sakit, melindungi pasien dan masyarakat sekitar, serta memastikan proyek dilaksanakan dengan cara yang aman dan bertanggung jawab terhadap lingkungan.

1. INTRODUCTION

The Environmental and Social Impact Assessment (ESIA) for the RSUP Dr. M. Djamil Padang (RSMDJ) development project has been prepared as part of the TRUST Project supported by the Asian Infrastructure Investment Bank (AIIB). The ESIA aims to identify potential environmental and social risks and impacts associated with the proposed hospital redevelopment and to provide the basis for environmental and social management during project preparation, construction, and operation phases.

At the time of ESIA preparation, several key supporting documents and technical studies, including the AMDAL process, Detailed Engineering Design (DED), traffic impact analysis (Andalalin), and other technical planning documents, are still under development and refinement. Therefore, this ESIA should be considered a living document that may continue to be updated, refined, and adjusted in line with the availability of updated technical information, detailed design outputs, regulatory approvals, consultation outcomes, and project implementation requirements throughout the assignment period.

Accordingly, some project descriptions, impact assessments, mitigation measures, layouts, technical specifications, and management plans presented in this document remain preliminary and may be revised during subsequent project development stages. Future updates to the ESIA will aim to ensure consistency with the finalized AMDAL, DED, contractor planning documents, and applicable AIIB Environmental and Social Framework (ESF) requirements, while maintaining alignment with Indonesian regulatory obligations and the overall objectives of sustainable and resilient hospital development.

1.1 Project Overview & Rationale

The Project Overview and Rationale section provides the foundation for the environmental and social safeguards assessment by linking the institutional role of RSMDJ with the strategic objectives of the development programme. RSMDJ functions as a government-owned tertiary referral and teaching hospital with a critical role in delivering advanced healthcare services, medical education, specialist training, and clinical research in West Sumatra.

The development programme responds to increasing healthcare demand, aging infrastructure conditions, evolving clinical-service requirements, and the national healthcare transformation agenda promoted by the Ministry of Health. Through the TRUST Project, the development is expected to strengthen referral healthcare systems, improve patient experience and operational efficiency, and support long-term healthcare resilience in the region.

The project also aligns with broader national priorities related to healthcare modernization, smart-hospital implementation, climate-resilient infrastructure, and sustainable healthcare service delivery. Consequently, the ESIA assessment is designed to evaluate the environmental and social implications

of the development while ensuring compliance with Indonesian regulations and AIIB Environmental and Social Framework requirements.

1.1.1 Existing Institutional Profile

RSMDJ is a government-owned Class A Teaching Hospital under the Directorate General of Health Services, Ministry of Health of the Republic of Indonesia. The hospital is located on Perintis Kemerdekaan street, Sawahan Timur, Padang City, West Sumatra, and functions as the main national referral hospital for the western region of Indonesia, particularly for the provinces of West Sumatra, Riau, Jambi, Bengkulu, and the southern part of North Sumatra. In addition to healthcare services, the hospital also serves as a center for medical education, clinical training, and health research in collaboration with Andalas University and other health education institutions.

Historically, the hospital was initially established as "RSU Megawati" with a capacity of approximately 100 beds before being relocated to its current site in 1953. In 1978, the hospital officially adopted the name RSMDJ to honor Dr. M. Djamil, a prominent medical figure from West Sumatra. Over time, the institution evolved through several administrative and financial management reforms, including its current status as a Public Service Agency (BLU), which allows greater flexibility in hospital financial management and service development.

At present, RSMDJ occupies a land area of approximately 8.576 hectares with a total building area of about 87,310 m² and a bed capacity of 800 beds. The hospital is supported by extensive infrastructure, including centralized wastewater treatment facilities (IPAL), power generators, boiler systems, PDAM and artesian water supply systems, and advanced medical equipment such as MRI 3T, Cath Lab, Radiotherapy, CT Scan, Angiography, Mammography, and various minimally invasive surgical technologies.

The hospital provides comprehensive healthcare services covering outpatient, inpatient, emergency, intensive care, surgery, diagnostic, rehabilitation, radiology, laboratory, pharmaceutical, and specialized medical services. RSMDJ also operates several flagship centers, including the Cardio Cerebrovascular Center, Integrated Oncology Services, Regenerative Medicine and Cell Therapy, Organ Transplantation Services, and Mother and Child Center. These services are supported by more than 2,500 healthcare and non-healthcare personnel, including specialists, nurses, pharmacists, researchers, and administrative staff.

Institutionally, the hospital is managed through a structured governance system consisting of the Supervisory Board, Hospital Director, Directorates, Committees, Medical Staff Groups (KSM), and supporting installations. Operational functions include medical and nursing services, education and research, finance and planning, operational support, environmental health, occupational health and safety (K3RS), infection prevention and control (PPI), hospital information systems (SIMRS), and facility maintenance. This institutional arrangement demonstrates that RSMDJ has established organizational capacity to support the implementation of environmental and social management measures associated with the proposed hospital development project. https://intip.in/Hospitalprofil

1.1.2 Strategic Direction of the Development

- The development programme of RSMDJ Padang operationalizes the strategic direction established in the RSMDJ Master Plan formalized through KMK No. HK.01.07/MENKES/1667/2024. The development forms part of the TRUST Project initiative to strengthen tertiary healthcare infrastructure, improve healthcare accessibility, and modernize referral hospital services in Indonesia.
- Under the current development plan, the main infrastructure investment package consists of the construction of two major buildings: the Central Medical Unit (CMU) Building and the Non-JKN Outpatient Building. These developments are supported by procurement of modern medical equipment, hospital support systems, smart-hospital IT infrastructure, interior works, furniture, and human-capital investment programmes including training, education, research collaboration, and partner-hospital exchange initiatives.
- Strategically, the development aims to expand healthcare capacity and strengthen priority referral services at RSMDJ, particularly in specialized and sub-specialized healthcare areas such as cardiac care, oncology, stroke, uro-nephrology and transplantation, maternal and child health, diabetes mellitus, gastro-hepatology, tuberculosis, and emerging infectious diseases. The CMU Building is expected to become the primary integrated medical service facility supporting inpatient care, intensive care, surgical services, and critical medical functions.
- Based on available Master Plan information, the development is also intended to increase inpatient and intensive care service capacity through the development of ICU, NICU, PICU, ICCU, operating theatres, catheterization laboratories, and KRIS-standard inpatient facilities. Detailed room allocation, final bed capacity, floor configuration, and operational zoning will be confirmed during the Detailed Engineering Design (DED) process and incorporated into ESIA v0.2.
- The project additionally adopts Smart Hospital and Green Hospital approaches through the integration of digital healthcare systems, modern hospital management infrastructure, energy-efficient building systems, improved indoor environmental quality, and climate-resilient operational concepts. These measures are expected to support hospital efficiency, patient experience, operational reliability, and long-term sustainability of healthcare services at RSMDJ.

1.2 Project Objectives

The development of RSMDJ Padang is part of the TRUST Project initiative aimed at strengthening tertiary healthcare services and improving the quality, accessibility, and resilience of public teaching hospitals in Indonesia. The project supports the transformation of RSMDJ as a Class A National Referral Hospital by expanding healthcare capacity, modernizing medical infrastructure, and improving operational efficiency in line with national healthcare priorities and AIIB Environmental and Social Framework (ESF) requirements.

The primary objective of the project is to expand and modernize clinical services through the construction of the Central Medical Unit (CMU) Building and the Non-JKN Outpatient Building,

including the provision of associated medical equipment, utilities, smart hospital systems, and supporting operational infrastructure. These developments are intended to strengthen integrated referral services, improve patient flow, increase inpatient and intensive care capacity, and support specialized and sub-specialized healthcare services.

The project also aims to strengthen education, research, and partner-hospital exchange programmes through investment in human capital development, training facilities, and institutional collaboration. As a teaching hospital affiliated with Andalas University, RSMDJ is expected to enhance its role in medical education, clinical training, and healthcare research at the regional and national levels.

Another key objective is the implementation of Smart Hospital concepts through the deployment of integrated information technology systems to support clinical operations, hospital management, digital patient services, and operational monitoring. Smart hospital infrastructure is expected to improve service efficiency, patient experience, data integration, and healthcare management performance.

In addition, the development is expected to progressively incorporate Green Hospital principles, including energy efficiency, water conservation, indoor environmental quality improvement, climate-resilient design, and low-carbon operational approaches. Specific technical targets and green-building parameters will be further confirmed through the Detailed Engineering Design (DED) process and incorporated into ESIA v0.2.

From a cultural heritage perspective, the current ESIA review indicates that the RSMDJ site itself is not formally designated as a protected cultural heritage property. Nevertheless, coordination with relevant cultural heritage authorities may still be conducted during the next ESIA stage to confirm the status of any existing structures potentially affected by development activities.

1.3 Project Activities and Expected Results

1.3.1 Project Activities

The RSMDJ development project is part of the TRUST Project implemented by the Ministry of Health of Indonesia to improve healthcare capacity, service quality, and hospital resilience in major national referral hospitals. The project is located within the RSMDJ Padang complex at Jl. Perintis Kemerdekaan, Sawahan Timur, Padang City, West Sumatra, on a total site area of approximately 110,540 m².

The masterplan development consists of phased hospital expansion and modernization, including the construction of a Central Medical Unit (CMU), Non-JKN outpatient facilities, supporting clinical buildings, educational and research facilities, dormitory and parking buildings, utility facilities, and commercial support areas. The proposed masterplan indicates a total planned building area of approximately 188,510 m² with land use parameters that remain compliant with Padang City spatial planning regulations (RTRW Padang City) Padang City Regulation Regional Regulation No. 4 of 2012 concerning the Spatial Plan of the City of Padang.

Phase 1 of the masterplan focuses primarily on the construction of the Central Medical Unit (CMU) Building and Non-JKN Outpatient Building. To accommodate these developments, several existing hospital buildings will be affected and partially demolished, including inpatient wards, supporting medical facilities, utility buildings, and ancillary structures. As part of the mitigation strategy to maintain uninterrupted healthcare services, the project also includes the construction of a dedicated patient relocation building prior to major demolition activities.

The proposed patient relocation building is planned as a 3-storey facility with an approximate total floor area of 4,703 m² and a total capacity of 198 hospital beds. The facility will accommodate High Care Unit (HCU) beds, pulmonary isolation rooms, psychiatric inpatient rooms, osteosarcoma treatment rooms, burn treatment rooms, and KRIS-standard inpatient rooms. The relocation building is intended to ensure continuity of healthcare services during the implementation of the broader hospital development programme.

The overall masterplan aims to increase hospital capacity significantly from approximately 800 existing beds to around 1,353 beds, including JKN inpatient services, executive inpatient services, intensive care units, and isolation facilities. The development also integrates Smart Hospital and Green Hospital concepts through improved infrastructure, operational efficiency, patient circulation, utility systems, and healthcare service integration. Supporting infrastructure such as parking facilities, internal circulation roads, drainage systems, utility upgrades, and emergency access arrangements are also included within the project scope.

The project will be implemented within an active operational hospital environment; therefore, construction activities must be carefully phased to maintain patient safety, ambulance access, emergency response functions, and continuity of healthcare operations. Environmental and social management measures, including traffic management, noise and vibration control, stakeholder engagement, occupational health and safety, and grievance mechanisms, will be integrated into the ESMP throughout the project lifecycle.

As part of the Phase 1 development of RSMDJ Padang, several inpatient and critical care units will be affected by demolition and reorganization activities associated with the construction of the Central Medical Unit (CMU) and supporting facilities. Based on the preliminary hospital bed redistribution plan, several existing patient beds will require temporary relocation, redistribution, or service adjustment to maintain continuity of healthcare operations during construction activities.

The affected facilities include regular inpatient wards, intensive care units, isolation rooms, and specialized treatment units. The largest impact is identified in standard inpatient rooms (RI), where approximately 137 beds are affected, followed by the High Care Unit (HCU) with 21 affected beds, and isolation rooms with approximately 10 affected beds. Several specialized service units, including birthing bed, psychiatric inpatient rooms, and other supporting clinical spaces, are also partially impacted by the development programme. In total, approximately 179 existing beds are expected to be affected by demolition activities, while around 35 beds are planned for repositioning or redistribution within the hospital system during the transition period.

To minimize disruption to patient services, the project includes the construction of a dedicated patient relocation building designed to accommodate critical inpatient functions during the development phase. This relocation strategy is intended to maintain healthcare service continuity, preserve emergency response capacity, and ensure uninterrupted patient care throughout the implementation of the hospital masterplan. The relocation planning also prioritizes ambulance circulation, patient safety, infection prevention and control, and operational coordination between hospital units during phased construction activities.

1.3.2 Expected Results

The development of RSMDJ Padang is expected to significantly improve the hospital's capacity, quality, and resilience as a national referral and teaching hospital in West Sumatra. The project will support expanded healthcare services through the development of modern clinical facilities, increased inpatient capacity, improved outpatient services, and upgraded medical infrastructure. Upon completion, the hospital is expected to enhance service accessibility, patient comfort, emergency response capability, and healthcare operational efficiency.

The project is also expected to increase total hospital bed capacity from approximately 800 beds to around 1,353 beds, including JKN inpatient rooms, executive inpatient facilities, intensive care units, and isolation rooms. New facilities such as the Central Medical Unit (CMU), Non-JKN outpatient building, educational and research facilities, utility systems, parking infrastructure, and patient relocation facilities will improve integration of healthcare services and hospital circulation management.

From an environmental and social perspective, the project is expected to strengthen hospital resilience through the implementation of Smart Hospital and Green Hospital principles, including improved energy efficiency, wastewater management, healthcare waste management, climate-resilient infrastructure, and safer patient environments. The ESMP implementation is expected to minimize temporary construction-related impacts such as dust, noise, vibration, traffic disruption, and occupational risks while maintaining continuity of healthcare services during construction activities.

The project is also expected to generate positive socio-economic impacts, including employment opportunities during construction and operation, improved healthcare access for the wider community, enhanced medical education and research capacity, and stronger regional healthcare services in West Sumatra. Through phased implementation, stakeholder engagement, traffic management, occupational health and safety measures, and grievance redress mechanisms, the project aims to ensure that environmental and social risks remain manageable and acceptable throughout the project lifecycle.

1.4 Purposes of the ESIA/ESMP

The ESIA-ESMP fulfils four interlocking purposes that align the AIIB ESF requirements with the Government of Indonesia AMDAL process and the institutional readiness of RSMDJ. These purposes

are expanded in the bullets below and are operationalised through the Living Document mechanism described in the Foreword.

- Compliance - to satisfy the safeguards documentation requirements of the AIIB ESF (ESS1 with screening for ESS2 and ESS3) and the Government of Indonesia AMDAL track under Government Regulation 22/2021 and Minister of Environment and Forestry Regulation 4/2021.
- Risk identification and management - to identify, characterise, and prioritise environmental and social risks across the project lifecycle, and to specify mitigation, monitoring, and reporting commitments capable of being audited.
- Stakeholder accountability - to provide the basis for transparent disclosure to affected and interested parties, and to anchor the Stakeholder Engagement Plan (Annex C) and Grievance Redress Mechanism (Annex C).
- Living Document discipline - to serve as the evolving safeguards record over the project lifecycle, with explicit version control and a defined update cadence (Annex G).

1.5 Methodology for Preparing ESIA

The Environmental and Social Impact Assessment (ESIA) for the RSUP Dr. M. Djamil Redevelopment Project was prepared using a systematic and integrated approach to identify, evaluate, and manage the potential environmental and social impacts associated with the project throughout its lifecycle. The ESIA methodology was designed in accordance with applicable national regulations, international good practices, and relevant lender requirements, including environmental and social standards applicable to healthcare infrastructure projects.

The preparation process included several key stages, namely scoping, baseline data collection, impact assessment, development of mitigation measures, monitoring planning, and reporting and stakeholder engagement. These stages were conducted through a combination of desktop studies, field surveys, laboratory analysis, stakeholder consultations, and technical assessments to ensure that all significant environmental and social aspects were adequately addressed.

The methodology also applied a risk-based approach to assess the significance of potential impacts during the construction and operational phases of the project. Based on the assessment results, appropriate mitigation and management measures were developed to minimize adverse impacts, enhance positive outcomes, and ensure compliance with environmental and social requirements. Continuous monitoring and reporting mechanisms were also incorporated to support effective implementation of the Environmental and Social Management Plan (ESMP) throughout the project period.

Table 7 Methodology for Preparing ESIA

Stage	Simple Explanation	Main Activities	Main Output
1. Scoping	Identify the important environmental and social issues related to the project.	- Define project scope and study area - Identify key risks and impacts - Review regulations and standards - Conduct initial stakeholder consultation	Scoping Report / Terms of Reference (ToR)
2. Baseline Study	Collect existing environmental and social data before the project starts.	- Field surveys and sampling - Collect environmental data (air, water, noise, biodiversity) - Collect social data (community, health, livelihood, traffic)	Baseline Environmental and Social Data
3. Impact Assessment	Analyze potential impacts caused by the project during construction and operation.	- Identify positive and negative impacts - Assess significance of impacts - Analyze direct, indirect, and cumulative impacts	Impact Assessment Matrix
4. Mitigation Measures	Develop actions to prevent or reduce negative impacts.	- Prepare mitigation measures - Apply mitigation hierarchy (avoid, minimize, restore, compensate) - Develop ESMP	Environmental and Social Management Plan (ESMP)
5. Monitoring	Monitor project performance and effectiveness of mitigation measures.	- Monitor air, water, noise, waste, and safety - Monitor contractor compliance - Handle community complaints	Monitoring Program and Monitoring Reports
6. Reporting and Disclosure	Report ESIA results and share information with stakeholders.	- Prepare ESIA report - Submit monitoring reports - Conduct public disclosure and consultation	Final ESIA Report and Periodic Reports

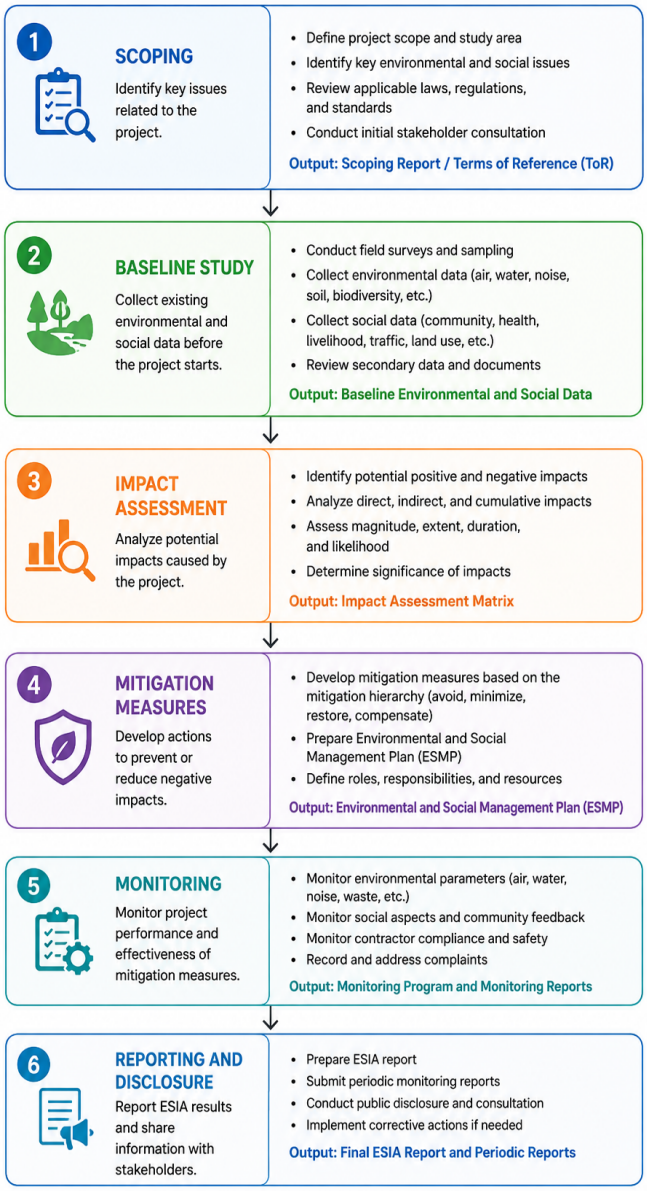


Figure 1 Methodology Illustration for Preparing ESIA

1.5.1 Data Sources Underpinning the Assessment

The data sources underpinning this ESIA consist of project documents, regulatory references, hospital operational data, master planning documents, and baseline information that will be progressively updated through the Living Document mechanism. The current v0.1 assessment is primarily based on the KAK Beauty Contest for the AMDAL Consultant of RSMDJ T.A. 2026, the RSMDJ Master Plan formalized through KMK No. HK.01.07/MENKES/1667/2024, and available operational and institutional data obtained during preliminary document review.

The available Master Plan information indicates that the RSMDJ development is part of the TRUST Project and includes the development of the Central Medical Unit (CMU) Building and the Non-JKN Outpatient Building. The project aims to strengthen RSMDJ's role as a national referral and teaching hospital, particularly for priority services such as oncology, cardiac care, stroke, uro-nephrology,

maternal and child health, diabetes mellitus, gastro-hepatology, tuberculosis, and emerging infectious diseases.

Available preliminary data also include information on outpatient visits, bed capacity, surgical activities, IPAL wastewater flow, hazardous waste storage technical documentation, autoclave technical approval for B3 waste treatment, cooperation with licensed B3 waste transport and disposal providers, domestic waste cooperation with DLH Padang City, and workforce composition as of 2023–2024. These data provide the initial basis for assessing existing hospital operations, environmental flows, service intensity, workforce profile, and potential environmental and social impacts.

Further data required for ESIA v0.2 include the latest RSMDJ institutional profile, detailed engineering design documents, updated permits and approvals, existing UKL-UPL/AMDAL and environmental approval documents, updated waste management contracts, BPS socio-economic data, primary baseline sampling results, and stakeholder consultation records.

Table 8 Data Sources Underpinning the Assessment

No.	Data Source	Available Data / Information	Status / Use in ESIA
1	KAK Beauty Contest Consultant AMDAL RSMDJ Padang T.A. 2026	Scope of ESIA, AMDAL, Andalalin, Pertek BMAL, Pertek BMUE, Rintek B3, AIIB ESF requirements, expert requirements, schedule, and deliverables	Main reference for ESIA v0.1 structure and safeguards requirements
2	Master Plan RSMDJ – KMK No. HK.01.07/MENKES/1667/2024	Development direction, CMU Building, Non-JKN Outpatient Building, phased development, priority services, and hospital transformation strategy	Used for project description, development context, and service expansion baseline
3	Project cost and implementation period	Estimated project cost: USD 66,815,246, indicative implementation period: 2027–2029	Used for project overview and development planning
4	RSMDJ operational service data	Outpatient visits 2018–2023, bed capacity, surgical activities, and service utilization data	Used for healthcare service baseline and operational intensity analysis
5	Wastewater / IPAL data	2024 wastewater flow data; IPAL treatment capacity up to approximately 350 m^3/day	Used for wastewater baseline and operational environmental trend
6	B3 waste management documents	Rintek TPS Limbah B3, identified B3 waste streams, autoclave technical approval, and B3 waste transport/disposal cooperation	Used for hazardous waste baseline and ESMP development
7	Domestic waste cooperation	Cooperation document between RSMDJ and DLH Padang City for domestic waste management	Used for solid waste management baseline
8	Workforce data	2023 workforce: 2,398 staff, 2024 workforce: 2,457 staff, includes doctors, specialists, nurses, midwives, allied health staff, and non-medical staff	Used for social baseline, labour profile, and workforce planning

No.	Data Source	Available Data / Information	Status / Use in ESIA
9	Existing permits and legal documents	NIB, KBLI 86101, environmental permits, SIO, PBG/IMB, PKKPR, NPWP, B3 permits	Partly available, remaining documents to be confirmed in v0.2
10	DED / schematic design	Detailed building footprint, floor area, layout, sequencing, and construction method	To be acquired from DEDC in v0.2
11	BPS and socio-economic data	Padang City, Padang Timur District, and Sumatera Barat demographic and livelihood data	To be updated in v0.2 for social baseline
12	Primary baseline survey	Ambient air, noise, water quality, traffic count, biodiversity, social survey, vulnerable groups	To be collected in v0.2
13	Stakeholder consultation data	Institutional interviews, public consultation, FGD, and disclosure feedback	To be completed through SEP implementation
14	AIIB ESF and international standards	AIIB ESF 2022, ESS1, ESS2/ESS3 screening, WHO, WBG EHS Guidelines, ILO conventions	Used for gap analysis and international safeguards alignment

The ESIA v0.1 is supported by available project planning documents, hospital operational data, preliminary environmental management records, and AIIB/Indonesian regulatory requirements. However, several datasets remain subject to confirmation, particularly DED-level design, updated permits, primary environmental sampling, socio-economic baseline data, and stakeholder consultation results. These outstanding data will be completed during the v0.2 update to strengthen the accuracy of the baseline, impact assessment, mitigation measures, and ESMP implementation framework.

1.6 Screening for Associated Facilities

This section screens potential Associated Facilities for the RSMDJ development in line with AIIB ESS1. Associated Facilities are facilities or activities that are not formally part of the Project but are essential for the Project to function and would not be developed or operated in the same manner without the Project. The screening covers access roads, electricity supply, waste management facilities, environmental laboratories, construction laydown/basecamp areas, teaching partnerships, public transport interfaces, and heritage-related authorities.

Based on the available ESIA v0.1 information, no formal Associated Facility has been identified at this stage. Most connected facilities are either existing public infrastructure, commercial third-party services, or activities already within the ESIA/C-ESMP scope. The assessment will be refined in v0.2 after the Kick-off Meeting, DED review, and confirmation of project interfaces.

Table 9 Screening of Associated Facilities

No	Activities funded by other: Committed Investments by another financier (these only refer to specific investments that may be linked with the Djamil Hospital)	Financial Sources	Considered Associated Facilities/AF when all three criteria are met			Conclusion
			Directly & materially related to the Project	Concurrent with Project	Necessary for Project viability (strict test)	
1	Demolition of existing hospital buildings	Government / MoH / RSMDJ (BLU)- Not financed by AIIB	Directly related as preparatory enabling works for redevelopment site clearance.	Carried out in pre-construction phase.	**Yes -** Necessary to clear the designated site and enable construction of the new hospital facilities.	**AF**
2	Central Medical Unit (CMU) Building	AIIB	Core infrastructure forming the primary output of the project.	Implemented concurrently under AIIB financing.	**Yes** – it accommodates essential centralized medical services required for the hospital's safe and effective operation	**AF**
3	Non-JKN / Private Outpatient Building	AIIB	Directly part of project design and service scope.	Implemented concurrently under AIIB financing.	**Yes** – it is Essential for project viability and operational design.	**AF**
4	Medical and non-medical equipment procurement	AIIB	Directly required for operationalizatio n of CMU and hospital services.	Delivered during implementation phase.	**Yes** - Required for functional operation of the facility.	**AF**
5	IT systems, furniture, and supporting equipment	AIIB	Directly supports hospital operational systems.	Implemented during construction and commissioning.	**Yes** - Required for operational readiness.	**AF**
6	Construction Management Consultant (CMC)	AIIB	Direct technical support for project implementation.	Engaged throughout construction period.	**Yes** - Required for quality assurance and project delivery, but not physical viability.	**AF**
7	Equipment Consultant (EQC)	AIIB	Supports procurement and installation process.	Concurrent with procurement phase.	**Yes** - Required for technical correctness, not physical viability.	**AF**
8	Project Management / Soft Component	AIIB	Supports governance and coordination of project execution.	Continuous throughout project cycle.	**Yes** - Required for implementation efficiency, not viability.	**AF**
9	3-Storey Temporary Hospital Service Building	RSMDJ (BLU) / Non-AIIB	The 3 story-buildings to relocate xx beds of ongoing hospital services during construction located at mosque	Implemented during construction phase.	**No** - Not a condition for project viability under AIIB definition.	**Not AF** (Enabling works)

No	Activities funded by other: Committed Investments by another financier (these only refer to specific investments that may be linked with the Djamil Hospital)	Financial Sources	Considered Associated Facilities/AF when all three criteria are met			Conclusion
			Directly & materially related to the Project	Concurrent with Project	Necessary for Project viability (strict test)	
			0°56'33.09"S 100°22'11.12"E, building 0°56'33.38"S 100°22'10.16"E.			
10	Patient relocation / service continuity arrangements	RSMDJ (BLU) / Non-AIIB	Service continuity arrangement to minimize disruption during construction.	Implemented contemporaneously with project.	**No** - Not required for project viability (safeguard/mitigation function).	**Not AF** (Enabling works)
11	Internal hospital infrastructure (roads, drainage, tempory basecamp,expanding wwtp and utilities within site boundary)	RSMDJ (BLU) / Non-AIIB	Supporting infrastructure within existing hospital system.	Implemented during parallel development activities.	**No** - Not strictly necessary for AIIB project viability (handled as site condition).	**Not AF** (Linked activities)
14	Basement parking development	RSMDJ (BLU) / Non-AIIB	Future development component not included in current project scope.	Planned beyond current project timeline.	**No** - Not required for current project viability.	**Not AF** (Future masterplan component)
15	Existing national and municipal roads surrounding RSUP Dr. M. Djamil	National and Local Government (APBN/APBD)	No	No	No	**Not AF**
16	Existing public electricity distribution network serving the surrounding area	PLN (State Electricity Company)	No	No	No	**Not AF**

The Associated Facilities (AF) screening presented in this table is preliminary and remains subject to refinement in ESIA v0.2 following completion of the Detailed Engineering Design (DED) review and confirmation of project interface boundaries. Where AFs are identified or confirmed, the Borrower shall ensure that environmental and social risks and impacts associated with such facilities are assessed and managed in accordance with the AIIB Environmental and Social Framework (ESF), particularly ESS1 (Environmental and Social Assessment and Management) and ESS2 (Involuntary Resettlement).

Potential environmental and social risks associated with AFs may include, but are not limited to, construction-related impacts such as dust generation, noise emissions, traffic disruption, occupational

health and safety risks, temporary access restrictions, and construction and demolition waste management. In cases involving demolition works or enabling infrastructure, additional risks related to service continuity and community access shall also be considered.

To address such risks, appropriate mitigation measures shall be incorporated into the Environmental and Social Management Plan (ESMP), applying the mitigation hierarchy (avoidance, minimization, mitigation, and compensation). Such measures may include traffic management plans, dust and noise control measures, occupational health and safety protocols, waste management procedures, and stakeholder engagement mechanisms. Where AFs are implemented by third parties, the Borrower shall ensure coordination and alignment with AIIB ESF requirements, including monitoring and reporting arrangements to ensure that environmental and social risks remain adequately managed throughout project implementation.

2. PROJECT DESCRIPTION

This Chapter describes the development programme under TRUST at RSUP Dr. M. Djamil Padang (RSMDJ): its type and scope, the parties involved, the site context, and the construction lifecycle. The narrative draws on the KAK Beauty Contest and the Master Plan reference (KMK No. HK.01.07/MENKES/1667/2024) and flags areas where DED-level detail is still to be supplied via the Living Document mechanism on v0.2 and onwards (KAK Beauty Contest pp. 2, 4).

2.1 Project Description

The RSMDJ development project is part of the ESIA-ESMP preparation for the development of new hospital infrastructure to expand service capacity and improve the quality of healthcare services. The project site is located at Perintis Kemerdekaan Street, Sawahan Timur, Padang City, West Sumatra, within the existing hospital area of approximately 110,540 m².

Under the Phase 1 development plan, the main investment package financed by AIIB consists of the construction of two new hospital buildings, namely the Central Medical Unit (CMU) Building and the Non-JKN Outpatient Building. These facilities are fully included within the AIIB-financed scope as core project components and are intended to support the modernization of RSMDJ as a government-owned teaching hospital and strengthen its role in providing advanced referral healthcare services.

Existing hospital buildings affected by the Phase 1 master plan are subject to demolition and/or relocation as part of enabling works required for project implementation. These activities, including demolition and relocation arrangements, are financed by the Borrower (RSMDJ/Ministry of Health) and are not included within the AIIB financing scope. Accordingly, these enabling works have been assessed separately under the Associated Facilities (AF) screening in accordance with the AIIB Environmental and Social Framework (ESF), where applicable.

The project area also includes the relocation of existing hospital services and patient care functions to ensure continuity of healthcare delivery during the construction phase. Patient relocation areas and temporary service facilities are identified within the project planning process and are considered part of the broader implementation arrangement supporting uninterrupted hospital operations.

The project area also includes surrounding social and operational conditions that need to be considered in the ESIA, such as street vendors inside and outside the hospital, nearby community businesses, hospital entrance conditions, and adjacent land used by KAI and TNI. These conditions are important for assessing potential impacts on access, livelihood activities, traffic, and community interaction during project implementation.

Further data are still required to complete the ESIA, including primary data on air quality, noise, traffic, community social conditions, and vulnerable groups. These data will support the final assessment of environmental and social impacts and the preparation of appropriate mitigation measures.

Table 10 ESIA Primary Data Collection Timeline

Week	Date	Activities	Output
Week 1	20–26 May	Kick-off ESIA survey, coordination with RSMDJ, preparation of survey instruments	Inception alignment, survey tools ready
Week 2	27 May – 2 June	Air quality baseline measurement, noise monitoring (day & night), initial site reconnaissance	Environmental baseline raw data
Week 3	3–9 June	Traffic count survey, pedestrian flow observation, site access mapping	Traffic impact dataset
Week 4	10–16 June	Socio-economic survey, stakeholder identification, vulnerable group mapping	Social baseline data
Week 5	10–16 June	FGDs (community, hospital users, staff), key informant interviews (KII)	Qualitative social assessment
Week 6	17–28 June	Data validation, gap filling, secondary data cross-check, institutional consultation	Validated dataset
Week 7	29–30 Jun	Data consolidation and preparation for ESIA v0.2 integration	Final baseline dataset for ESIA

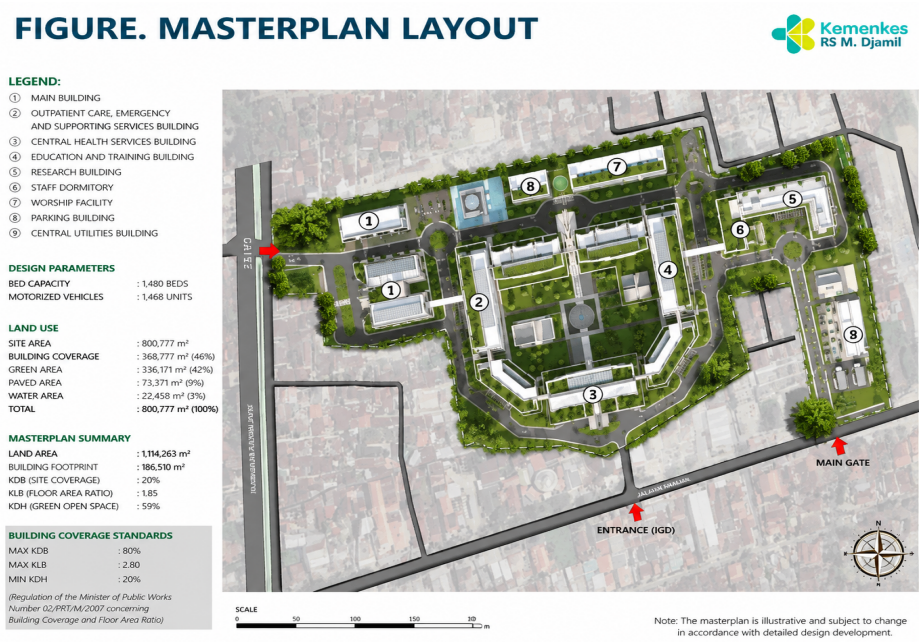


Figure 2 Masterplan Layout

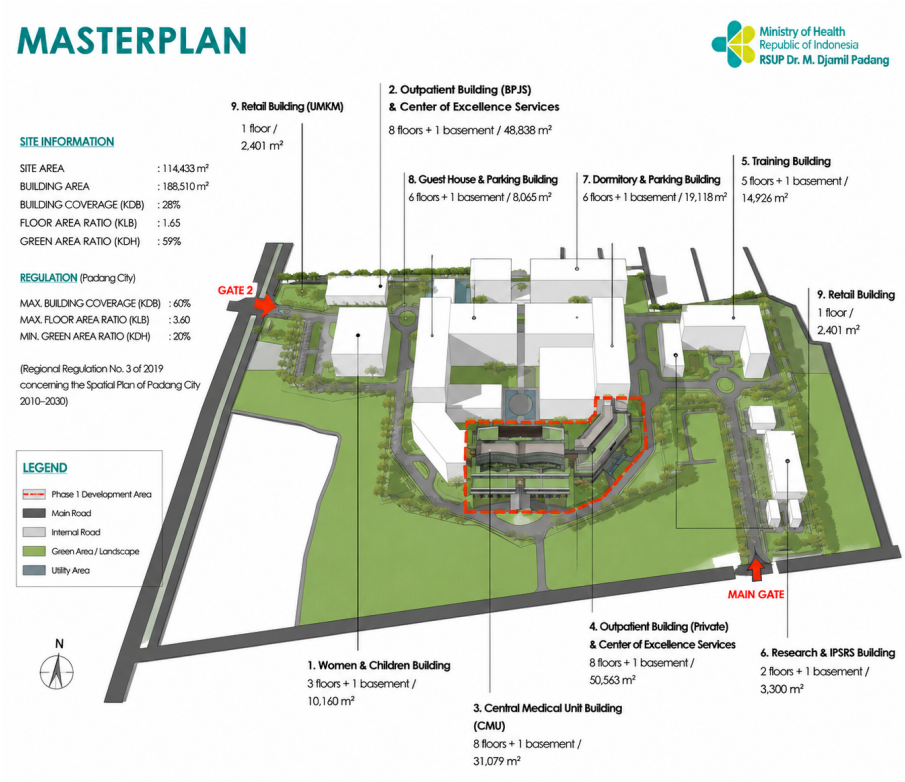


Figure 3 Development Plan and Phase 1 of RSMDJ

The Phase 1 development plan of RSMDJ consists of the construction of two major healthcare facilities under the TRUST Project investment package, namely the Central Medical Unit (CMU) Building and the Non-JKN Outpatient Building. These new facilities are planned within the existing hospital complex to support the expansion of healthcare services, improve operational efficiency, and enhance the hospital's role as a national referral and teaching hospital.

The CMU Building is planned as the primary integrated medical service facility, accommodating inpatient services, intensive care units, operating theatres, and other critical medical functions. Meanwhile, the Non-JKN Outpatient Building is intended to strengthen outpatient healthcare services outside the national health insurance (JKN) scheme and improve patient flow and service accessibility.

The figure also illustrates the indicative location of both proposed buildings within the existing RSMDJ site, showing their relationship with the current hospital layout and surrounding infrastructure. The final building footprint and detailed engineering design will be confirmed in the next ESIA and DED development stage.

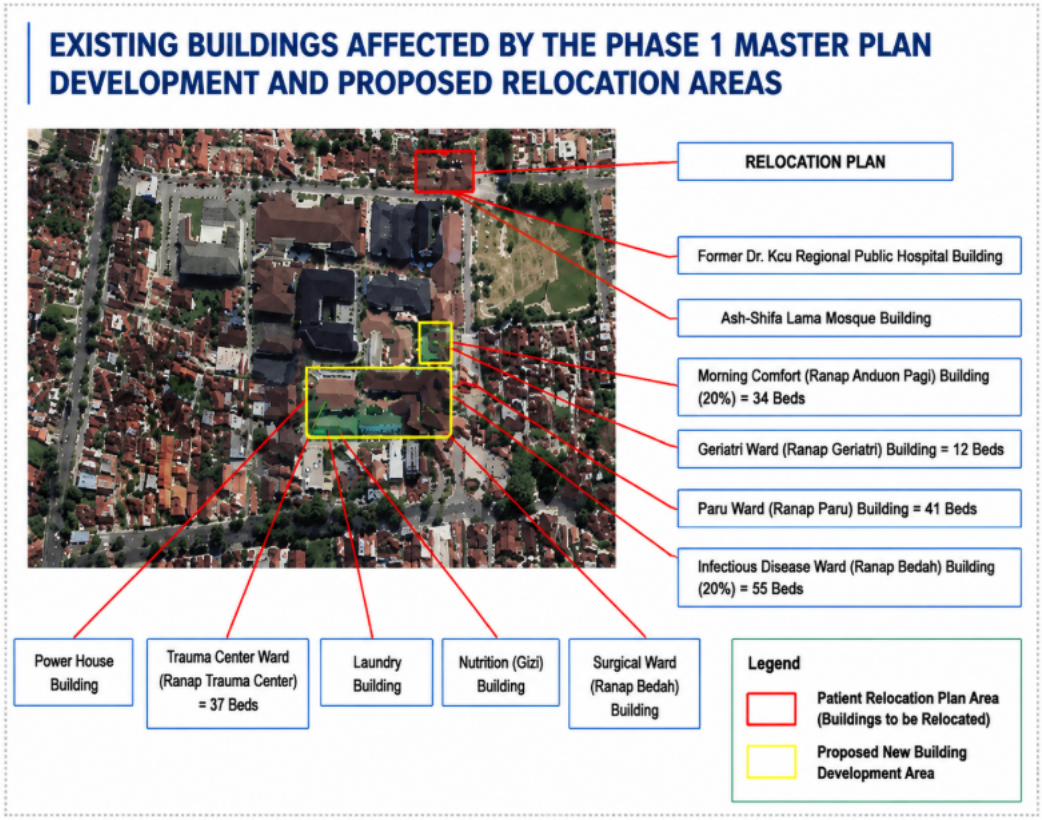


Figure 4 Existing Buildings Affected by Phase 1 Master Plan Development and Proposed Relocation Areas

The figure illustrates the existing buildings within the RSMDJ complex that are affected by the Phase 1 development plan and the indicative locations for patient relocation facilities. The development will be implemented within the existing hospital site and requires the reorganization, relocation, or partial replacement of several operational and supporting buildings.

Buildings identified as affected by the Phase 1 development include the Powerhouse Building, Trauma Center Inpatient Building, Laundry Building, Nutrition Building, Surgical Staff Building, Pulmonary Inpatient Building, Geriatric Inpatient Building, Ambun Pagi Inpatient Building, the old Ash-Shifa Mosque, and the former Director of Finance residence building. Some inpatient buildings are indicated as partially affected, including approximately 30% of the Ambun Pagi and Surgical Inpatient Buildings.

The figure also indicates the planned location for new relocation buildings and the proposed footprint of new development areas within the hospital compound. Red boxes represent indicative patient

relocation building areas, while yellow boxes indicate the proposed location of new buildings under the development plan.

This relocation and development arrangement is intended to maintain hospital operational continuity during construction while supporting the phased expansion and modernization of healthcare services at RSMDJ. Final relocation arrangements, affected floor areas, and construction phasing will be further confirmed during the Detailed Engineering Design (DED) and ESIA v0.2 stage.

Table 11 Existing and Planned Development Areas of RSMDJ

No	Component	Status	Area / Capacity	Remarks	Associated Facility / AF Notes
1	Existing RSMDJ land area	Existing	±110,540 m²	Used in ESIA baseline as total project site area	Not AF – Existing condition
2	Land area based on proposal/masterplan	Existing / verified	114,433 m²	Masterplan reference area; used for planning reconciliation	Not AF – Planning baseline
3	Total planned building area (masterplan)	Planned development parameter	188,510 m²	Total gross floor area under hospital masterplan	Not AF – Planning indicator
4	Planned Building Coverage Ratio (KDB)	Planned parameter	28%	Below regulatory maximum (60%)	Not applicable
5	Planned Floor Area Ratio (KLB)	Planned parameter	1.65	Below regulatory maximum (3.60)	Not applicable
6	Planned Green Open Space Ratio (KDH)	Planned parameter	59%	Above minimum requirement (20%)	Not applicable
7	Central Medical Unit (CMU) Building	Core Project Component	31,079 m²	Main hospital building (8 floors + 1 basement)	Not AF – AIIB funded core infrastructure
8	Non-JKN / Private Outpatient & Featured Services Building	Linked Project Activity	50,563 m²	Supporting service expansion under masterplan	Not AF – supporting but not viability-critical
9	Patient Relocation Building	Associated Facility (AF)	4,703 m²	3 floors; supports continuity of hospital operations during construction	AF – Non-AIIB funded, required for operational continuity
10	Existing bed capacity	Existing	800 beds	Baseline hospital capacity before development	Not AF – Existing condition
11	Planned bed capacity under masterplan	Project outcome indicator	1,353 beds	808 JKN, 336 executive, 133 ICU, 73 isolation beds	Not AF – Operational impact indicator only

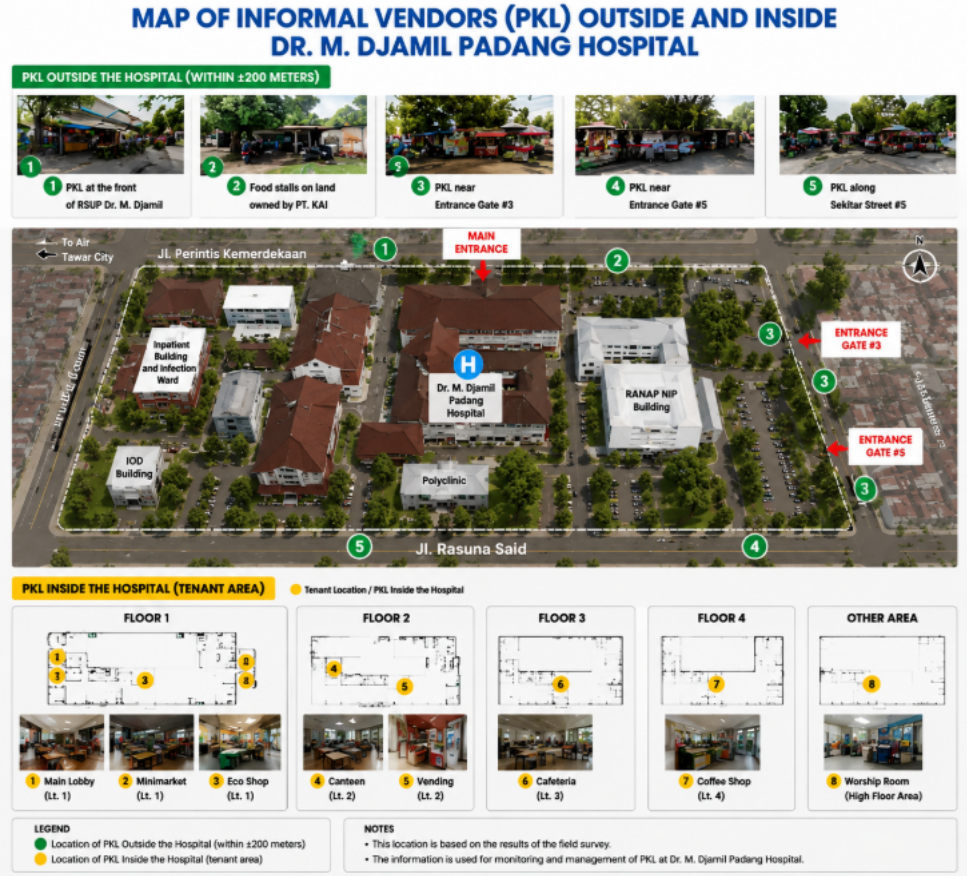


Figure 5 Existing Condition of Informal Tenant (PKL) Inside and Around RSMDJ

The figure shows the existing presence of informal vendors (street vendors/PKL) located both inside and around the RSMDJ area. The observed activities include food stalls, small kiosks, and temporary roadside vendors operating near hospital entrances, internal circulation areas, and adjacent land areas, including land associated with PT KAI.

These informal economic activities support daily needs of patients, visitors, hospital staff, drivers, and nearby communities. However, the concentration of vendors near access roads and hospital entrances may also contribute to pedestrian congestion, circulation disturbance, waste generation, sanitation concerns, and reduced emergency access efficiency during peak operational periods.

From a social perspective, the vendors represent a livelihood-sensitive group that may potentially be affected during the construction and development phase. Therefore, further assessment and stakeholder engagement will be required during ESIA implementation to identify potential impacts on informal economic activities and to support appropriate mitigation measures, access management, and communication strategies during project implementation.

2.1.1 Project Alternatives

The project alternatives assessment considers different options for implementing the RSMDJ development while minimizing environmental, social, operational, and construction-related risks. Since the project aims to improve hospital service capacity within an existing active hospital complex,

the alternatives focus on site use, construction method, phasing, technology, and the "no project" scenario.

The "no project" alternative would avoid construction-related impacts such as dust, noise, vibration, traffic disturbance, and temporary disruption to hospital operations. However, it would also prevent RSMDJ from improving its healthcare capacity, modernizing facilities, expanding specialized services, and strengthening its role as a national referral and teaching hospital. Therefore, the no-project option is not preferred.

The preferred alternative is to proceed with development within the existing RSMDJ site using phased construction, strict ESMP implementation, traffic management, patient safety controls, and careful coordination with hospital operations. This option allows the hospital to improve service quality while reducing the need for new land acquisition and minimizing wider social displacement.

Table 12 Project Alternatives Assessment

No.	Alternative	Description	Advantages	Disadvantages / Risks	Preferred Option
1	No Project Alternative	Development is not implemented	No construction disturbance, no temporary dust/noise/traffic impacts	Hospital capacity and service quality remain limited; no modernization benefit	Not preferred
2	Development on Existing RSMDJ Site	New facilities constructed within existing hospital land	Uses existing government-owned land; avoids major land acquisition; close to existing services	Requires careful phasing to maintain hospital operation	Preferred
3	Development on New External Site	Hospital expansion outside current site	Lower disruption to existing hospital operations	Requires new land, higher cost, potential land acquisition and resettlement	Not preferred
4	Single-Phase Construction	All works implemented at once	Shorter total construction period	High disruption to patients, staff, traffic, and hospital services	Not preferred
5	Phased Construction	Construction implemented in stages	Reduces operational disruption; easier traffic and safety management	Longer implementation period	Preferred
6	Conventional Building Design	Standard hospital building design	Lower initial design complexity	Higher energy and water demand; lower climate resilience	Not preferred
7	Smart and Green Hospital Design	Energy-efficient, digitally integrated, resilient hospital design	Improves efficiency, service quality, and sustainability	Requires stronger technical planning and investment	Preferred

Based on the alternatives assessment, the most suitable option is to proceed with the development within the existing RSMDJ site using a phased construction approach and integrating Smart and Green Hospital principles. This option provides the best balance between improving healthcare capacity and minimizing environmental and social risks. The approach should be supported by robust ESMP implementation, stakeholder engagement, traffic management, OHS controls, and continuous coordination with hospital operational units.

2.1.2 Project Type and Scope

The project is classified as a healthcare infrastructure development project involving the construction of new hospital buildings, reorganization of existing facilities, demolition of affected structures, relocation of selected hospital functions, utility upgrades, and integration of hospital circulation and service systems.

The project scope includes:

- Construction of the Central Medical Unit (CMU) Building;
- Construction of the Non-JKN Outpatient Building;
- Development of supporting infrastructure, including internal roads, parking areas, drainage systems, utilities, and emergency access arrangements;
- Construction or preparation of temporary and/or permanent relocation facilities for affected patient-care functions;
- Demolition or partial demolition of existing buildings affected by the project footprint;
- Relocation of patients, staff, medical equipment, records, and supporting hospital functions where required;
- Temporary relocation of tenants and small-scale commercial activities operating within the hospital premises during the construction period (e.g., kiosks, canteens, and service vendors). No permanent physical or economic displacement is anticipated at this stage, subject to confirmation during detailed design and social assessment;
- Management of construction waste, demolition debris, hazardous materials, and potential asbestos-containing materials where relevant;
- Implementation of traffic management, occupational health and safety (OHS), infection prevention and control (IPC), and hospital service continuity measures during construction.
- Final building configuration, floor area, affected facilities, demolition scope, sequencing, and detailed social impact assessment (including tenant arrangements and livelihood impacts) will be confirmed during the Detailed Engineering Design (DED) stage and incorporated into the updated ESIA/ESMP.

2.1.3 Initiator and Parties Involved

The institutional arrangement for the RSMDJ Development Project involves multiple parties with defined responsibilities in project preparation, environmental and social management, technical planning, and implementation oversight. RSMDJ under the Ministry of Health of the Republic of

Indonesia, acts as the project initiator and implementing institution for the proposed development activities. The project is part of the AIIB-funded TRUST Project managed by the Directorate General of Tertiary Health Services, Ministry of Health.

As the project owner and healthcare operator, RSMDJ is responsible for coordinating project preparation, operational integration, environmental compliance, and stakeholder communication throughout the ESIA process. The Ministry of Health serves as the Executing Agency, while the Directorate General of Tertiary Health Services acts as the Implementing Agency responsible for overall project coordination at the national level.

The Asian Infrastructure Investment Bank (AIIB) acts as the project lender under the TRUST Project financing scheme. Environmental and social safeguard preparation is supported by PT Equator Global Internasional (EGI) as the ESIA-ESMP consultant team. The project preparation structure also includes the Project Implementation Unit (PIU), technical consultants, and future construction management and supervision consultants to support implementation during the construction phase.

At the current ESIA v0.1 stage, several institutional details, including designated environmental PICs, Detailed Engineering Design Consultant (DEDC), and Construction Management Consultant (CMC/PMSC), are still under confirmation and will be finalized during ESIA v0.2 following coordination with RSMDJ and the Ministry of Health.

Table 13 Initiator and Parties Involved

Party	Role / Identity / Reference
Initiator	RSUP Dr. M. Djamil Padang (RSMDJ) – Ministry of Health RI; Class A National Referral Hospital and teaching hospital under Directorate General of Tertiary Health Services
Executing Agency	Ministry of Health of the Republic of Indonesia
Implementing Agency	Directorate General of Tertiary Health Services, Ministry of Health
Lender	Asian Infrastructure Investment Bank (AIIB) – TRUST Project
Project Implementation Unit (PIU)	TRUST Project PIU, Directorate General of Tertiary Health Services
ESIA / ESMP Consultant	PT Equator Global Internasional (EGI)
EGI Consortium Lead Office	PT Equator Global Internasional (Jakarta, Indonesia)
EGI Consortium Partners	PT CHP (Team Leader support and technical specialists)
Detailed Engineering Design Consultant (DEDC)	To be confirmed during ESIA v0.2
Construction Management Consultant (CMC/PMSC)	To be procured during implementation stage
Hospital Director	Director of RSUP Dr. M. Djamil Padang
Environmental PIC	Environmental and Sanitation Unit of RSMDJ (to be formally confirmed)

Party	Role / Identity / Reference
Operational Permit Reference	RSMDJ operational permit and institutional decree to be updated in ESIA v0.2
Site Ownership	Ministry of Health of the Republic of Indonesia
Local Government Coordination	Padang City Government, Bappeda Padang City, DLH Padang City
Supporting Institutions	Faculty of Medicine Andalas University and related healthcare institutions

2.1.4 Project Location and Site Capacity Analysis

The RSMDJ site is located at Perintis Kemerdekaan street, Sawahan Timur, Padang Timur District, Padang City, West Sumatra. The hospital occupies an existing healthcare site owned by the Ministry of Health of the Republic of Indonesia and is operated by RSMDJ as a government hospital under the Directorate General of Tertiary Health Services.

Based on available project information, the total hospital site area is approximately 110,540 m². The site is located within a dense urban and institutional setting, surrounded by residential areas, public roads, health education facilities, commercial activities, railway-related facilities, and existing hospital infrastructure. The indicative site boundaries are as follows:

- To the north, the site is bordered by residential areas and the Faculty of Medicine / health education facilities of Andalas University.
- To the east, the site is bordered by the PJKA Simpang Haru complex and surrounding railway-related facilities.
- To the south, the site is bordered by residential and commercial areas and Jalan H. Agus Salim.
- To the west, the site is bordered by Perintis Kemerdekaan street, residential areas, shops, and other urban facilities.

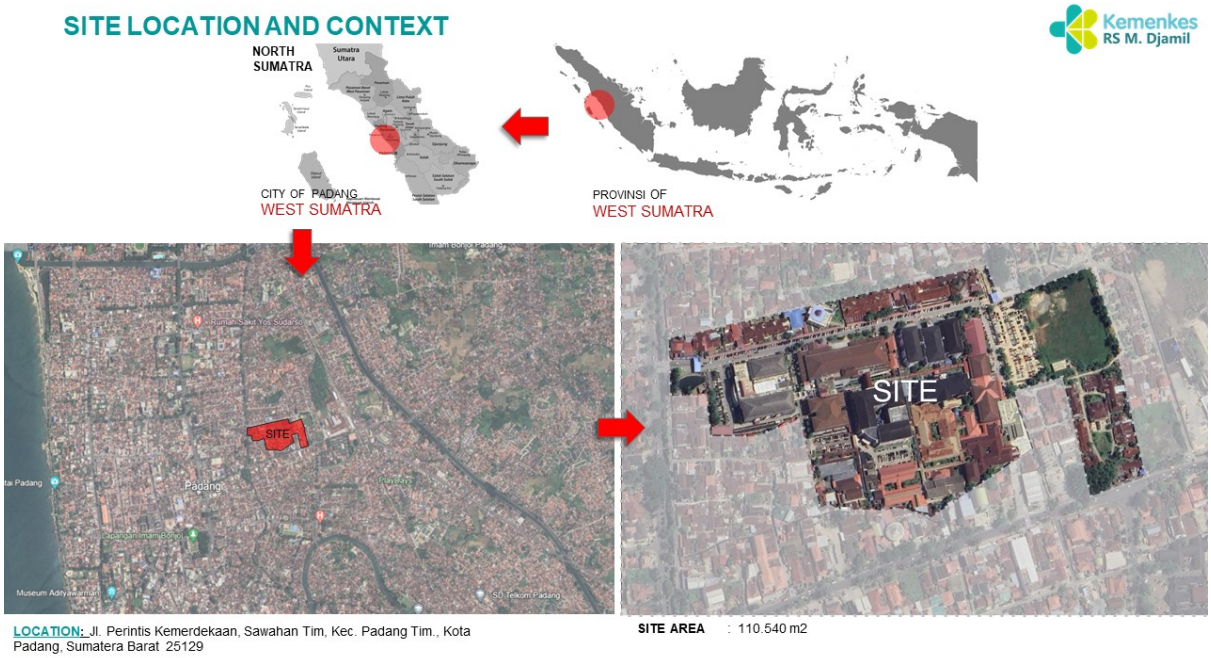


Figure 6 Location of RSUP Dr. M. Djamil

Existing hospital facilities within the RSMDJ compound include outpatient buildings, emergency facilities, ICU/ICCU units, laboratories, radiotherapy facilities, VIP inpatient wards, maternal and child health facilities, administration buildings, utility areas, and other supporting service units. These existing functions indicate that the proposed development will be implemented within an active hospital environment where patient care, emergency response, staff movement, visitor access, utilities, and supporting services must remain operational during project implementation.

The final footprint for the proposed Central Medical Unit (CMU) Building, Non-JKN Outpatient Building, supporting infrastructure, temporary work areas, access routes, and demolition or relocation areas will be confirmed in the next ESIA stage based on the detailed design, hospital masterplan, and field verification. Detailed site topography, including elevation, contour, drainage direction, and slope conditions, will also be confirmed through topographic/geodetic survey and DEMNAS/BIG map verification in ESIA v0.2.

From an ESIA perspective, the site location and boundary conditions are important because the project is surrounded by sensitive receptors, including patients, hospital staff, visitors, ambulance users, nearby residents, pedestrians, road users, students, local businesses, and surrounding public facilities. Construction, demolition, material transport, utility works, temporary access changes, and service relocation may affect traffic flow, emergency access, patient circulation, public safety, noise, dust, vibration, drainage, and hospital service continuity. Therefore, the project will require careful construction phasing, traffic management, emergency access protection, patient and staff relocation planning, utility protection, and stakeholder communication.

Based on the preliminary cultural heritage review, the nearest known heritage assets are Masjid Raya Ganting, located approximately 2 km from RSMDJ, and Rumah Serdadu Belanda on Jalan Jenderal

Sudirman No. 3, located approximately 3 km from the hospital. At this stage, the RSMDJ site itself has not been confirmed as a formally protected cultural heritage property. However, any old marker, monument-like structure, or historically significant building element within the hospital compound should be documented and treated with precaution until its status is verified. Cultural heritage assessment will be further considered in ESIA v0.2 if the heritage status of any existing RSMDJ building or structure is formally confirmed by the relevant authority.



Figure 7 Master Plan Layout of RSUP Dr. M. Djamil Development per Phase

This master plan illustrates the comprehensive spatial organization of the RS M. Djamil hospital development, highlighting the integration of multiple building functions within a unified site structure.

The layout is designed to optimize accessibility, circulation, and functional zoning across the hospital complex, ensuring efficient connectivity between key facilities.

The development is composed of several designated building blocks, each assigned specific healthcare and supporting functions, arranged in a structured configuration around a central core. The circulation system is clearly defined through primary and secondary road networks, enabling smooth movement for emergency access, patients, visitors, and service operations. Main entry points and access routes are strategically positioned to enhance connectivity with surrounding urban roads.

In addition, the master plan emphasizes environmental responsiveness through the incorporation of landscaped areas and green buffers distributed throughout the site. Parking zones for both vehicles and motorcycles are planned to accommodate high user capacity while maintaining operational efficiency. Overall, the design reflects a balanced approach between high-density healthcare infrastructure, accessibility, and sustainable site planning principles.

2.2 Project Construction Phases

The construction lifecycle is broken into pre-construction, construction, operational, and decommissioning considerations consistent with KAK Beauty Contest scope (pp. 5, 7) and the AIIB ESS1 framework. Each phase carries distinct environmental and social risks that drive the impact assessment in Chapter 6 and the mitigation hierarchy in Chapter 7.

The development is planned in five main phases to ensure continuity of hospital operations:

Phase 1 (2025–2027)

- Partial demolition of the Surgery Building, Medical Record Building, and Pulmonology Installation Building.
- Construction of the Central Medical Unit (CMU).

Phase 2 (2027–2029)

- Demolition of the Pulmonology Installation Building, Embun Pagi Building, IPS Medic Warehouse, Prayer Room (Mushola), Site Office, and Staff Housing.
- Construction of: Non-JKN Outpatient Building, specialty services, inpatient facilities, new training building, IPSRS, guesthouse, dormitory, and commercial areas (retail and F&B).

Phase 3 (2030–2032)

- Demolition of the Boiler Building, Mortuary, Neurology Building, IDT Building, and Emergency Room (ER).
- Construction of: BPJS Outpatient Building and specialty services, as well as additional inpatient facilities.

Phase 4 (2032–2034)

- Demolition of the Administration Building and ER.
- Construction of: Mother and Child Building.

Phase 5 (2034–2036)

- Demolition of the Inpatient and Pediatric Buildings.
- Construction of: full inpatient building and Non-JKN Polyclinic.

This phased approach ensures that the hospital remains operational throughout the construction period while gradually expanding its capacity, modernizing infrastructure, and improving access to specialized healthcare services.

Table 14 AIIB-Funded Phases for RSMDJ Phase 1–5

Phase	Description	Funded by AIIB?	ESF Classification	Remarks
Phase 1	Central Medical Unit (CMU) construction	Yes	Core Project Component	Main AIIB-funded hospital building (core infrastructure).
Phase 1	Non-JKN / Private Outpatient Building	Yes	Linked Project Activity	Supporting service expansion; not critical for CMU viability.
Phase 1	Demolition of existing buildings	Yes	Linked Project Activity (Enabling Works if within scope)	Preparation works; only AF if clearly outside project scope and critical dependency proven.
Phase 2	Expansion / specialty services	Yes	Linked Project Activity	Future hospital service development under masterplan.
Phase 3	Additional planned facilities	Yes	Linked Project Activity	Masterplan-based development, not core to AIIB financing.
Phase 4	Internal roads / utilities / infrastructure	Yes	Linked Project Activity	Supporting infrastructure for hospital operations.
Phase 5	Commissioning & operational transition	Yes (Project management activity)	Project Implementation Activity (Not AF / Not Linked)	Internal transition phase, not a separate facility under ESF classification.

2.2.1 Pre-Construction Phase

The pre-construction phase covers all preparation activities that must be completed before physical construction and demolition works begin. This phase is intended to ensure that the project is technically ready, the hospital remains operational, environmental and social safeguards are in place, and all required procedures and approvals have been prepared.

During this phase, the project design and construction arrangements will be finalized, including the Detailed Engineering Design (DED), construction layout, temporary work areas, access routes, utility corridors, and construction sequencing. The project team will also confirm the existing buildings, hospital units, utilities, and patient or staff circulation routes that may be affected by the works.

Before mobilization and demolition, the contractor will be required to prepare the Contractor's Environmental and Social Management Plan (C-ESMP). This plan will include, at minimum, the Occupational Health and Safety Plan, Traffic Management Plan, Demolition Method Statement, Waste Management Plan, Emergency Response Plan, Community Health and Safety Plan, and Hospital Service Continuity Plan. These documents are required to ensure that construction and demolition activities are carried out safely and do not disrupt essential hospital services.

Coordination will be established between the contractor and relevant hospital units, including RSMDJ management, clinical and non-clinical units, K3RS, PPI, sanitation or environmental health unit, security, and the public relations or GRM team. This coordination is necessary to manage construction schedules, access changes, service relocation, utility works, traffic arrangements, safety controls, and complaint handling.

Temporary access arrangements will be prepared for patients, visitors, staff, ambulances, logistics vehicles, and construction vehicles. Construction and demolition areas will be secured through temporary fencing, hoarding, safety signage, lighting, dust barriers, noise barriers, and controlled entry and exit points. Sensitive hospital areas, including the emergency unit, ICU, inpatient wards, isolation rooms, operating theatres, outpatient areas, pharmacy, laboratory, radiology, and public waiting areas, will be identified and protected from construction-related disturbance.

Where existing buildings or areas affected by demolition contain State-Owned Assets (Barang Milik Negara/BMN), the hospital will conduct asset inventory and verification before demolition begins. If hospital services, staff work areas, or patient care areas are affected, patient and staff relocation plans will also be prepared to ensure service continuity, patient safety, and staff workflow.

Information on the construction schedule, access changes, service relocation, and grievance channels will be disclosed in advance to hospital staff, patients, visitors, and nearby communities. No demolition or major construction activity shall begin until the hospital confirms that emergency access, ambulance routes, patient circulation, critical utilities, and temporary service arrangements remain functional.

Relocation and Moving Strategy for Patients, Medical Equipment, and Tenants

The implementation of the RSMDJ development project will be conducted within an active hospital environment with high operational sensitivity. The hospital currently has approximately 800 existing beds and is planned to increase its capacity to approximately 1,353 beds after project completion. During the construction and demolition phase, several existing healthcare functions will require temporary relocation, redistribution, or service adjustment to ensure uninterrupted hospital operations, patient safety, infection prevention, and emergency response capability.

Based on the preliminary hospital bed redistribution plan, approximately 179 existing beds are expected to be affected by demolition and reorganization activities. The affected beds include approximately 137 regular inpatient beds, 21 High Care Unit beds, 10 isolation beds, and approximately 11 beds from other specialized service areas, including birthing, psychiatric inpatient, burn treatment, osteosarcoma, and other supporting clinical functions. In addition, approximately 35 beds are planned for repositioning or redistribution within the hospital system during the transition period.

To accommodate the affected inpatient and critical care functions, the project includes the preparation of a dedicated patient relocation building. The proposed relocation building is planned as a 3-storey facility with an approximate total floor area of 4,703 m² and a total capacity of 198 hospital beds. This provides an indicative capacity buffer of approximately 19 beds above the estimated 179 affected beds, equivalent to an approximate relocation capacity ratio of 110.6%. The buffer is important to accommodate transfer sequencing, cleaning and infection control requirements, temporary bed blocking, emergency admission needs, and operational flexibility during phased construction.

Patient relocation shall be implemented through a controlled and clinically supervised process. Patients shall be classified based on clinical condition, mobility level, infection control requirements, dependency on medical equipment, and vulnerability status. Priority attention shall be given to HCU patients, isolation patients, elderly patients, children, pregnant women, persons with disabilities, psychiatric patients, long-stay ICU patients, hemodialysis patients, and other patients requiring continuous medical supervision. The relocation schedule shall be arranged to minimize disruption to services, considering the hospital's high operational demand, including bed occupancy rates of approximately 78%–90%, monthly emergency department visits of approximately 2,564–2,900 visits, and annual outpatient visits ranging from approximately 621,553 to 883,682 visits.

The moving of medical equipment shall be conducted based on detailed asset inventory and technical readiness verification. At minimum, the equipment moving plan shall cover all equipment associated with the affected 179 beds and the 35 redistributed beds, including patient beds, bedside equipment, oxygen and medical gas interfaces, patient monitors, infusion pumps, suction units, emergency trolleys, isolation support equipment, and other unit-specific medical devices. Each item shall be identified by equipment name, asset number, source room, destination room, user unit, physical condition, calibration status, electrical safety status, vendor requirement, and operational criticality. Critical equipment for HCU, isolation, emergency response, diagnostic support, operating support, pharmacy, laboratory, and life-support services shall not be moved before the receiving area is confirmed ready in terms of power supply, medical gas, HVAC, infection control, access, and emergency backup.

Before relocation, medical equipment shall be disconnected, cleaned or decontaminated where required, packed, protected, labelled, and transported using appropriate handling procedures. After relocation, equipment shall undergo reinstallation, functional testing, electrical safety inspection, calibration verification, IT or system reconnection, and user acceptance before being returned to clinical operation. No medical equipment shall be used in the new location until commissioning and

readiness checks have been completed by IPSRS, the asset management unit, the user unit, and, where required, authorized vendors.

Tenant and vendor relocation shall also be managed in a transparent and coordinated manner. Based on the social baseline, approximately 18 tenant, vendor, and informal business groups have been identified within and around the RSMDJ area. These include food and beverage tenants, cafés, banking and ATM services, pharmacy support, cooperative shops, minimarkets, photocopy services, flower shop rental, small food vendors, pulse and electricity token sellers, tire repair services, traditional food stalls, beverage kiosks, and snack vendors. Prior to construction activities that may affect access, visibility, customer movement, or business continuity, RSMDJ shall conduct tenant screening to confirm which of the 18 identified groups will be directly affected, indirectly affected, temporarily relocated, or unaffected.

For affected tenants and vendors, RSMDJ shall prepare a tenant relocation register covering business name, business type, location, operating schedule, number of workers, dependency on hospital visitors or staff, potential disruption, proposed temporary location, transition period, and grievance contact. Advance notice shall be provided before relocation or access changes. Where feasible, temporary alternative locations shall be safe, accessible, hygienic, and compatible with hospital operations. Tenant relocation shall not obstruct emergency access, patient circulation, construction access, sanitation routes, fire safety corridors, or hospital waste management routes.

Overall, the moving strategy shall be implemented in stages and supported by numeric tracking tools, including a patient relocation matrix, bed movement register, medical equipment inventory register, tenant relocation register, daily transfer log, readiness checklist, approval form, and post-relocation verification record. These tools shall be updated during the Detailed Engineering Design stage and before each construction phase to reflect the final affected buildings, construction sequence, service continuity requirements, and confirmed relocation destinations.

2.2.2 Demolition

Demolition may be required for existing hospital buildings, supporting facilities, utility buildings, ancillary structures, or other facilities affected by the proposed Central Medical Unit (CMU) Building, Non-JKN Outpatient Building, and related infrastructure works. Demolition shall be treated as a high-risk activity because it will be conducted within an active hospital environment and may affect patients, staff, visitors, ambulance access, utilities, waste management, and hospital service continuity.

Demolition shall only proceed after all required readiness conditions have been fulfilled. These include relocation or reorganization of affected hospital services; safe transfer of patients, staff, equipment, medical records, pharmaceuticals, and critical supplies; isolation, disconnection, diversion, or protection of utilities; completion or approval of BMN inventory and asset-clearance procedures; approval of the Demolition Method Statement; identification and management of **asbestos-containing materials** or other hazardous materials where relevant; activation of traffic management and emergency access arrangements; installation of environmental and safety controls; and disclosure of demolition schedules and access changes to affected stakeholders.

a) Demolition Strategy

Demolition activities under the RSMDJ development project shall be implemented through a controlled, phased, and risk-based approach. As the project will be carried out within an active hospital environment, demolition shall not be treated as a standalone construction activity, but as an integrated hospital service continuity, safety, environmental, and social management process. The main objective of the demolition strategy is to ensure that site clearance and removal of affected buildings can be conducted without compromising patient safety, emergency access, hospital operations, worker safety, utility continuity, infection prevention, environmental compliance, and stakeholder communication.

The demolition strategy shall apply to all existing buildings, supporting facilities, utility structures, temporary structures, ancillary facilities, and internal infrastructure affected by the construction of the Central Medical Unit Building, Non-JKN Outpatient Building, and related supporting works. Demolition shall only commence after the affected areas have been verified, service relocation has been completed, utilities have been isolated or protected, assets have been cleared, hazardous materials have been screened, and the Demolition Method Statement has been reviewed and approved by RSMDJ Management, the Project Implementation Unit, the Construction Management Consultant, and relevant technical units.

Based on the preliminary bed redistribution and relocation plan, approximately 179 existing hospital beds are expected to be affected by demolition and reorganization activities. These include approximately 137 regular inpatient beds, 21 High Care Unit beds, 10 isolation beds, and several specialized service beds. In addition, approximately 35 beds are planned for repositioning or redistribution within the hospital system during the transition period. To maintain healthcare service continuity, demolition shall be sequenced only after the 3-storey patient relocation building, with an approximate total floor area of 4,703 m^2 and a planned capacity of 198 beds, is confirmed ready for use. This provides an indicative buffer of approximately 19 beds, equivalent to a relocation capacity ratio of approximately 110.6%.

Prior to demolition, RSMDJ and the contractor shall prepare a detailed Demolition Readiness Register. The register shall include the name and location of each affected building, estimated building footprint, number of floors, structural type, current function, affected hospital services, number and type of beds affected, medical equipment to be relocated, staff and patient relocation status, utility disconnection status, BMN or asset clearance status, hazardous material screening status, demolition schedule, waste handling arrangement, traffic management arrangement, and responsible person for each activity. No building shall be handed over for demolition until all readiness items have been formally verified.

Demolition shall be implemented in stages. The first stage shall include pre-demolition survey and documentation, including structural condition assessment, photographic documentation, utility mapping, sensitive receptor mapping, access route verification, and identification of adjacent active hospital units. The second stage shall include asset clearance and BMN verification to ensure that furniture, medical equipment, records, fixtures, and reusable assets are properly removed, registered,

transferred, or disposed of in accordance with hospital asset procedures. The third stage shall include patient, staff, equipment, and service relocation from affected areas to approved receiving locations.

The fourth stage shall include utility isolation and protection. Electrical systems, water supply, wastewater connections, drainage, medical gas, oxygen supply, fire protection systems, communication networks, IT systems, HVAC, and other critical utilities shall be safely disconnected, diverted, or protected before demolition begins. Utility isolation shall be verified by IPSRS/Engineering and relevant technical units. Emergency backup arrangements shall remain available for nearby active hospital areas.

The fifth stage shall include site control installation. The contractor shall install hoarding, fencing, dust barriers, noise barriers where required, safety signage, lighting, access control, pedestrian protection, traffic marshal points, emergency access protection, and restricted zones. Demolition zones shall be physically separated from patient routes, visitor routes, staff circulation, ambulance access, emergency unit access, and operational hospital areas. Clear signage and public information boards shall be provided to inform hospital users about temporary access changes and safety restrictions.

The sixth stage shall include soft stripping and material segregation. Non-structural components, furniture, fixtures, reusable materials, recyclable materials, non-hazardous materials, and removable building elements shall be removed before structural demolition. Waste shall be segregated into reusable materials, recyclable materials, non-recyclable demolition debris, hazardous waste, asbestos-containing materials if identified, and residual waste. Hazardous waste and asbestos-containing materials shall be handled separately by trained personnel and licensed service providers in accordance with applicable procedures.

The seventh stage shall include structural demolition. Structural demolition shall be carried out by qualified contractors using approved methods, equipment, and work sequencing. The selected demolition method shall consider structural stability, proximity to active hospital buildings, vibration risk, dust generation, falling-object hazards, noise exposure, emergency access, drainage protection, and surrounding sensitive receptors. High-risk demolition activities shall be supervised by competent personnel and shall be supported by Job Safety Analysis, permit-to-work procedures, toolbox meetings, and emergency response readiness.

The eighth stage shall include demolition waste handling, transport, and disposal. Demolition debris shall be collected and stored temporarily in designated areas only. Waste stockpiles shall be controlled to prevent dust, runoff, scattered debris, obstruction of access, and safety hazards. Transport vehicles shall use approved routes, be covered where necessary, and operate according to the Traffic Management Plan. Waste shall be transported by authorized vehicles and disposed of, reused, or recycled through approved facilities. Waste manifests, transport records, disposal records, and recycling records shall be maintained by the contractor and reported to the PIU.

The final stage shall include site cleaning, leveling, inspection, and handover. After demolition, the area shall be cleared of debris, residual hazards, exposed reinforcement, unstable structures, sharp objects, contaminated materials, and temporary obstructions. The site shall be inspected by the contractor, Construction Management Consultant, RSMDJ technical team, OHS/K3RS team,

Environmental Health Unit, and PIU before being handed over for subsequent construction activities. Construction shall not commence until the demolition completion checklist and site handover record have been approved.

The demolition strategy shall also include specific environmental and social controls. Dust shall be managed through water spraying, covering of waste stockpiles, wheel washing where required, controlled debris handling, and restriction of high-dust activities during sensitive hospital periods. Noise and vibration shall be managed through equipment selection, scheduling of high-noise activities, use of barriers where feasible, monitoring near sensitive receptors, and prior notification to affected hospital units. Emergency access, ambulance routes, fire access, and access to critical hospital utilities shall remain open at all times.

All demolition activities shall be supported by monitoring and reporting. Minimum monitoring indicators shall include number of buildings cleared for demolition, demolition permit or approval status, relocation completion status, utility isolation completion status, hazardous material screening status, daily workforce, OHS induction coverage, incident and near-miss records, dust suppression frequency, noise and vibration complaints, demolition waste volume, hazardous waste volume, number of waste transport trips, disposal manifest completion, access obstruction incidents, and grievances received and resolved.

The demolition strategy shall be updated during the DED stage and prior to contractor mobilization to reflect the final building footprint, demolition sequence, affected services, confirmed relocation areas, final utility mapping, asbestos or hazardous material survey results, traffic arrangement, waste disposal facilities, and construction schedule. Any change to demolition scope, sequence, access route, or affected hospital service shall be reviewed and approved before implementation.

2.2.3 Construction Phase

The construction phase will include site preparation, earthworks, foundation works, structural works, architectural works, mechanical, electrical and plumbing installation, medical utility installation, façade works, interior works, road and drainage works, landscaping, testing and commissioning, and final handover.

Construction activities shall be implemented in stages to minimize disruption to hospital operations. High-impact works, including excavation, piling, concrete pouring, steel erection, crane operation, utility connection, and major material delivery, shall be scheduled and controlled to reduce impacts on patients, hospital staff, emergency services, visitors, and surrounding communities.

The contractor shall maintain clear physical separation between active hospital areas and construction work zones. Construction areas shall be secured with fencing, warning signs, controlled access gates, and safety marshals. Pedestrian routes, patient routes, staff access, ambulance access, and hospital logistics routes shall be protected and clearly marked. Emergency access must remain open at all times.

The main environmental and social risks during construction include dust generation, noise and vibration, construction waste, traffic and access disruption, occupational health and safety risks,

community health and safety risks, disturbance to patients and staff, labour influx, and possible disruption to hospital service continuity. These risks shall be managed through the ESMP, C-ESMP, Traffic Management Plan, OHS Plan, Waste Management Plan, Stakeholder Engagement Plan, and Grievance Redress Mechanism.

a) Construction Workers' Basecamp Plan

The construction workers' basecamp is a temporary facility established to support on-site construction activities for the RSUP Dr. M. Djamil Padang development project. In accordance with the AIIB Environmental and Social Framework (ESF), the basecamp is classified as an associated facility and therefore must be included within the Environmental and Social Management Plan (ESMP), even if it is not directly financed by the project.

The basecamp is designed to accommodate approximately 150–250 workers during peak construction phases, including laborers, technical staff, supervisors, and subcontractors. The facility will be located either within a designated non-sensitive area of the hospital site or at a rented off-site location approximately 1–2 kilometers from the main project area. The selected location must ensure that hospital operations remain unaffected, particularly in relation to patient care, emergency services, and infection control.

Basic infrastructure within the basecamp includes temporary accommodation, sanitation facilities, clean water supply, food services, rest areas, and a first aid post. Adequate water supply is estimated at approximately 100–120 liters per person per day, supported by storage tanks and a reliable distribution system. Sanitation facilities will be provided at a minimum ratio of one toilet per 10–15 workers, supported by septic tanks or portable sanitation systems to prevent environmental contamination.

Domestic wastewater generated from the basecamp is expected to account for approximately 80% of total water consumption and will be treated through septic systems and grease traps before being discharged into a licensed treatment facility or the hospital's wastewater treatment system. Solid waste generation is estimated at 0.5–0.8 kg per person per day and will be segregated into organic and inorganic waste streams, then transported to authorized municipal waste management facilities. Hazardous waste, including used oil, chemical residues, and construction-related hazardous materials, will be stored in a designated temporary hazardous waste storage area (TPS B3) and managed by licensed waste contractors.

From an environmental perspective, the basecamp will implement dust control, noise reduction, and proper drainage systems to minimize impacts on surrounding areas. Regular monitoring will be conducted to ensure compliance with applicable environmental standards.

From a social and occupational health perspective, the basecamp will incorporate safety measures such as the presence of a dedicated safety officer, mandatory use of personal protective equipment (PPE), safety induction training for all workers, and an on-site security system. Additionally, facilities such as a prayer room, canteen, and rest areas will be provided to support worker welfare.

Given its proximity to a major referral hospital, the basecamp must also strictly control social risks, including worker-community interaction, potential disturbances to nearby residents, and occupational behavior. A contractor-based Code of Conduct and a Grievance Redress Mechanism (GRM) will be implemented to address complaints, including those related to gender-based violence or workplace misconduct.

Table 15 Construction Workers' Basecamp Management Plan for RSUP Dr. M. Djamil Padang

Component	Technical Plan / Assumption	Management Approach
Basecamp location	Temporary area within RSUP Dr. M. Djamil site or rented land approximately 1–2 km from the project site	Must be located away from patient care areas, ensuring no disruption to hospital operations and maintaining logistical accessibility
Number of construction workers	Approximately 150–250 workers during peak construction period	Includes daily laborers, technicians, supervisors, and subcontractor staff
Water demand	Approximately 100–120 liters/person/day → total ±15,000–30,000 liters/day	Supplied by PDAM or temporary groundwater storage system with dedicated water tanks
Sanitation facilities (toilets & MCK)	Ratio of 1 toilet per 10–15 workers	Equipped with septic tanks or portable toilets, with separation of greywater and blackwater systems
Domestic wastewater	Approximately 80% of total water consumption	Treated using septic tanks and grease traps before discharge into hospital IPAL system or licensed third-party treatment facility
Solid domestic waste	Approximately 0.5–0.8 kg/person/day → ±75–200 kg/day	Waste segregation (organic and inorganic) with transportation to authorized municipal landfill (Dinas Lingkungan Hidup facility)
Hazardous waste (B3 waste)	Includes used oil, chemicals, paint containers, minor medical/P3K waste	Stored in a temporary hazardous waste storage area (TPS B3) and transported by licensed hazardous waste contractor
Waste management system	Contractor-based integrated waste management system	Mandatory contract with licensed waste management and transportation providers
Additional facilities	Canteen, rest area, prayer room (mushola), and small first aid clinic	To ensure worker welfare and occupational health and safety (OHS) compliance
Security & OHS system	On-site security post and dedicated safety officer	Implementation of OHS SOPs, mandatory PPE usage, and safety induction training
Environmental impact control	Dust suppression, noise control, and drainage management	Regular water spraying, construction area barriers, and stormwater management system

Table 16 Demolition, Traffic, Relocation, and SOP Mitigation Measures for RSMDJ Construction Phase

No	Activity / Component	Phase	Responsible / PIC	Approver / Monitor	Key Risks / Notes	Mitigation / Action
1	Demolition Planning & Risk Description	Pre-construction	Project Team / Contractor	RSMDJ Management	High-risk activity in active hospital; may affect patients, staff, visitors, ambulance access, utilities, waste management, hospital service continuity	Conduct risk assessment, verify readiness, plan sequence, communicate schedule and access changes to stakeholders
2	Demolition Supervision Team	Pre-construction	RSMDJ Director, Project Implementation Unit, Medical Services, Nursing, Supporting Services, IPSRS/Engineering, K3RS/OHS, PPI/IPC, Environmental Health, Security, Procurement, Finance/BMN, Legal & Compliance, PR/GRM, Contractor, Construction Management Consultant	RSMDJ Management	Poor coordination could endanger safety and hospital operations	Team monitors demolition readiness, approves sequencing, supervises service relocation, oversees utility isolation, monitors environmental & OHS controls, coordinates traffic & ambulance access, oversees waste handling
3	Buildings & Facilities Subject to Demolition	Pre-construction / Construction	Project Team / RSMDJ Management	RSMDJ Management	Disruption of clinical and support services	Maintain table of affected buildings with name, size, floors, services impacted, beds affected, relocation plan, BMN status, demolition schedule, hazardous material screening, responsible party; ensure replacement/temporary area operational before demolition
4	Demolition Execution Stages	Construction	Contractor / Project Team	RSMDJ Supervision Team	Safety hazards, structural instability, debris, dust, vibration, service interruption	1) Pre-demolition survey & documentation2) Asset clearance & BMN verification3) Patient/staff relocation 4) Utility isolation & protection 5) Site control installation 6) Soft stripping &

No	Activity / Component	Phase	Responsible / PIC	Approver / Monitor	Key Risks / Notes	Mitigation / Action
						material segregation 7) Structural demolition8) Waste handling, transport & disposal9) Site cleaning, leveling & handover; apply OHS, environmental monitoring, dust/noise control
5	Traffic Management During Demolition	Construction	Contractor / Traffic Team	RSMDJ Security & Management	Ambulance/patient access blocked, congestion, accidents	Separate construction & hospital traffic, signage, loading/unloading areas, schedule heavy vehicles outside peak hours, deploy traffic marshals, speed limits, protected pedestrian pathways, emergency vehicle priority, communicate access changes to hospital users & community
6	Patient and Staff Relocation Mechanism	Pre-construction / Construction	Hospital Management / Clinical Units / Nursing / Support Units / Contractor	RSMDJ Management	Patient safety, continuity of care, infection, equipment risk	List affected wards, rooms, services, staff, and patient groups; define receiving areas, transfer schedule, responsible teams; ensure medical equipment & life-support readiness; infection control; access control; ambulance, stretcher, wheelchair, porter arrangements; communicate with patients/ staff/ families; emergency response; post-transfer verification; prioritize vulnerable patients; reassign staff workflow, adjust access, communicate circulation routes, provide temporary workspaces
7	SOP / Operational System Updates	Construction / Pre-operation	RSMDJ Management / Project Team	RSMDJ Management & Units	Operational errors, compliance gaps	Update SOPs for wastewater treatment (IPAL), TPS Limbah B3 operation, emergency evacuation & assembly, patient/staff relocation, MEP systems; approve, implement, and monitor SOPs

2.2.3.1 Demolition Supervision Team

RSMDJ shall establish a Demolition Supervision Team before demolition begins. The team will be responsible for ensuring that demolition activities are properly planned, supervised, documented, and implemented safely in coordination with hospital operations.

The Demolition Supervision Team should include representatives from RSMDJ Director or Hospital Management, Project Implementation Unit or Project Management Team, Medical Services Division, Nursing Division, Non-Medical and Supporting Services Division, IPSRS or Engineering and Facility Maintenance Unit, K3RS/OHS Unit, PPI/IPC Unit, Environmental Health or Sanitation Unit, Security and Traffic Management Unit, Procurement Unit, Finance and BMN/Asset Management Unit, Legal and Compliance Unit, Public Relations/Stakeholder Engagement/GRM Team, contractor, and Construction Management Consultant.

The team shall verify demolition readiness, review demolition sequencing, supervise service relocation, approve utility isolation, oversee environmental and OHS controls, coordinate traffic and ambulance access, monitor demolition waste handling, and ensure that demolition does not disrupt critical hospital functions.

2.2.3.2 Buildings and Facilities Subject to Demolition

Based on the preliminary development plan, several existing hospital buildings and facilities may be affected by the project. These may include inpatient wards, supporting medical facilities, utility buildings, ancillary structures, and other facilities located within or near the proposed development footprint.

The final list of buildings and facilities subject to demolition shall be confirmed during DED finalization and hospital asset verification. The ESIA/ESMP shall be updated to include the building name and function, building size and number of floors, current operational status, affected hospital services, affected beds or clinical functions, required relocation destination, utility connections to be disconnected or diverted, BMN status, estimated demolition waste volume, hazardous material screening result, demolition schedule, and responsible party.

Where affected buildings are still used for clinical or support services, demolition shall not begin before the replacement or temporary relocation area is operational and approved by the hospital.

Table 17 Planned Building Demolition by Development Phase

No.	Development Phase/Project	Buildings and Facilities to Be Demolished
1	Phase 1 – Construction of the Critical Center Building and part of the Inpatient Building	1. Part of the existing Infectious Disease Building 2. Trauma Center Building 3. Morgue Building
2	Phase 2 – Construction of the Non-JKN and NAP Outpatient Building	1. Installation Building 2. Morning Building 3. Medical Records Storage Building

No.	Development Phase/Project	Buildings and Facilities to Be Demolished
	and continuation of the Inpatient Building	
3	Phase 3 – Construction of the Non-JKN and NAP Inpatient Building and supporting facilities	1. Boiler Building 2. Inpatient Ward 3. Sharia Inpatient Building 4. Isolation Building 5. ICD Building 6. Prayer Room 7. Mortuary Building
4	Phase 4 – Further development of hospital service facilities	No specific building demolition is indicated in the Phase 4 development plan.
5	Phase 5 – Completion of the Inpatient Building and Non-JKN Polyclinic	1. Installation Building 2. NAP Inpatient Building 3. Pediatric Building

2.2.3.3 Demolition Execution Stages

Demolition shall be implemented through a structured sequence to ensure safety, service continuity, and environmental compliance. The first stage is pre-demolition survey and documentation, which includes building condition survey, structural assessment, utility mapping, hazardous material screening, asset inventory, and photographic documentation.

The second stage is asset clearance and BMN verification. All movable and immovable assets shall be identified, recorded, classified, and processed in accordance with BMN procedures before removal, transfer, auction, destruction, or disposal.

The third stage is patient, staff, service, and equipment relocation. Affected services shall be relocated based on a hospital-approved relocation plan. Critical services and vulnerable patient groups, including ICU, HCU, isolation, emergency, psychiatric, burn, pulmonary, and other high-dependency patients, shall receive priority planning.

The fourth stage is utility isolation and protection. Electricity, water, medical gases, wastewater pipes, communication lines, fire protection systems, and other utilities shall be isolated, disconnected, diverted, or protected before demolition begins.

The fifth stage is installation of site controls. The demolition area shall be secured using hoarding, fencing, safety signage, lighting, dust barriers, noise barriers, fire protection equipment, spill kits, and controlled entry and exit gates.

The sixth stage is soft stripping and material segregation. Non-structural components, reusable materials, recyclable materials, furniture, fixtures, and non-hazardous materials shall be removed before structural demolition. Waste shall be segregated into reusable, recyclable, non-recyclable, hazardous, and residual demolition waste.

The seventh stage is structural demolition. Structural demolition shall be carried out by qualified contractors using approved methods and equipment. The demolition method shall consider building

stability, proximity to active hospital areas, vibration risk, dust generation, falling-object hazards, and emergency access protection.

The eighth stage is waste handling, transport, and disposal. Demolition debris shall be collected, stored temporarily in designated areas, covered where necessary, transported by authorized vehicles, and disposed of or recycled through approved facilities. Waste manifests and disposal records shall be maintained.

The final stage is site cleaning, leveling, and handover. After demolition, the site shall be cleaned, leveled, inspected, and handed over for subsequent construction activities. Any remaining hazards shall be removed before construction begins.

2.2.3.4 Traffic Management During Demolition

A specific Traffic Management Plan shall be prepared for demolition activities. The plan shall regulate internal and external traffic to ensure that hospital operations, ambulance movement, patient access, visitor circulation, staff mobility, and local road safety are maintained.

Traffic management during demolition shall include separation of construction vehicle routes from patient, visitor, staff, and ambulance routes; designated entry and exit gates for demolition vehicles; designated loading, unloading, and temporary waste storage areas; scheduling of heavy vehicle movements outside hospital peak hours where feasible; deployment of traffic marshals or flagmen at critical points; speed limits within the hospital compound; warning signs, directional signs, and information boards; protected pedestrian pathways; emergency vehicle priority at all times; coordination with RSMDJ Security and Padang City Transportation Agency where off-site road impacts are anticipated; and communication of temporary access changes to hospital users and nearby communities. No demolition-related vehicle activity shall obstruct ambulance access, emergency unit access, fire access, or access to critical hospital utilities.

2.2.3.5 Patient and Staff Relocation Mechanism

Where demolition affects active hospital services, RSMDJ shall prepare and implement a Patient and Staff Relocation Plan before demolition begins. The plan shall be prepared by hospital management in coordination with affected clinical units, nursing teams, medical support units, K3RS, PPI, security, and the contractor.

The relocation plan shall include the list of affected wards, rooms, services, staff, and patient groups; number and category of affected beds; receiving wards or temporary relocation areas; transfer schedule and responsible clinical teams; patient eligibility and prioritization for transfer; medical equipment and life-support requirements; infection prevention and control procedures; medical gas, oxygen, electricity, and emergency backup requirements; transfer routes and access control; ambulance, stretcher, wheelchair, and porter arrangements; communication protocol with patients, families, staff, and relevant departments; emergency response procedures during transfer; and documentation and post-transfer verification.

Table 18 Hospital Service Relocation Plan

No.	Information Required	Relocation Plan Details
1	Development phase	To be specified according to the construction schedule
2	Affected ward, room, or service	List of wards, rooms, clinical services, and supporting facilities affected by the works
3	Affected staff and patient groups	Number and category of patients, healthcare workers, supporting staff, and other affected persons
4	Affected beds	Number and category of beds, including general, isolation, intensive care, pediatric, and other specialized beds
5	Receiving ward or temporary relocation area	Designated receiving ward, temporary service area, or alternative hospital facility
6	Transfer schedule	Planned date, time, sequence, and estimated duration of the relocation
7	Responsible personnel	Hospital relocation coordinator, responsible clinical team, Contractor representative, and supporting personnel
8	Patient eligibility and prioritization	Patient assessment criteria and priority sequence based on medical condition and level of care required
9	Medical equipment and life-support requirements	Required medical equipment, life-support devices, medicines, and patient-monitoring systems
10	Infection prevention and control	Patient segregation, cleaning and disinfection, use of personal protective equipment, and management of infectious patients
11	Utilities and emergency backup	Availability of medical gas, oxygen, electricity, water, communication systems, and emergency backup power
12	Transfer routes and access control	Designated internal and external routes, restricted areas, traffic management, and security arrangements
13	Transfer transportation	Availability of ambulances, stretchers, wheelchairs, porters, and other supporting equipment
14	Communication protocol	Notification and coordination procedures for patients, families, hospital staff, relevant departments, and emergency services
15	Emergency response procedures	Procedures for managing patient deterioration, equipment failure, utility disruption, accident, fire, or other emergencies during transfer
16	Documentation and post-transfer verification	Patient records, equipment inventory, transfer checklist, confirmation of patient arrival, and verification of service readiness

Special attention shall be given to vulnerable patients, including intensive care patients, HCU patients, isolation patients, psychiatric patients, elderly patients, children, pregnant women, burn patients, pulmonary patients, and patients requiring continuous monitoring or life-support equipment.

Staff relocation shall include work area reassignment, access card adjustment where relevant, communication of new circulation routes, provision of temporary workspaces, and coordination of clinical workflow to prevent service interruption. Temporary relocation of tenants and small-scale commercial activities operating within the hospital premises (including kiosks, canteens, pharmacies, and service vendors) shall be implemented during the construction period. No permanent physical or economic displacement is anticipated at this stage. Any temporary relocation arrangements, including alternative operating locations and duration of displacement, shall be further confirmed during detailed design and social impact assessment.

2.2.3.6 Removal, Auction, Destruction, or Disposal of State-Owned Assets (BMN)

Buildings, equipment, fixtures, furniture, utilities, and other assets affected by demolition shall be managed in accordance with applicable procedures for Barang Milik Negara (BMN). Demolition shall not be carried out before the BMN status of affected assets has been verified and the required approval process has been completed.

The BMN process shall generally include identification and inventory of assets located in affected buildings; verification of asset ownership, asset code, book value, condition, and physical status; preparation of asset inventory reports and supporting documentation; assessment of whether assets can be reused, transferred, auctioned, destroyed, or disposed of; update of the relevant government asset-management system; submission of requests for asset deletion, transfer, auction, destruction, or disposal to the competent authority; coordination with KPKNL/DJKN or other relevant asset authority where required; implementation of approved auction, transfer, destruction, or disposal mechanisms; preparation of minutes of handover, auction, destruction, or disposal; and retention of all approvals, minutes, manifests, and supporting evidence by RSMDJ.

If certain materials are classified as hazardous waste, including asbestos-containing materials where identified, such materials shall not be handled through ordinary demolition waste procedures. They shall be removed, packaged, transported, and disposed of by licensed hazardous waste handlers in accordance with Indonesian regulations and the ESMP. Final BMN procedures shall be confirmed based on RSMDJ's applicable SOP and asset-management documentation.

2.2.4 Operational Phase

After construction is completed, the new facilities will enter the operational phase following testing, commissioning, regulatory inspection, handover, and hospital readiness verification. Operational readiness shall include confirmation that building safety systems, medical gas systems, electrical systems, water supply, wastewater connections, ventilation/HVAC systems, infection prevention and control requirements, medical equipment, waste management routes, emergency access, patient circulation, and staff orientation are in place and functioning properly.

The operational phase is expected to improve hospital service capacity, patient flow, clinical integration, emergency response, and overall healthcare service quality. The new facilities are also expected to support more efficient service delivery and better coordination between clinical, diagnostic, emergency, and supporting hospital functions.

However, expanded operations may also increase environmental and social pressures. These may include higher wastewater generation, increased healthcare waste and B3 waste, greater energy and water consumption, increased traffic volume, additional parking demand, higher logistics movement, and increased utility load. These impacts shall be managed through RSMDJ's existing and upgraded environmental, health, safety, infection prevention, waste management, wastewater management, traffic management, emergency response, and hospital operational systems.

During the operational phase, RSMDJ shall continue to monitor the performance of key environmental and social management measures. These include IPAL performance, healthcare waste segregation, B3 waste management, patient and visitor access, emergency access, fire and life safety systems, infection prevention and control, grievance handling, and community health and safety. Any operational issue or complaint shall be recorded, reviewed, and addressed through the hospital's operational management system and grievance mechanism.

2.2.5 Decommisioning Consideration

The project does not anticipate decommissioning of the newly developed hospital facilities in the short or medium term. The new buildings and supporting infrastructure are intended to support long-term hospital operations and improve healthcare service capacity at RSMDJ.

However, if future decommissioning, major renovation, demolition, or replacement of any project facility is required, such activities shall be planned and implemented in accordance with applicable Indonesian regulations, hospital safety procedures, BMN requirements, and environmental and social management requirements. Future decommissioning shall also consider hospital service continuity, patient and staff relocation, utility disconnection, hazardous material identification, waste segregation, traffic management, occupational health and safety, community health and safety, stakeholder communication, and grievance handling.

Future decommissioning activities shall include asset inventory, BMN verification, utility isolation and disconnection, hazardous material screening, patient and staff relocation where relevant, demolition safety planning, waste segregation, licensed transport and disposal, site cleaning, and site rehabilitation. Any hazardous materials, including asbestos-containing materials where identified, shall be handled by competent and licensed parties in accordance with applicable hazardous waste procedures.

Before any future decommissioning activity begins, RSMDJ shall prepare a specific decommissioning or demolition plan, including method statement, risk assessment, environmental and social mitigation measures, monitoring requirements, emergency response arrangements, and stakeholder notification. This plan shall be reviewed and approved by relevant hospital units and authorities before implementation.

Table 19 Project Phase and Activity Identification Matrix

No.	Project Stage	Main Activities	Specific Activities to be Identified	Potentially Affected Facilities / Receptors	Key Issues to be Managed	Required Documents / Plans
1	Pre-construction	Project preparation and technical planning	Finalization of DED, project phasing, site verification, confirmation of building footprint, identification of affected buildings, preparation of construction schedule	Existing hospital buildings, internal access roads, utility corridors, parking areas, staff/patient circulation routes	Incomplete planning may disrupt hospital operation, emergency access, utility networks, and patient/staff movement	DED, construction phasing plan, site layout plan, ESMP/C-ESMP
2	Pre-construction	Establishment of project implementation and supervision structure	Formation of project coordination team, demolition/construction supervision team, appointment of PICs from medical, non-medical, technical, K3RS, PPI, sanitation, security, procurement, finance, and BMN/asset units	RSMDJ management, clinical units, non-clinical units, contractor, supervision consultant	Weak coordination during demolition/construction may affect patient safety and service continuity	SK Tim, organizational structure, roles and responsibilities matrix
3	Pre-construction	Baseline verification and site survey	Verification of affected buildings, existing utilities, access routes, sensitive receptors, nearby wards, patient flow, ambulance route, drainage, and waste routes	Patients, staff, visitors, ambulance users, surrounding communities, utility systems	Need to avoid disruption to hospital services and identify high-risk work zones	Baseline survey report, utility mapping, traffic/access survey, sensitive receptor map
4	Pre-construction	Patient, staff, tenant and service relocation planning	Identification of affected wards/units, number of affected beds, receiving rooms, transfer routes, medical equipment needs, staff allocation, transfer schedule	Inpatient wards, HCU, isolation rooms, psychiatric rooms, burn treatment rooms, osteosarcoma rooms, KRIS-standard	Risk of unsafe patient transfer, medical service disruption, infection prevention risk, staff workflow disruption	Patient and Staff Relocation Plan, patient transfer SOP, relocation checklist, communication plan

No.	Project Stage	Main Activities	Specific Activities to be Identified	Potentially Affected Facilities / Receptors	Key Issues to be Managed	Required Documents / Plans
				inpatient rooms, staff work areas		
5	Pre-construction	BMN inventory and asset clearance	Inventory of buildings, fixed assets, medical equipment, furniture, utilities, reusable materials, auctionable materials, and assets requiring deletion/disposal	Buildings/assets classified as Barang Milik Negara, IPSRS assets, medical equipment, furniture, utility equipment	Demolition cannot proceed before BMN administrative process is completed; risk of asset loss or non-compliance	BMN inventory report, asset condition assessment, proposal for deletion/disposal/auction, approval from relevant authority
6	Pre-construction	Preparation of environmental, social, health and safety plans	Preparation of C-ESMP, OHS Plan, Traffic Management Plan, Waste Management Plan, Emergency Response Plan, GRM procedure, community notification protocol	Contractor workers, hospital users, surrounding communities, pedestrians, road users	Dust, noise, vibration, waste, traffic disruption, worker safety, community safety, complaints	C-ESMP, OHS Plan, Traffic Management Plan, Waste Management Plan, Emergency Response Plan, GRM
7	Pre-construction	Utility isolation and relocation planning	Identification and planned isolation/relocation of electricity, water, wastewater, drainage, medical gas, HVAC, IT, fire protection, and communication systems	Active hospital units connected to existing utilities	Risk of interruption to critical hospital operations, medical gas, power supply, water supply, wastewater system, and emergency systems	Utility isolation plan, shutdown schedule, backup utility plan, permit-to-work procedure
8	Construction	Site mobilization	Mobilization of workers, equipment, temporary facilities, site office, laydown area, temporary fencing, signage, and access control	Construction workers, hospital staff, patients, visitors, internal roads, parking areas	OHS risk, traffic disturbance, interaction between construction workers and hospital users	Mobilization plan, worker induction record, site access plan, security plan
9	Construction	Construction of patient relocation	Construction or preparation of relocation facility before major	Affected patients, wards, staff, medical	Temporary disturbance from construction but	Relocation building DED, method statement, OHS plan, traffic plan

No.	Project Stage	Main Activities	Specific Activities to be Identified	Potentially Affected Facilities / Receptors	Key Issues to be Managed	Required Documents / Plans
		building / temporary service facility	demolition and service migration	equipment, internal access routes	needed to maintain hospital service continuity	
10	Construction	Temporary relocation / migration of hospital functions	Transfer of patients, staff, equipment, medical records, service functions, and supporting facilities from affected buildings to relocation areas	Patients, medical staff, nursing staff, support staff, vulnerable patients, emergency services	Patient safety, infection prevention, continuity of care, medical equipment readiness, communication with staff and patients	Patient Transfer Plan, staff relocation plan, receiving-room readiness checklist, communication protocol
11	Construction	Demolition preparation	Installation of hoarding, fencing, safety signage, dust/noise barrier, restricted access zones, temporary pedestrian routes, and traffic marshal points	Adjacent hospital units, patients, visitors, pedestrians, staff, ambulance routes	Risk of falling objects, dust, noise, vibration, access restriction, safety incidents	Demolition Method Statement, safety signage plan, access control plan, traffic management plan
12	Construction	Demolition of affected buildings / structures	Stepwise demolition of buildings affected by CMU Building and Non-JKN Outpatient Building development; removal of debris and segregation of demolition waste	Existing inpatient wards, supporting medical facilities, utility buildings, ancillary structures, nearby hospital users	Dust, noise, vibration, waste generation, worker safety, patient disturbance, possible hazardous materials/asbestos if present	Demolition permit/method statement, ACM screening if relevant, waste manifest, licensed transporter agreement
13	Construction	Traffic management during demolition and construction	Separation of construction vehicle access and hospital-user access; protection of ambulance route; loading/unloading management; scheduling of heavy vehicle movement; signage and flagmen	Ambulance users, emergency patients, patients with limited mobility, visitors, staff, pedestrians, local road users	Congestion, accident risk, blocked ambulance access, reduced hospital accessibility	Traffic Management Plan, vehicle movement plan, traffic marshal schedule, coordination record with security/Dishub if needed

No.	Project Stage	Main Activities	Specific Activities to be Identified	Potentially Affected Facilities / Receptors	Key Issues to be Managed	Required Documents / Plans
14	Construction	Main civil and structural works	Excavation, foundation works, piling if any, superstructure, building envelope, architectural works, internal works	Construction footprint, adjacent hospital buildings, patients, staff, visitors	Noise, vibration, dust, safety risks, potential service disturbance	Construction method statement, OHS plan, environmental monitoring plan
15	Construction	Mechanical, electrical, plumbing, medical gas, and ICT works	Installation of MEP systems, medical gas, HVAC, fire protection, wastewater connection, drainage, smart hospital/ICT systems	New building, existing utility systems, active hospital services	Utility interface risk, shutdown risk, fire/electrical safety, infection control for ventilation/HVAC	MEP method statement, permit-to-work, testing and commissioning plan
16	Construction	Construction waste and hazardous waste management	Segregation, temporary storage, transport, recycling/reuse where feasible, disposal of construction debris, packaging waste, hazardous waste, and domestic waste from workers	Construction workers, sanitation workers, hospital users, waste handlers, surrounding environment	Poor waste handling may affect sanitation, safety, and environmental quality	Waste Management Plan, temporary storage layout, waste manifest, licensed transporter/vendor agreement
17	Construction	Environmental and social monitoring	Monitoring of dust, noise, vibration, traffic, waste, OHS incidents, grievances, access disruption, and service continuity	Patients, staff, visitors, nearby communities, workers, sensitive hospital areas	Need to verify mitigation effectiveness during high-impact activities	Monitoring plan, inspection checklist, grievance log, incident report
18	Operation	Testing, commissioning, and handover	Testing of building systems, MEP, medical gas, fire safety, HVAC, lifts, ICT, wastewater/drainage connection, emergency power, and operational readiness	New hospital buildings, technical units, clinical units, facility management	Failure of critical systems before occupancy may affect patient safety and service reliability	Testing and commissioning report, operational readiness checklist, SLF/PBG-related documents

No.	Project Stage	Main Activities	Specific Activities to be Identified	Potentially Affected Facilities / Receptors	Key Issues to be Managed	Required Documents / Plans
19	Operation	Operational transition into new buildings	Gradual movement of services into new CMU Building and Non-JKN Outpatient Building; staff orientation; patient flow adjustment; signage update	Patients, visitors, hospital staff, medical service units, emergency access routes, and existing hospital operations	Temporary service disruption, patient confusion, accessibility constraints, staff adaptation, coordination between units, and maintenance of emergency and essential services during the transition	Operational Transition Plan, Patient and Staff Communication Plan, Updated Traffic and Patient Flow Plan, Emergency Access Plan, and Signage Plan
20	Operation	Full hospital operation after project completion	Operation of expanded healthcare services, inpatient/outpatient services, medical equipment, utilities, smart hospital systems, and supporting facilities	Patients, healthcare workers, visitors, sanitation workers, surrounding communities	Increased medical waste, wastewater, energy demand, traffic, parking demand, infection prevention needs	Operational ESMP, healthcare waste management SOP, wastewater monitoring plan, traffic/parking management plan
21	Operation	Healthcare waste and wastewater management	Segregation of medical/non-medical waste, TPS B3 operation, licensed transport and treatment, IPAL operation, effluent monitoring, sludge management	Sanitation workers, healthcare workers, patients, downstream environment	Increased healthcare waste and wastewater load due to expanded services	Waste SOP, TPS B3 records, manifest system, IPAL operation log, effluent monitoring report
22	Operation	Post-construction monitoring and grievance closure	Monitoring of residual impacts, complaints, access changes, traffic, environmental performance, and restoration of temporary construction areas	Hospital users, nearby communities, workers, surrounding environment	Residual complaints, damaged access, unresolved environmental/social issues	Post-construction audit, GRM close-out report, environmental and social monitoring report

3. POLICY, LEGAL, AND ADMINISTRATIVE FRAMEWORK

This Chapter establishes the policy, legal, and administrative framework that governs the project. It covers the National Legal Framework of the Republic of Indonesia (with the regulations applicable to environmental, health, hospital, and OHS dimensions), the AIIB Environmental and Social Framework (with ESS1 as the principal standard and screening for ESS2 and ESS3), other international frameworks that inform Good International Industry Practice, and a structured Gap Analysis between the AIIB ESF and Indonesian legislation.

3.1 National Legal Framework of the Republic of Indonesia

The environmental and social assessment for the RSUP Dr. M. Djamil Padang (RSMDJ) development is guided by the national legal framework of the Republic of Indonesia governing environmental protection, healthcare infrastructure, public health services, occupational safety, hazardous waste management, wastewater discharge, and transportation management. The applicable framework includes Law No. 32 of 2009 on Environmental Protection and Management, Government Regulation No. 22 of 2021 on Environmental Protection and Management Implementation, Law No. 17 of 2023 on Health, and its implementing regulation PP No. 28 of 2024, together with sector-specific regulations related to hospitals, environmental permits, hazardous waste (Limbah B3), traffic impact assessment (Andalalin), and occupational health and safety. These regulations provide the legal basis for project planning, environmental approvals, operational compliance, environmental management, and social safeguard implementation throughout the development process.

3.1.1 Environmental Constitution

Indonesia's environmental and healthcare regulatory framework for hospital development is primarily governed by Law No. 32 of 2009 on Environmental Protection and Management (UU PPLH), which establishes the obligation to prevent pollution and environmental degradation through environmental permitting, environmental impact assessment, monitoring, and enforcement mechanisms. The law applies to hospital projects that may generate significant environmental impacts related to wastewater, hazardous waste, air emissions, traffic, and public health.

The environmental governance framework has been further strengthened through Law No. 6 of 2023 concerning Job Creation and Government Regulation (PP) No. 22 of 2021 concerning Environmental Protection and Management Implementation. PP 22/2021 establishes the current environmental approval framework, including AMDAL, UKL-UPL, Environmental Approval, Technical Approval (Pertek), and integration of environmental permitting into risk-based licensing systems.

For the healthcare sector, the regulatory framework has recently been updated through Law No. 17 of 2023 on Health and its implementing regulation, Government Regulation No. 28 of 2024 on the Implementation of the Health Law. PP 28/2024 consolidates and modernizes regulations related to hospitals, healthcare facilities, healthcare workforce, patient safety, environmental health, healthcare

infrastructure, and hospital governance. The regulation emphasizes that hospitals must comply with environmental health standards, healthcare waste management requirements, infrastructure reliability standards, and integrated healthcare service obligations.

As a Class A National Referral Hospital, RSMDJ is also subject to hospital-specific technical regulations, including:

- Minister of Health Regulations No. 7 of 2019 concerning Hospital Environmental Health;
- Minister of Health Regulations No. 66 of 2016 concerning Occupational Health and Safety in Hospitals (K3RS);
- Minister of Health Regulations No. 27 of 2017 concerning Infection Prevention and Control;
- Minister of Health Regulations No. 40 of 2022 concerning Technical Requirements for Hospital Buildings, Infrastructure, and Equipment;
- Minister of Health Decree HK.01.07/MENKES/1596/2024 concerning Hospital Accreditation Standards.

These regulations collectively establish the legal basis for environmental management, healthcare operational safety, wastewater treatment, hazardous waste management, hospital resilience, and patient safety within the ESIA framework for the RSMDJ development project.

3.1.2 EIA Framework and Environmental Approvals

The principal environmental permitting instrument applicable to the RSMDJ development is Government Regulation No. 22 of 2021, which requires environmental approval (Persetujuan Lingkungan) prior to construction and operation of projects with potential environmental impacts. Based on the project scale and development scope, the RSMDJ expansion is categorized as an activity requiring AMDAL revision and supporting technical approvals.

The ESIA framework for this project also aligns with the Asian Infrastructure Investment Bank (AIIB) Environmental and Social Framework (ESF), particularly ESS1 concerning Environmental and Social Assessment and Management. Preliminary screening indicates that the project falls under Category B considering that impacts are expected to be site-specific, manageable, and largely reversible with mitigation measures.

The environmental approval process for the project is expected to include:

- AMDAL revision/update;
- Environmental Approval;
- Wastewater Technical Approval (Pertek BMAL);
- Technical approval and operational compliance for TPS Limbah B3;
- Traffic impact assessment (Andalalin);
- Building approvals (PBG/SLF);
- Integration with OSS-RBA risk-based licensing systems.

Additional permits and approvals related to hospital operation, wastewater discharge, hazardous waste management, and environmental monitoring will be updated and verified during ESIA v0.2 through coordination with RSMDJ management and relevant authorities.

3.1.3 Wastewater Management

Hospital wastewater management in Indonesia is regulated through environmental protection regulations, healthcare environmental standards, and wastewater quality standards applicable to healthcare facilities. The main regulatory references include PP No. 22 of 2021, Minister of Environment and Forestry Regulations No. 68 of 2016 concerning Domestic Wastewater Quality Standards, and Minister of Health Regulations No. 7 of 2019 concerning Hospital Environmental Health.

As a tertiary referral hospital, RSMDJ generates wastewater from inpatient wards, outpatient services, emergency units, laboratories, operating theatres, laundry facilities, kitchens, pharmacies, radiology services, and supporting operational facilities. These wastewater streams may contain physical, chemical, biological, pharmaceutical, and infectious contaminants that require proper treatment prior to discharge into the environment.

The existing IPAL (WWTP) system at RSMDJ, with a current maximum treatment capacity of approximately 350 m^3/day. The average WWTP outlet discharge is 121.50 m^3/day, so the average capacity utilization of the 350 m^3/day capacity is around 34.7%. Based on the proposed addition of 800 beds, the incremental clean-water demand is preliminarily estimated at approximately 324–366 m^3/day, while the corresponding wastewater generation is estimated at approximately 259.2–292.8 m^3/day. When combined with the existing average WWTP influent of approximately 121.43 m^3/day, the projected total wastewater flow would reach approximately 380.63–414.23 m^3/day, exceeding the existing WWTP capacity of 350 m^3/day. Therefore, upgrading or expanding the WWTP will be required before the additional beds become operational. The additional hazardous healthcare waste is preliminarily estimated at approximately 160–400 kg/day, subject to verification using actual hospital waste-generation records.

The upgrade will ensure that the wastewater treatment system remains adequate in terms of hydraulic capacity, treatment efficiency, sludge management, and operational reliability in line with increased service demand. Detailed engineering design and capacity verification will be further undertaken during ESIA version 0.2 and the Detailed Engineering Design (DED) stage to confirm the required upgrades, system configuration, and compliance with applicable environmental standards and regulatory requirements.

The ESIA wastewater assessment includes:

- Identification of wastewater sources and flow generation;
- Characterization of wastewater quality parameters;
- Review of existing IPAL technology and operational performance;
- Assessment of sludge generation and management;
- Evaluation of compliance with applicable wastewater standards;

- Review of emergency response and overflow management;
- Development of operational monitoring and mitigation measures.

Additional wastewater baseline data, including laboratory testing results, effluent quality trends, hydraulic loading, and operational monitoring records, will be integrated into ESIA v0.2 following field verification and consultation with RSMDJ environmental management personnel.

3.1.4 Air Emissions Management

Air emission management for hospital facilities in Indonesia is regulated under Government Regulation (PP) No. 22 of 2021 concerning Environmental Protection and Management, Minister of Environment and Forestry Regulations No. 11 of 2021 concerning Emission Standards for Stationary Sources, and healthcare environmental regulations under Minister of Health Regulations No. 7 of 2019 concerning Hospital Environmental Health.

At RSMDJ, the main potential stationary emission sources include emergency diesel generators, boilers used for sterilization and laundry operations, HVAC systems, and historical facilities previously used for medical waste treatment. These emission sources may generate pollutants such as particulate matter (PM), sulfur dioxide (SO_2), nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compounds (VOC), greenhouse gases (GHG), and combustion-related air pollutants.

Under the ESIA framework, the air emission assessment includes:

- Identification and inventory of stationary emission sources;
- Review of fuel type and operational characteristics;
- Assessment of emission-control technology and maintenance practices;
- Ambient air quality and stack emission monitoring review;
- Evaluation of compliance with applicable Indonesian emission standards;
- Assessment of occupational and community exposure risks;
- Integration of GHG inventory and climate considerations.

Available operational information indicates that incinerator-based treatment is no longer prioritized, with current hazardous medical waste management relying primarily on autoclave treatment and licensed third-party transport/disposal systems. Nevertheless, existing generators and utility systems remain relevant sources of operational air emissions and GHG emissions.

Further technical verification of stack emission monitoring results, generator specifications, fuel consumption records, operational frequency, and air quality monitoring data will be incorporated into ESIA v0.2 following coordination with RSMDJ environmental management and engineering units.

3.1.5 Hazardous Waste Management

Hazardous waste (Limbah B3) management for healthcare facilities is governed by Government Regulation (PP) No. 22 of 2021, Minister of Environment and Forestry Regulations No. 6/2021 concerning Hazardous Waste Management Procedures, and Minister of Health Regulations No. 7 of

2019 concerning Hospital Environmental Health. Hospitals are required to ensure proper segregation, storage, transportation, treatment, and final disposal of hazardous medical and non-medical waste generated from healthcare operations.

Based on the proposed addition of 800 beds, the incremental hazardous healthcare waste generation is preliminarily estimated at approximately 160–400 kg/day, equivalent to 4.8–12 tonnes/month or 58.4–146 tonnes/year. For conservative capacity planning, an incremental generation rate of 400 kg/day should be applied. Assuming waste collection every two days and a 20% operational reserve, the TPS LB3 should provide approximately 960 kg, or about 1 tonne, of additional effective storage capacity. The estimate shall be verified against actual hospital waste-weighing records, waste collection frequency, existing TPS LB3 capacity, and the requirements for segregation of each waste stream. Radioactive waste is excluded from this estimate and shall be managed separately under the applicable radiation-waste regulations

As a Class A National Referral Hospital, RSMDJ generates various types of hazardous waste from inpatient services, surgical procedures, laboratories, pharmacies, radiology services, intensive care units, utility operations, and supporting medical activities. Available operational documents confirm that RSMDJ already possesses technical approval documents for hazardous B3 waste storage (TPS Limbah B3) and autoclave-based treatment systems, as well as cooperation agreements with licensed hazardous waste transporters and disposal facilities.

Identified hazardous waste streams at RSMDJ include:

- Infectious clinical waste;
- Expired pharmaceutical products;
- Pathological waste;
- Sharps waste;
- Laboratory and microbiological waste;
- Cytotoxic and chemotherapy-related waste;
- Used batteries and electronic waste;
- WWTP/IPAL sludge;
- Used filters and lubricating oil;
- Chemical containers and expired chemicals;
- Radioactive waste and disused sealed radioactive sources associated with the radiotherapy bunker.

Radioactive waste associated with the radiotherapy bunker shall be identified, recorded, and managed separately from general healthcare waste and hazardous/B3 waste. Potential sources may include disused sealed radioactive sources, contaminated components or materials, and waste generated during maintenance, replacement, or decommissioning of source-based radiotherapy equipment. The waste shall be placed in compatible, sealed, radiation-shielded and clearly labelled containers; inventoried by radionuclide, activity, serial number, and generation date; and stored in a secure, access-controlled temporary storage area under the hospital's radiation protection arrangements. It shall subsequently be returned to the supplier, where applicable, or transferred under the required authorization to a BAPETEN-licensed radioactive-

waste management operator or facility. Radioactive waste shall not be mixed with or handled through the conventional medical-waste or B3-waste system. These controls shall be documented and communicated as part of the formal close-out of the previously recorded community concern regarding the radiotherapy bunker, including confirmation of the responsible personnel, storage controls, radiation monitoring, licensed transfer pathway, emergency procedures, and stakeholder communication.

The ESIA hazardous waste assessment includes:

- Identification of hazardous waste sources and generation rates;
- Review of segregation systems and internal collection procedures;
- Evaluation of temporary storage facilities (TPS B3);
- Assessment of treatment and disposal systems;
- Review of transporter and disposal licensing;
- Occupational and community exposure risk assessment;
- Evaluation of emergency response and spill management systems.

Additional verification regarding waste quantities, manifest records, storage capacity, treatment performance, transporter permits, and waste-generation trends will be integrated into ESIA v0.2.

Table 20 Hazardous Waste Management

B3 Code	Source / Stream
A337-1	Pharmaceutical waste - expired or unused medications
A337-2	Sharps - needles, ampoules, broken glass
A337-3	Pathological waste - tissues, organs, body parts, body fluids
A337-4	Infectious waste - blood-soaked materials, microbiological cultures, sputum specimens (general clinical context for Class A general hospital)
A337-5	Cytotoxic / chemotherapy waste
B107d	Incinerator bottom ash
B107c	Fly ash and air pollution control residues
A102d	Used / waste oil from genset and HVAC equipment
LR-RT-01	Radioactive waste from radiotherapy bunker
RW-RTB-01	Radioactive waste/disused sealed radioactive source from the radiotherapy bunker

3.1.6 Traffic and Transportation

Traffic and transportation management for the RSMDJ development is regulated under Law No. 22 of 2009 concerning Road Traffic and Transportation, Government Regulation No. 30 of 2021 concerning Traffic and Road Transportation, and Minister of Transportation Regulation (Permenhub) PM No. 17 of 2021 concerning Traffic Impact Assessment (Andalalin). These regulations require projects generating significant traffic movement to conduct transportation impact analysis and prepare mitigation measures to maintain road safety, accessibility, and traffic performance.

As the development will be implemented within an active tertiary hospital environment, traffic management is considered a critical component of the ESIA. Construction activities may increase heavy-vehicle movement, material transportation, worker mobilization, temporary road obstruction, and changes in circulation patterns around the hospital area. These conditions may affect ambulance movement, patient accessibility, pedestrian safety, nearby residential areas, and local commercial activities.

The ESIA traffic assessment therefore includes:

- Existing road-network and circulation assessment;
- Peak-hour traffic analysis;
- Ambulance and emergency-access assessment;
- Parking and drop-off management review;
- Construction traffic routing and scheduling;
- Pedestrian and public-safety assessment;
- Development of Traffic Management Plan (TMP);
- Coordination with Department of Transportation Padang City.

Mitigation measures proposed under the ESMP include dedicated ambulance lanes, traffic marshals, directional signage, phased mobilization schedules, restricted heavy-vehicle operating hours, temporary access adjustments, and public notification mechanisms during construction activities.

3.1.7 Spatial Planning

Spatial planning compliance for the RSMDJ development is governed by Law No. 26 of 2007 concerning Spatial Planning, Government Regulation No. 21 of 2021 concerning Spatial Planning Implementation, and OSS-RBA regulations related to Approval of Land Use Activities (PKKPR). These regulations require all development activities to comply with provincial and municipal spatial planning frameworks.

The RSMDJ site is located within the urban healthcare and public-service zone of Padang City and has historically functioned as a major healthcare facility under the Ministry of Health. Spatial compliance assessment under the ESIA includes review of:

- Regional Regulation of Padang City Number 4 of 2012 concerning the Spatial Plan (RTRW) of the Padang City Region for 2010–2030, Padang City;
- Detailed Spatial Plan (RDTR) of Padang City under Mayor Regulation of Padang Number 5 of 2023 concerning the Detailed Spatial Plan of Padang City for 2023–2043;
- Existing land-use designation;
- Building intensity parameters;
- Accessibility and infrastructure compatibility;
- Urban environmental carrying capacity.

Further confirmation regarding zoning designation, KDB/KLB requirements, setback limitations, parking obligations, and utility integration will be verified during ESIA v0.2 through coordination with Bappeda Padang City and relevant local authorities.

3.1.8 Health and Hospital Services

The hospital-service regulatory framework applicable to RSMDJ is primarily governed by Law No. 17 of 2023 on Health and Government Regulation No. 28 of 2024 concerning the Implementation of the Health Law. These regulations establish requirements related to hospital classification, healthcare quality standards, patient safety, environmental health, healthcare workforce, referral systems, healthcare infrastructure, and hospital operational governance.

As a Class A National Referral Hospital and teaching hospital under the Ministry of Health, RSMDJ must comply with various sectoral healthcare regulations, including:

- Minister of Health Regulations No. 40 of 2022 concerning Technical Requirements for Hospital Buildings, Infrastructure, and Equipment;
- Minister of Health Regulations No. 7 of 2019 concerning Hospital Environmental Health;
- Minister of Health Regulations No. 66 of 2016 concerning Occupational Health and Safety in Hospitals (K3RS);
- Minister of Health Regulations No. 27 of 2017 concerning Infection Prevention and Control (PPI);
- Minister of Health Regulations No. 11 of 2017 concerning Patient Safety;
- Minister of Health Regulations HK.01.07/MENKES/1596/2024 concerning Hospital Accreditation Standards.

The development project is intended to support healthcare transformation through expansion of specialized and sub-specialized services, modernization of infrastructure, implementation of smart-hospital systems, and strengthening of referral healthcare capacity for West Sumatra and surrounding regions.

The ESIA therefore considers healthcare operational continuity, infection prevention, patient safety, medical emergency access, healthcare waste management, hospital resilience, and service accessibility as key environmental and social safeguard considerations.

3.1.9 Cultural Heritage

Cultural heritage management in Indonesia is regulated under Law No. 11 of 2010 concerning Cultural Heritage. The regulation protects historical buildings, archaeological sites, structures, objects, and cultural landscapes with officially designated heritage status.

Based on the preliminary ESIA review, the RSMDJ site itself is not currently identified as a formally designated cultural heritage property. However, several cultural heritage assets exist within the

broader urban area of Padang City, including Masjid Raya Ganting and several colonial-era buildings located in the old-town area.

Although direct impacts on known cultural heritage assets are not anticipated, the ESIA adopts a precautionary approach through implementation of a Chance Find Procedure during excavation and earthwork activities. The procedure requires contractors to stop work, secure the location, and coordinate with relevant authorities if any archaeological remains or cultural artifacts are discovered during construction activities.

Further confirmation regarding heritage status and potential regulatory requirements will be coordinated with local cultural heritage authorities during ESIA v0.2 if necessary.

3.1.10 Employment and Occupational Health and Safety

Employment and occupational health and safety (OHS) management for the RSMDJ development is governed by:

- Law No. 13 of 2003 concerning Manpower;
- Law No. 6 of 2023 concerning Job Creation;
- Government Regulation No. 50 of 2012 concerning Occupational Health and Safety Management Systems (SMK3);
- Ministry of Health Regulation No. 66 of 2016 concerning Occupational Health and Safety in Hospitals (K3RS);
- Relevant Ministry of Manpower regulations related to construction safety and worker protection.

The development project involves significant construction activities within an operational hospital environment, creating elevated occupational and community safety risks associated with:

- Heavy equipment operation;
- Excavation and demolition;
- Working at height;
- Electrical and fire hazards;
- Construction traffic;
- Exposure to dust, noise, chemicals, and infectious materials.

The ESIA therefore requires implementation of comprehensive Occupational Health and Safety (OHS) measures, including:

- Contractor SMK3 implementation;
- Worker induction and safety training;
- PPE requirements;
- Permit-to-work systems;
- Emergency response planning;
- Incident reporting and investigation;

- Traffic safety controls;
- Infection prevention measures;
- Worker accommodation and sanitation standards;
- Code of conduct implementation.

Special attention is also required because construction activities occur within an active healthcare environment containing sensitive receptors such as patients, visitors, healthcare workers, children, elderly patients, and emergency services. Consequently, occupational safety measures must be integrated with hospital operational continuity and community health and safety management throughout project implementation.

3.2 AIIB Environmental and Social Framework

The development of RSMDJ is implemented under the TRUST Project financing framework supported by the Asian Infrastructure Investment Bank (AIIB). Therefore, in addition to complying with Indonesian national regulations, the project must also comply with the AIIB Environmental and Social Framework (ESF) 2022 to ensure that environmental and social risks are properly identified, assessed, mitigated, monitored, and managed throughout the project lifecycle.

The AIIB ESF provides the overarching safeguard framework for the project and consists of the Environmental and Social Policy (ESP), Environmental and Social Standards (ESS), the Environmental and Social Exclusion List (ESEL), and the Project-affected People's Mechanism (PPM). For the RSMDJ development, the project has been provisionally categorized as Category B because the anticipated environmental and social impacts are generally site-specific, manageable through mitigation measures, and largely reversible.

Within the context of the RSMDJ development, the AIIB safeguard framework is highly relevant because the project will be constructed inside an active tertiary referral hospital environment with sensitive receptors including patients, healthcare workers, emergency services, visitors, nearby residents, and informal economic activities around the hospital area. Construction activities such as demolition, excavation, heavy-equipment mobilization, traffic diversion, and phased building relocation may potentially affect hospital operational continuity, patient access, environmental quality, occupational safety, and surrounding communities.

3.2.1 Environmental and Social Policy (ESP)

The AIIB Environmental and Social Policy (ESP) establishes the commitment of AIIB and the borrower to integrate environmental and social considerations into project planning and implementation. For the RSMDJ development, the ESP framework supports sustainable hospital development by requiring environmental due diligence, stakeholder engagement, pollution prevention, operational safety, climate resilience, and social risk management throughout the project lifecycle.

The ESP is directly linked to the development objectives because the project is intended not only to expand healthcare capacity, but also to ensure that hospital modernization is implemented in a socially responsible and environmentally sustainable manner.

3.2.2 ESS1 Environmental and Social Assessment and Management

ESS1 is the principal safeguard standard applicable to the RSMDJ development project. ESS1 requires the borrower to identify, assess, and manage environmental and social risks during pre-construction, construction, and operational phases.

For the RSMDJ project, ESS1 is particularly relevant due to:

- Construction activities within an operating hospital;
- Potential impacts on patients, visitors, and healthcare workers;
- Wastewater and hazardous medical waste generation;
- Noise, vibration, and air-emission risks;
- Traffic and ambulance-access disruption;
- Occupational health and safety risks;
- Community health and safety concerns;
- Greenhouse gas emissions and climate resilience considerations.

The ESIA and ESMP prepared for this project therefore function as the main management instruments under ESS1 to ensure that mitigation measures, monitoring systems, stakeholder communication, and emergency-response procedures are integrated into project implementation.

3.2.3 ESS2 Involuntary Resettlement

ESS2 addresses risks associated with land acquisition, displacement, livelihood disruption, and involuntary resettlement. Based on the current ESIA review, the RSMDJ development is planned within the existing hospital boundary owned by the Ministry of Health, and no large-scale land acquisition has been identified at this stage.

However, ESS2 screening remains relevant because the development may indirectly affect informal vendors (PKL), temporary circulation routes, parking areas, internal service functions, and movement patterns within and around the hospital area. Consequently, the ESIA includes screening of livelihood-sensitive groups and operational relocation arrangements to minimize disruption during phased construction activities.

Further verification regarding temporary access restriction, vendor relocation, and operational rearrangement will continue during ESIA v0.2 through stakeholder consultation and social assessment activities.

3.2.4 ESS3 Indigenous Peoples

ESS3 addresses the rights, dignity, culture, and livelihoods of Indigenous Peoples and vulnerable ethnic communities potentially affected by the project. Preliminary screening for the RSMDJ development has not identified the presence of Indigenous Peoples communities as defined under AIIB ESS3 within the immediate project footprint.

Nevertheless, the ESIA applies inclusive stakeholder engagement principles and vulnerable-group considerations, including accessibility for women, elderly persons, low-income groups, persons with disabilities, and culturally sensitive healthcare users. Additional social baseline verification and stakeholder consultation will be conducted during ESIA v0.2 to confirm ESS3 applicability.

3.2.5 Environmental and Social Exclusion List (ESEL)

The AIIB Environmental and Social Exclusion List (ESEL) identifies activities and sectors that are not eligible for AIIB financing due to unacceptable environmental, social, ethical, or legal risks. Screening of the RSMDJ development project indicates that the proposed activities do not fall under any prohibited or excluded category defined by the AIIB ESEL.

The RSMDJ development primarily involves construction of healthcare infrastructure, modernization of hospital facilities, procurement of medical equipment, implementation of smart-hospital systems, and supporting institutional development within an existing government-owned hospital area. The project does not involve prohibited activities such as illegal hazardous material trade, forced labor, significant biodiversity destruction, prohibited waste disposal practices, or activities involving internationally banned substances.

Within the context of hospital development, ESEL screening is important to ensure that healthcare infrastructure expansion remains aligned with sustainable development principles, environmental protection requirements, public health objectives, and responsible financing standards established by AIIB. Consequently, the ESIA confirms that the development remains eligible under the AIIB safeguard framework, while environmental and social risks continue to be managed through the ESMP, operational monitoring, and institutional safeguard mechanisms.

3.3 Other International Frameworks Applicable in Indonesia

In addition to compliance with Indonesian national regulations and the AIIB Environmental and Social Framework (ESF), the development of RSMDJ also refers to several international frameworks and good international industry practices relevant to healthcare infrastructure development. These frameworks support the project in achieving higher standards of environmental protection, patient safety, climate resilience, occupational health and safety, infection prevention, and sustainable hospital operation.

As a Class A National Referral and teaching hospital, RSMDJ serves critical healthcare functions for West Sumatra and surrounding regions. Therefore, international healthcare and resilience standards are highly relevant to ensure that the development supports operational continuity during

emergencies, safe hospital infrastructure, effective infection prevention, environmentally sound waste management, and climate-adaptive healthcare services.

The integration of international frameworks also strengthens alignment between the ESIA-ESMP and AIIB safeguard requirements, particularly for healthcare environmental management, greenhouse gas accounting, labour and working conditions, community health and safety, and disaster resilience planning.

Table 21 International Frameworks Relevant to the RSMDJ Development

Framework / Source	Relevance and Application to RSMDJ Development
WHO Safe Hospitals Framework	Supports hospital resilience planning, emergency preparedness, seismic safety, operational continuity, and disaster-response capacity for a critical healthcare facility in West Sumatra, which is located in an earthquake-prone region
WHO Infection Prevention and Control (IPC) Guidelines	Applied to infection prevention systems, isolation-room planning, ventilation standards, healthcare sanitation, and patient safety during hospital operation and construction activities
WHO Guidelines on Indoor Air Quality	Relevant for HVAC design, patient-room ventilation, indoor environmental quality, and protection of sensitive hospital users
WHO Drinking-water Quality Guidelines	Provides reference for potable-water quality and hospital water safety management
World Bank Group EHS Guidelines – General	Provides international benchmarks for occupational health and safety, pollution prevention, noise management, emergency preparedness, and community safety
World Bank Group EHS Guidelines for Healthcare Facilities	Relevant to hospital wastewater treatment, medical waste management, healthcare emissions, infection control, hazardous materials handling, and healthcare operational safety
World Bank Group EHS Guidelines for Construction and Decommissioning	Supports construction-phase management related to dust, noise, vibration, traffic, waste management, worker safety, and demolition activities
IFC Performance Standards (PS)	Provides international references for environmental and social risk management, labour conditions, pollution prevention, resource efficiency, and community health and safety
UNFCCC Paris Agreement	Relevant for greenhouse gas inventory development, climate mitigation measures, energy efficiency, and climate-resilient hospital infrastructure
IPCC Climate Change Framework	Used as reference for climate-risk assessment, extreme-weather considerations, and long-term climate adaptation planning
ILO Core Labour Conventions	Supports fair labour practices, worker protection, non-discrimination, prevention of child and forced labour, and worker grievance mechanisms

Framework / Source	Relevance and Application to RSMDJ Development
WHO Tuberculosis Infection Control Guidelines	Relevant because RSMDJ operates as a referral hospital with TB-related healthcare services requiring infection-control and ventilation management
Sendai Framework for Disaster Risk Reduction 2015–2030	Supports disaster-risk reduction, hospital emergency preparedness, and resilience planning for critical healthcare infrastructure
Good International Industry Practice (GIIP)	Applied throughout ESIA, ESMP, construction management, healthcare operations, and environmental monitoring activities
AIIB Gender Action Plan (GAP)	Supports integration of gender considerations into project planning and implementation, including equitable access to healthcare services, gender-responsive infrastructure design, participation of women in project-related employment, and prevention of gender-based violence (GBV) risks during construction and operation phases
AIIB Tip Sheet: Integrating Gender into the Health Sector	Provides guidance for incorporating gender-responsive approaches in healthcare infrastructure development, including equitable access to health services, gender-sensitive facility design, inclusion of women in decision-making processes, and consideration of differentiated health needs between men and women

3.4 Gap Analysis between AIIB ESF and Indonesian Legislation

The gap analysis compares the requirements of the AIIB Environmental and Social Framework (ESF) with the applicable Indonesian legal framework relevant to the development of RSMDJ. The objective of this analysis is to identify additional safeguard requirements that must be incorporated into the ESIA, ESMP, stakeholder engagement process, and project implementation arrangements to ensure compliance with both national regulations and AIIB standards.

In general, Indonesian environmental and healthcare regulations already provide a strong legal foundation for environmental permitting, wastewater management, hazardous waste management, occupational safety, hospital operation, and public health protection. However, the AIIB ESF introduces several additional requirements that are broader and more detailed, particularly in relation to stakeholder engagement, grievance mechanisms, climate-change assessment, cumulative impacts, labour management, vulnerable groups, and operational transparency.

For the RSMDJ development, these gaps are important because the project is implemented within an active tertiary referral hospital environment containing highly sensitive receptors, including patients, healthcare workers, visitors, nearby residents, informal vendors (PKL), and emergency-response services. Therefore, the ESIA and ESMP must integrate not only compliance-based environmental management but also proactive social-risk management, operational continuity planning, stakeholder communication, and climate-resilient healthcare infrastructure principles.

The following table summarizes the key gaps identified between Indonesian legislation and AIIB ESF requirements in the context of the RSMDJ development project.

Table 22 Gap Analysis between AIIB ESF and Indonesian Legislation for RSMDJ Development

AIIB ESF / ESS Requirement	Indonesian Regulatory Requirement	Gap / Difference	Additional Requirement / Proposed Measures for RSMDJ
Environmental and Social Policy (ESP) – Environmental and social sustainability	Indonesian regulations require environmental approval through AMDAL/UKL-UPL, sectoral permits, and compliance with healthcare, construction, waste, wastewater, traffic, and OHS regulations.	National regulations are generally compliance-based and permit-oriented, while AIIB requires a broader environmental and social risk-management approach throughout the project lifecycle.	RSMDJ shall integrate ESIA, ESMP, SEP, GRM, labour management, traffic management, hospital service continuity, and climate resilience into project planning, procurement, construction, and operation.
ESS1 – Environmental and Social Assessment and Management	AMDAL/UKL-UPL requires assessment of significant environmental impacts and preparation of RKL-RPL.	The Indonesian system may not fully cover all AIIB-required social dimensions, including labour influx, vulnerable groups, stakeholder engagement throughout implementation, cumulative impacts, associated facilities, and adaptive management.	ESIA/ESMP shall assess environmental and social risks across pre-construction, construction, operation, and decommissioning stages, including risks to patients, healthcare workers, visitors, nearby communities, PKL/vendors, and emergency access.
ESS1 – Project Categorization and Risk Screening	Indonesian AMDAL category is determined based on type, scale, and potential environmental impact of the activity.	AIIB categorization also considers environmental and social sensitivity, reversibility, magnitude, and management capacity.	RSMDJ shall maintain Category B justification, subject to update if DED, demolition scope, traffic impact, social impact, or associated facility screening identifies higher-risk impacts.
ESS1 – Area of Influence and Sensitive Receptors	AMDAL identifies project location and affected environmental components.	AIIB requires broader consideration of the Project's Area of Influence, including indirect, induced, cumulative, and associated impacts.	The ESIA shall define environmental and social AoI covering the hospital compound, construction footprint, access roads, ambulance routes, nearby settlements, vendors/PKL, utilities, waste-disposal interfaces, and sensitive hospital units such as ICU, HCU, isolation wards, emergency unit, operating theatres, and inpatient wards.
ESS1 – Associated Facilities	Indonesian regulations do not use the same "associated facilities" test as AIIB.	AIIB requires screening of facilities that are directly and materially related, contemporaneous, and necessary for project viability.	RSMDJ shall screen PLN supply, access roads, contractor basecamp/laydown areas, third-party waste transport/disposal, environmental laboratories,

AIIB ESF / ESS Requirement	Indonesian Regulatory Requirement	Gap / Difference	Additional Requirement / Proposed Measures for RSMDJ
			temporary relocation facilities, and other linked facilities. Where not classified as Associated Facilities, their risks shall still be addressed as linked activities or ESMP interfaces.
ESS1 – Alternatives Analysis	AMDAL generally requires alternatives when relevant, especially for location, technology, and management options.	AIIB expects project alternatives to consider environmental and social risks, including “no project” alternatives where appropriate.	RSMDJ shall document alternatives related to building siting, construction phasing, demolition sequence, patient relocation, access routing, traffic management, utility protection, and design options for energy efficiency and climate resilience.
ESS1 – Cumulative Impact Assessment	Cumulative impact assessment is not always developed in detail under national practice.	AIIB requires consideration of cumulative impacts where projects interact with other developments or existing pressures.	RSMDJ shall assess cumulative impacts on hospital traffic, parking, emergency access, dust, noise, vibration, utility demand, wastewater, hazardous waste, medical waste, and service disruption during overlapping hospital operations and construction activities.
ESS1 – Environmental and Social Management Plan (ESMP)	RKL-RPL provides environmental management and monitoring obligations under AMDAL.	RKL-RPL may not fully cover AIIB requirements for institutional responsibility, budget, contractor obligations, labour management, stakeholder engagement, GRM, and adaptive monitoring.	RSMDJ shall prepare an ESMP with mitigation measures, monitoring indicators, responsible parties, schedule, budget, reporting mechanism, contractor requirements, and corrective-action procedures. Contractor shall prepare C-ESMP before works begin.
ESS1 – Contractor Environmental and Social Management	Indonesian construction regulations require K3, technical safety, environmental compliance, and permit implementation.	National requirements may not explicitly require a consolidated C-ESMP aligned with AIIB ESF.	Bid documents and contracts shall require C-ESMP, OHS Plan, Traffic Management Plan, Waste Management Plan, Demolition Method Statement, Emergency Response Plan, Labour Management Procedure, SEA/SH Code of Conduct, and Chance Find Procedure where relevant.

AIIB ESF / ESS Requirement	Indonesian Regulatory Requirement	Gap / Difference	Additional Requirement / Proposed Measures for RSMDJ
ESS1 – Pollution Prevention and Resource Efficiency	Indonesian laws regulate wastewater, air emissions, hazardous waste, domestic waste, and hospital environmental health.	AIIB also requires pollution prevention hierarchy, resource efficiency, cleaner production, and GIIP alignment.	RSMDJ shall manage dust, emissions, wastewater, construction runoff, hazardous waste, domestic waste, medical waste, demolition waste, and chemical materials based on Indonesian standards and GIIP. Energy and water efficiency measures shall be integrated into design and operation.
ESS1 – Hazardous Materials and Hazardous Waste	Indonesian regulations require management of B3 waste, TPS LB3, licensed transport, manifest, and treatment/disposal by authorized providers.	AIIB requires risk-based assessment and control of hazardous materials across construction and operation, including demolition-related hazardous materials such as asbestos-containing materials if present.	RSMDJ shall identify B3 and non-B3 waste streams, screen old buildings for ACM or other hazardous materials before demolition, ensure licensed handling and disposal, and maintain waste manifests and disposal documentation.
ESS1 – Occupational Health and Safety	Indonesian labour and construction regulations require K3, SMK3, and hospital OHS/K3RS implementation.	AIIB requires systematic OHS risk assessment, contractor OHS management, worker training, incident reporting, emergency preparedness, and worker grievance mechanism.	RSMDJ and contractor shall implement OHS controls for demolition, excavation, lifting, working at height, electrical works, confined spaces, infection exposure, heat stress, traffic interaction, and emergency response. Incident reporting and corrective actions shall be included in ESMP monitoring.
ESS1 – Community Health and Safety	Indonesian regulations address public safety, hospital safety, traffic, fire safety, and environmental health.	AIIB requires explicit assessment of project risks to affected communities, hospital users, vulnerable groups, and emergency access.	RSMDJ shall protect patients, visitors, staff, residents, vendors, and road users through traffic management, safe pedestrian routes, hoarding, signage, restricted access, dust/noise controls, emergency access protection, infection prevention, and public communication.
ESS1 – Hospital Service Continuity	Indonesian hospital regulations require continuity and quality of healthcare services.	AIIB does not have a hospital-specific standard, but under ESS1 service-disruption risks to sensitive receptors must be managed.	RSMDJ shall prepare a Hospital Service Continuity Plan covering patient relocation, staff relocation, emergency access, critical utilities, medical gases, infection control, ambulance routes, temporary service arrangements, and

AIIB ESF / ESS Requirement	Indonesian Regulatory Requirement	Gap / Difference	Additional Requirement / Proposed Measures for RSMDJ
			communication to patients/families.
ESS1 – Labour and Working Conditions	Indonesian manpower laws regulate employment contracts, wages, working hours, OHS, social security, and prohibition of child labour/forced labour.	AIIB requires labour-risk management covering contractor/subcontractor workers, fair working conditions, non-discrimination, worker GRM, labour influx, SEA/SH, and code of conduct.	RSMDJ shall require contractors to implement Labour Management Procedures, worker induction, worker GRM, worker accommodation standards where applicable, prohibition of child/forced labour, non-discrimination, SEA/SH prevention, and monitoring of subcontractors.
ESS1 – Gender, SEA/SH, and Non-Discrimination	Indonesian regulations provide general protection against discrimination, harassment, and violence, but project-specific SEA/SH screening is not always required.	AIIB requires identification of gender-specific risks and mitigation measures, particularly in relation to labour influx and workplace/community safety. ESIA RSAB also treats gender and SEA/SH as part of the social scope.	RSMDJ shall screen SEA/SH risks, require worker Code of Conduct, provide safe complaint channels, ensure gender-sensitive consultation, protect female workers and hospital users, and include SEA/SH prevention in contractor training.
ESS1 – Vulnerable Groups	Indonesian regulations include general social protection and public service obligations, but do not always require project-specific vulnerable-group analysis.	AIIB requires identification of vulnerable people who may be disproportionately affected or less able to access project benefits and mitigation measures.	RSMDJ shall identify and address risks to intensive-care patients, elderly patients, children, pregnant women, persons with disabilities, psychiatric patients, isolation patients, low-income patients, nearby residents, informal vendors, and other vulnerable groups affected by access disruption, relocation, noise, dust, or service changes.
ESS1 – Stakeholder Engagement	AMDAL requires public consultation and announcement during environmental approval process.	AIIB requires meaningful, inclusive, and continuous stakeholder engagement throughout preparation, construction, and operation.	RSMDJ shall implement SEP covering hospital management, staff, patients, families, nearby residents, vendors/PKL, local government, emergency services, and vulnerable groups. Engagement shall continue during construction, especially when access, relocation, demolition, or service changes occur.
ESS1 – Information Disclosure	AMDAL disclosure is generally tied to	AIIB requires the timely disclosure of relevant	RSMDJ shall disclose ESIA/ESMP summary,

AIIB ESF / ESS Requirement	Indonesian Regulatory Requirement	Gap / Difference	Additional Requirement / Proposed Measures for RSMDJ
	environmental approval stages.	environmental and social information in an accessible form and language. Specifically, draft environmental and social documentation must be disclosed at least 60 calendar days for Category A projects and 30 calendar days for Category B projects prior to AIIB's consideration of the financing for approval. As the RSMDJ Project is provisionally classified as Category B, the applicable minimum disclosure period is 30 calendar days. Indonesian AMDAL requirements do not specify an equivalent disclosure period linked to AIIB's approval timeline; therefore, the Project shall follow the AIIB disclosure requirement to address this gap.	construction schedule, traffic changes, demolition schedule, relocation arrangements, GRM channels, monitoring results, and key mitigation measures through accessible channels inside and outside the hospital.
ESS1 – Grievance Redress Mechanism	Complaint handling exists through institutional or administrative mechanisms, including hospital complaint systems.	AIIB requires a project-level GRM accessible to all affected people, separate from ordinary administrative complaint handling where necessary.	RSMDJ shall establish a project-level GRM for patients, visitors, workers, contractors, vendors/PKL, nearby residents, and hospital staff. GRM shall include multiple channels, clear response time, documentation, escalation process, confidentiality, and SEA/SH-sensitive handling.
ESS1 – Monitoring, Reporting, and Adaptive Management	RKL-RPL requires periodic environmental monitoring and reporting to relevant authorities.	AIIB requires monitoring of both environmental and social commitments, implementation performance, corrective actions, and disclosure where relevant.	RSMDJ shall monitor air quality, noise, vibration, water quality, wastewater, waste, traffic, OHS, community health and safety, stakeholder engagement, grievances, patient relocation, service continuity, labour issues, and ESMP implementation. Corrective actions shall be documented and reported.
ESS1 – Climate Risk and Adaptation	Climate-risk assessment is not always mandatory in	AIIB requires climate-risk screening and integration of adaptation measures where	RSMDJ shall assess flood, extreme rainfall, heat stress, seismic risk, drainage

AIIB ESF / ESS Requirement	Indonesian Regulatory Requirement	Gap / Difference	Additional Requirement / Proposed Measures for RSMDJ
	standard AMDAL practice.	climate hazards may affect project sustainability.	capacity, emergency preparedness, and climate resilience of critical hospital infrastructure. Adaptation measures shall be incorporated into design and operations.
ESS1 – Greenhouse Gas Emissions	GHG inventory is generally not required for ordinary hospital AMDAL unless specifically requested.	AIIB requires consideration of GHG emissions where relevant and feasible.	RSMDJ shall estimate Scope 1 and Scope 2 emissions from fuel use, generators, boilers, electricity consumption, and construction activities, and identify mitigation through energy efficiency, green building design, renewable energy options, and operational efficiency.
ESS1 – Biodiversity and Ecosystem Services	Indonesian regulations require assessment of flora, fauna, and ecological impacts where relevant.	AIIB requires biodiversity screening and management proportionate to risk.	Although the project is located in an existing urban hospital compound, RSMDJ shall assess tree removal, green-cover loss, drainage ecology, landscaping, and replacement planting. Significant biodiversity impacts are not expected but shall be confirmed through baseline verification.
ESS1 – Cultural Heritage and Chance Finds	Indonesian law protects cultural heritage and requires protection of registered heritage assets.	AIIB requires assessment of tangible and intangible cultural heritage, including chance-find procedures.	RSMDJ shall confirm whether any existing buildings or nearby structures have cultural heritage value. If excavation or demolition reveals archaeological or heritage materials, a Chance Find Procedure shall be implemented and relevant authorities notified.
ESS2 – Involuntary Resettlement, Land Acquisition, and Physical Displacement	Land acquisition for public interest is regulated under Indonesian law; compensation is generally linked to legal status and formal land rights.	AIIB ESS2 covers physical displacement, economic displacement, access restriction, and livelihood impacts, including impacts on informal users where relevant.	RSMDJ is located within existing hospital land, so large-scale land acquisition is not expected. However, screening shall be conducted for temporary or permanent impacts on PKL/vendors, parking users, access users, service providers, and internal hospital users. If economic displacement occurs, appropriate livelihood-restoration or

AIIB ESF / ESS Requirement	Indonesian Regulatory Requirement	Gap / Difference	Additional Requirement / Proposed Measures for RSMDJ
			compensation measures shall be prepared.
ESS2 – Economic Displacement and Livelihood Restoration	Indonesian regulations may not fully cover informal economic activities or temporary income loss unless tied to formal land acquisition.	AIIB requires mitigation for loss of income, livelihood disruption, or access restriction, including for informal or vulnerable affected people where applicable.	RSMDJ shall identify vendors/PKL or service providers affected by construction, access changes, or relocation. If impacts are confirmed, a livelihood-restoration/action plan shall be prepared, consulted, implemented, and monitored.
ESS2 – Consultation and Grievance for Affected Persons	Indonesian procedures include consultation in land acquisition and AMDAL processes.	AIIB requires meaningful consultation with displaced or economically affected persons, including accessible grievance channels.	Affected vendors/PKL, temporary users, parking operators, or service providers shall be consulted before relocation or access restriction. Their complaints shall be handled through the project-level GRM.
ESS3 – Indigenous Peoples Screening	Indonesian regulations recognize masyarakat hukum adat under specific legal and administrative criteria.	AIIB ESS3 requires screening of Indigenous Peoples based on distinct identity, collective attachment, customary institutions, and vulnerability to project impacts.	Preliminary RSMDJ screening indicates no Indigenous Peoples community within the direct project footprint. This shall be confirmed through social baseline and stakeholder consultation. If ESS3-relevant groups are later identified, an Indigenous Peoples Plan or equivalent culturally appropriate measures shall be prepared.
ESS3 – Culturally Appropriate Consultation	Indonesian regulations provide general public consultation mechanisms.	AIIB requires culturally appropriate consultation and, in certain circumstances, Free, Prior and Informed Consent (FPIC).	If Indigenous Peoples or culturally distinct vulnerable groups are identified during further assessment, RSMDJ shall conduct culturally appropriate engagement and develop mitigation measures consistent with ESS3.
Environmental and Social Exclusion List (ESEL)	Indonesian law prohibits certain illegal or hazardous activities, but does not use AIIB's ESEL format.	AIIB requires confirmation that the project does not include excluded activities.	RSMDJ shall confirm that project activities, procurement, demolition, construction, and waste management do not involve activities prohibited under AIIB's ESEL, including illegal hazardous waste handling, forced labour, child labour, or

AIIB ESF / ESS Requirement	Indonesian Regulatory Requirement	Gap / Difference	Additional Requirement / Proposed Measures for RSMDJ
			activities causing significant irreversible harm.
Institutional Capacity and Implementation Arrangements	Indonesian regulations require responsible entities for permits, environmental management, K3, and hospital operations.	AIIB requires clear institutional responsibilities, capacity, budget, monitoring, and reporting arrangements for ESMP implementation.	RSMDJ shall assign PIU/PMU, hospital units, contractor, supervision consultant, K3RS, PPI, sanitation/environmental health, security, GRM focal point, and reporting responsibilities. Training and budget shall be included in ESMP implementation.

4. ENVIRONMENTAL BASELINE

This section presents the environmental baseline of RSUP Dr. M. Djamil Padang (RSMDJ) and its surrounding area, covering physical conditions (ambient air, noise, soil, surface and groundwater, and traffic), biological features (flora, fauna, and habitats), socio-economic and cultural aspects (demographics, land use, community structure, and cultural heritage), hospital infrastructure and utilities (buildings, circulation, emergency access, water, wastewater, electricity, medical gases, and IT systems), and public health and sanitation (medical waste, wastewater handling, infection control, and occupational health). Primary data will be collected by multidisciplinary experts following accredited methods, while secondary data from previous studies and hospital records will supplement the assessment. This baseline provides a clear reference for identifying sensitive areas, assessing potential environmental and social impacts, and informing mitigation measures to ensure safe, sustainable, and uninterrupted hospital operations during redevelopment.

4.1 Geographic and Administrative Context

RSMDJ is located at Perintis Kemerdekaan street, Sawahan Timur, Kecamatan Padang Timur, Padang City, Province of West Sumatra, Indonesia. The hospital occupies an existing site area of approximately 110,540 m² and functions as a Class A National Referral and teaching hospital under the Ministry of Health of the Republic of Indonesia.

Geographically, the project site is situated within a dense urban area characterized by mixed land use consisting of residential settlements, commercial activities, educational facilities, transportation corridors, and public-service infrastructure. The hospital is strategically located near major urban access roads, making it an important healthcare referral center for Padang City and surrounding regions in Sumatra.

Administratively, the project site falls within:

- Province: West Sumatra Province
- City: Padang City
- District (Kecamatan): Padang Timur
- Urban Village (Kelurahan): Sawahan Timur.

The surrounding area is dominated by residential neighborhoods, small commercial activities, educational institutions, and supporting urban infrastructure. The hospital also interfaces directly with important public-access corridors and ambulance circulation routes, making traffic management and operational accessibility critical considerations within the ESIA assessment.

The figures below present the geographic location of the RSMDJ site within the urban area of Padang City, including indicative site boundaries and surrounding administrative context. More detailed administrative boundary verification, including RW/RT and neighborhood-level mapping, will be finalized during ESIA v0.2 through field verification and coordination with local authorities.

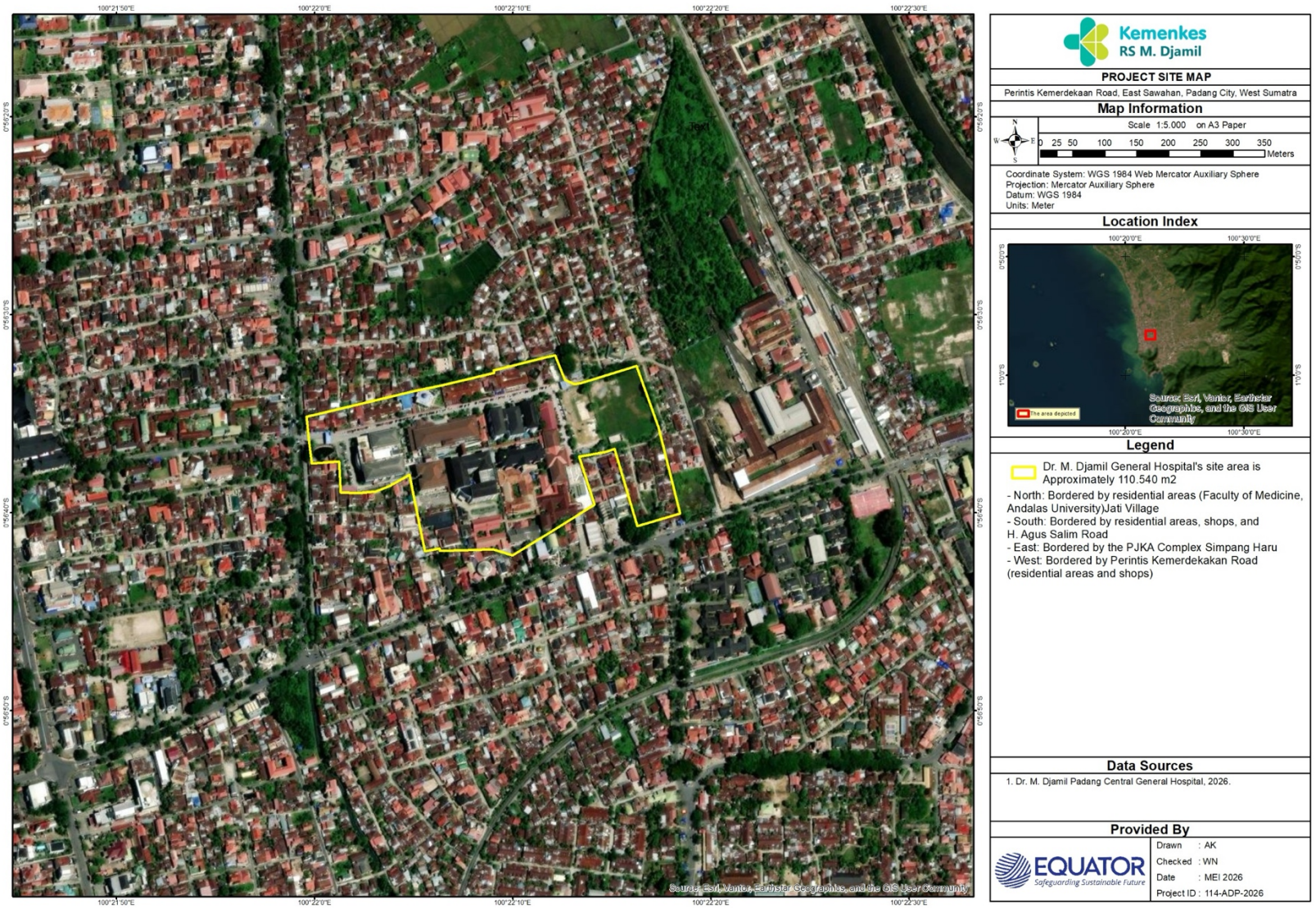


Figure 8 Map of the Surrounding Area

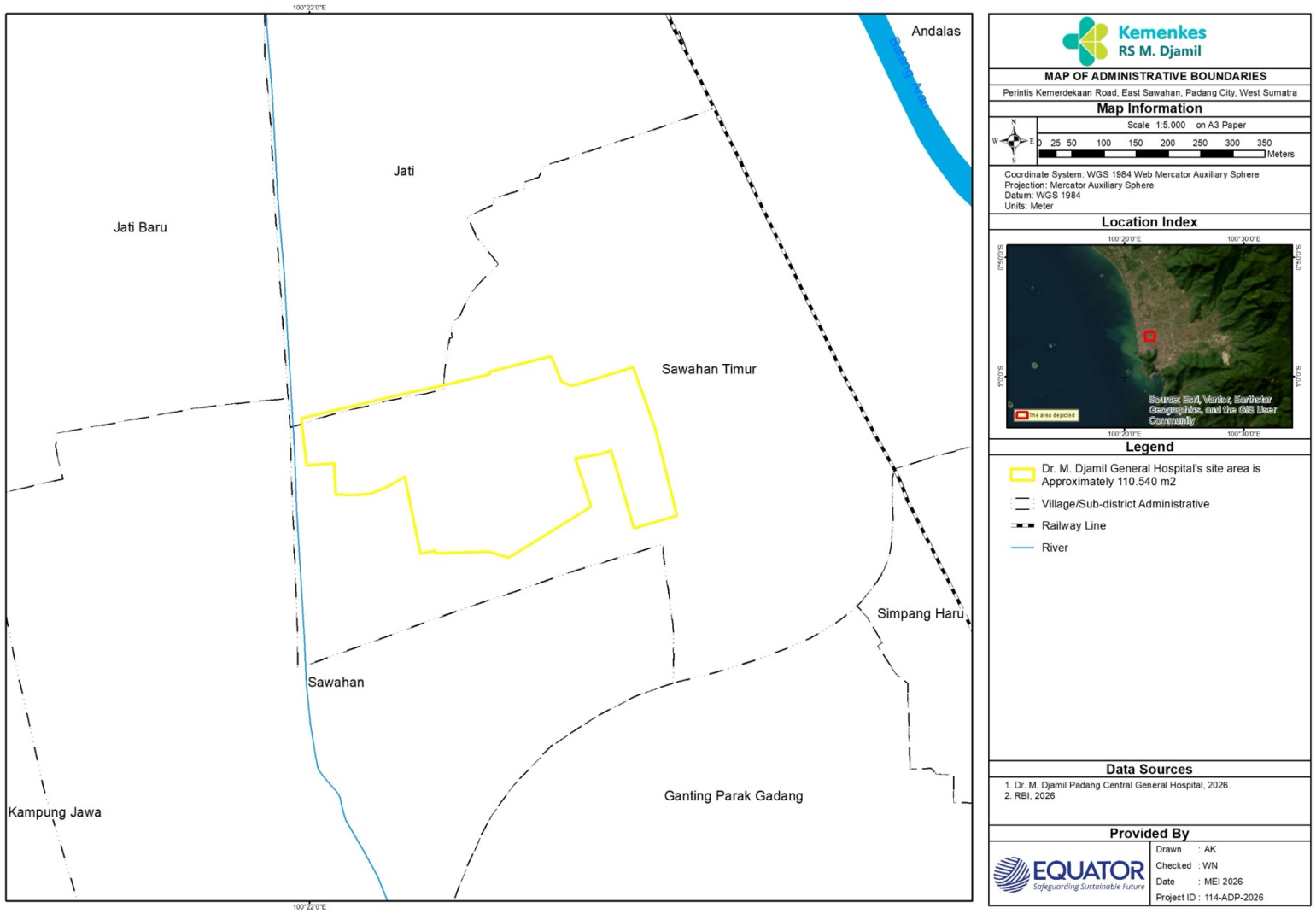


Figure 9 Map of Administrative Boundaries

4.2 Topography and Geology

The RSMDJ development site is located within the urban lowland area of Padang City, West Sumatra Province. The project area generally consists of relatively flat to gently sloping terrain typical of the coastal-alluvial plain morphology of Padang. Preliminary interpretation based on regional topographic mapping, satellite imagery, and available geological references indicates that the site elevation is relatively low and suitable for urban and institutional development. However, localized drainage conditions and seismic considerations remain important due to the regional geological setting.

Topographically, Padang City is characterized by a transition between coastal lowlands in the western part and the hilly Barisan Mountain system toward the eastern and southern areas. The RSMDJ site itself is located within the developed urban plain of Padang Timur District, where slopes are generally gentle and the area is predominantly characterized by built-up urban land use. The surrounding environment supports residential, commercial, educational, and public-service functions. From a geological perspective, the area is predominantly influenced by young Quaternary alluvial deposits associated with coastal and riverine systems. Previous geological and seismic studies indicate that lowland areas of Padang generally consist of unconsolidated sediments such as clay, sandy clay, silt, and sand-gravel materials. These soil conditions are relevant for hospital infrastructure development due to their potential susceptibility to ground amplification, differential settlement, and liquefaction during strong seismic events.

Regionally, West Sumatra is located within one of the most seismically active zones in Indonesia, influenced by the interaction between the Indo-Australian Plate and the Eurasian Plate, as well as the presence of the Sunda subduction zone, Mentawai Fault system, and Great Sumatran Fault system. Padang City has historically experienced significant seismic events, including the 2009 West Sumatra earthquake, which caused substantial impacts on urban infrastructure, including healthcare facilities.

From a seismic perspective, the RSMDJ hospital is not located directly on an active earthquake fault line. However, the project site is situated within a high seismic hazard region influenced by the regional tectonic setting of West Sumatra. The site is underlain predominantly by young Quaternary alluvial deposits typical of coastal lowland areas. These geological conditions may increase susceptibility to seismic amplification and liquefaction, which have been considered in the seismic-resistant design approach of the project. Several studies further indicate that parts of Padang's lowland areas exhibit moderate to high susceptibility to seismic amplification and liquefaction due to soft sedimentary deposits and shallow groundwater conditions. Therefore, seismic resilience and geotechnical safety are considered critical design parameters for the RSMDJ development.

Based on preliminary geological interpretation and regional mapping, the project area is expected to be dominated by young Quaternary alluvial deposits with moderate groundwater influence. Detailed confirmation of lithology, bearing capacity, groundwater depth, soil stratigraphy, liquefaction potential, and seismic response characteristics will be obtained through topographic survey (geodetic survey), soil investigation and borehole drilling, Standard Penetration Test (SPT), geotechnical laboratory testing, groundwater assessment, and verification against DEMNAS/BIG topographic data and Geological Agency references. These detailed investigations will be incorporated into ESIA version 0.2 and coordinated with the Detailed Engineering Design Consultant (DEDC) to support seismic-resistant and climate-resilient hospital infrastructure planning.

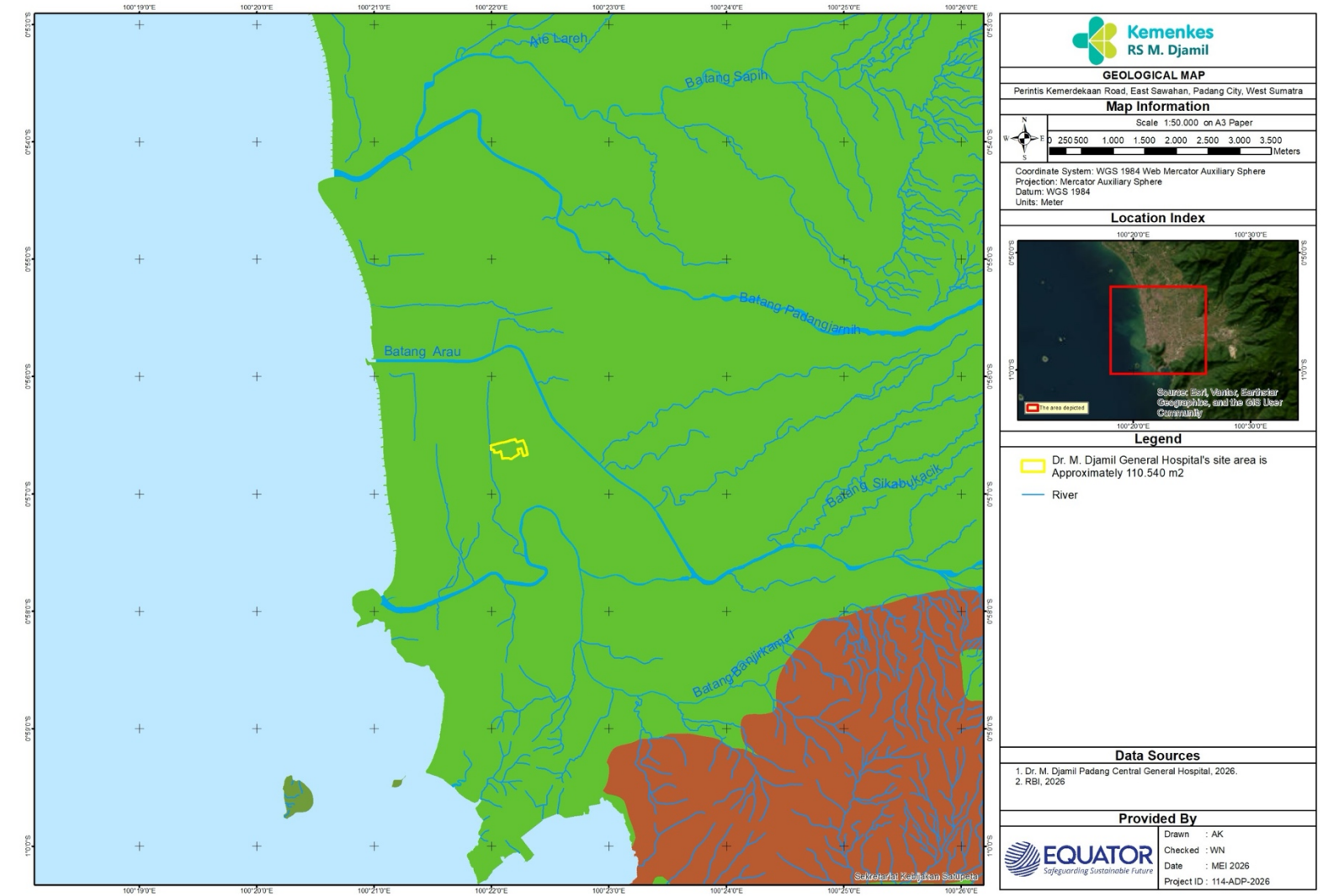


Figure 10 Geological Map

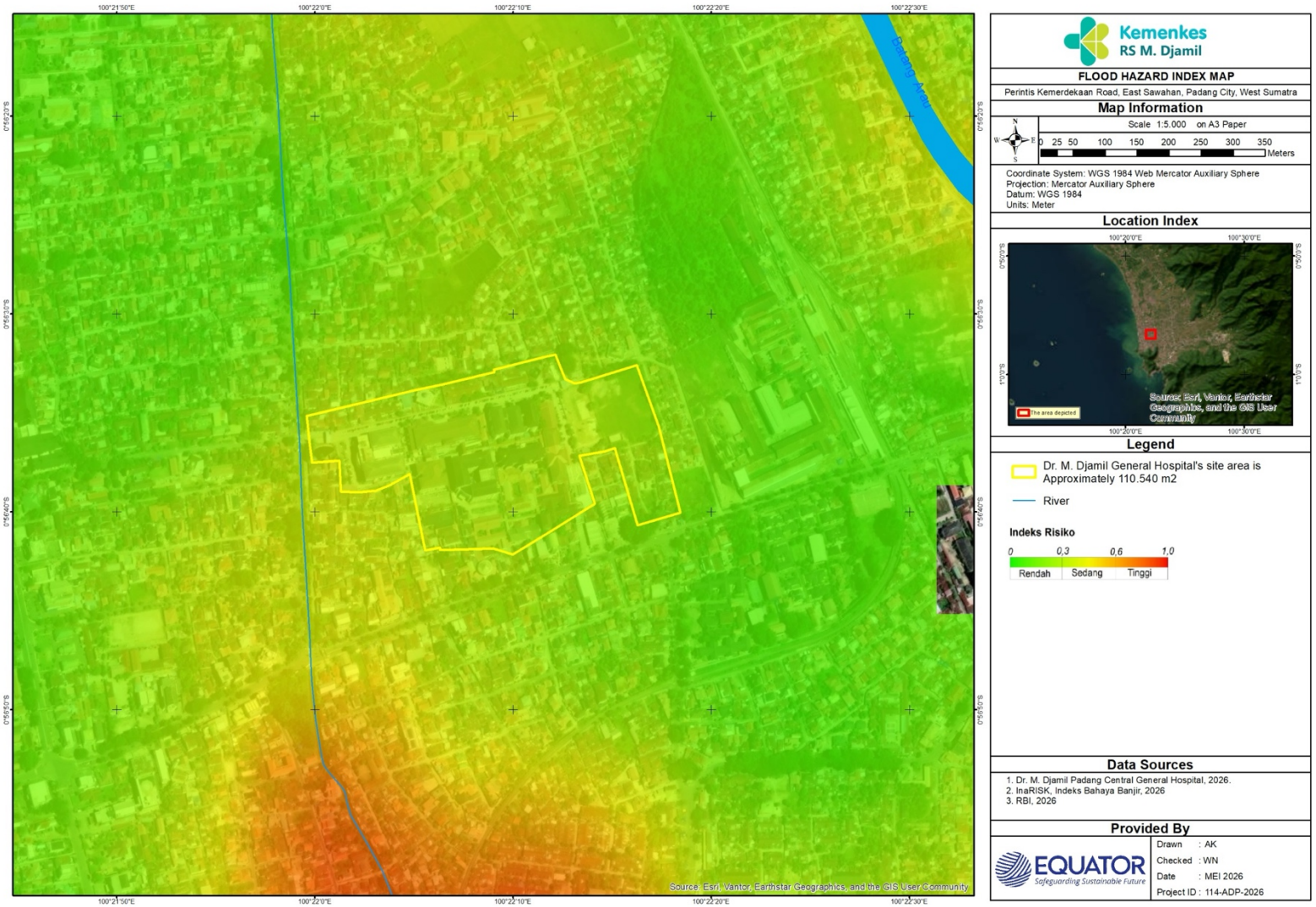


Figure 11 Flood Hazard Index Map

Table 23 Preliminary Topographic and Geological Characteristics of the RSMDJ Site

Aspect	Preliminary Condition
Topographic Setting	Urban lowland / coastal plain
General Slope	Flat to gently sloping
Elevation Characteristic	Lowland urban terrain
Dominant Landform	Alluvial plain
Geological Formation	Young Quaternary alluvial deposits
Typical Soil Material	Clay, sandy clay, silt, sand, gravel
Groundwater Influence	Moderate to potentially shallow
Seismic Context	High seismic-risk region
Liquefaction Potential	Moderate in lowland alluvial areas
Main Geological Hazards	Earthquake shaking, ground amplification, potential liquefaction
Engineering Consideration	Seismic-resistant foundation and structural design required

The preliminary topographic and geological assessment indicates that the RSMDJ project site is situated within a lowland urban setting characterized by relatively flat to gently sloping terrain. Geomorphologically, the area forms part of the alluvial plain system commonly found in the Padang coastal region, with surface elevations generally representing lowland urban terrain conditions. The dominant geological formation consists of young Quaternary alluvial deposits composed primarily of clay, sandy clay, silt, sand, and gravel materials. These unconsolidated sedimentary materials are typical of riverine and coastal depositional environments and may influence soil bearing capacity, groundwater behavior, and structural foundation requirements for large-scale hospital infrastructure development.

Hydrogeologically, the site is expected to experience moderate to potentially shallow groundwater conditions due to its lowland setting and alluvial subsurface characteristics. From a geotechnical perspective, these conditions may increase sensitivity to settlement, soil saturation, and localized drainage issues during both construction and operational phases. In addition, the Padang region is widely recognized as a high seismic-risk area associated with active tectonic subduction systems along the western coast of Sumatra. Consequently, the site may be exposed to earthquake-related hazards including seismic ground shaking, soil amplification effects, and moderate liquefaction potential, particularly within saturated alluvial zones.

In response to these risks, the ESMP shall include mandatory structural inspection and periodic structural safety assessments for all hospital buildings to ensure compliance with seismic-resilient design standards. The project shall also establish coordination mechanisms with the West Sumatra Regional Disaster Management Agency (BPBD) for emergency preparedness, response, and disaster communication procedures. Furthermore, a tsunami evacuation route plan shall be developed, clearly designated within the hospital premises, and supported by regular emergency evacuation drills for

hospital staff, workers, and relevant stakeholders to ensure preparedness in the event of seismic or tsunami-related emergencies.

Considering these geological and seismic characteristics, the project will require comprehensive geotechnical site investigations during the Detailed Engineering Design (DED) stage, including borehole drilling, Standard Penetration Test (SPT), laboratory soil testing, groundwater assessment, and geophysical verification to confirm subsurface conditions, soil stratigraphy, and bearing capacity. Based on preliminary interpretation, the site is likely underlain by young alluvial deposits with relatively shallow groundwater conditions; therefore, liquefaction is considered a potential geotechnical hazard that will require confirmation through detailed site-specific investigation rather than being assumed as a confirmed condition. Structural and foundation systems shall comply with Indonesian seismic design standards for critical healthcare facilities and incorporate appropriate earthquake-resistant design principles, including potential deep foundations, soil improvement measures, groundwater management, and structural reinforcement to ensure long-term safety, operational continuity, and resilience against seismic and geotechnical hazards.

4.3 Climate and Meteorology

The RSMDJ development site is located within the tropical humid climate zone of Padang City, West Sumatra Province. Climatic conditions in the area are strongly influenced by the equatorial maritime climate, Indian Ocean monsoon circulation, coastal atmospheric dynamics, and regional topographic conditions associated with the Barisan Mountain range.

Padang City generally experiences high annual rainfall, high humidity, warm temperatures, and relatively consistent precipitation throughout the year. The climate is characterized by a bimodal rainfall pattern with wetter periods commonly occurring during the northeast monsoon season, while short relatively drier periods occur around mid-year. These climatic conditions are important considerations for hospital infrastructure planning because they influence drainage design, flood management, indoor environmental quality, thermal comfort, operational resilience, and climate-adaptation requirements.

The climate assessment for the ESIA is also relevant because the RSMDJ development includes construction of critical healthcare infrastructure intended to operate continuously during extreme weather conditions and emergency situations. Therefore, climate resilience, stormwater management, ventilation systems, energy efficiency, and thermal comfort are important components of the project design approach.

Based on available climatological references from BMKG and regional climate datasets, the Padang area is characterized by high annual precipitation, consistently warm air temperature, moderate wind conditions, and high atmospheric humidity typical of coastal tropical environments.

Table 24 Preliminary Climate and Meteorological Characteristics of Padang City

Parameter	Indicative Value / Condition (Padang City)
Mean annual temperature	Approximately 26–27°C (BMKG climatological average), typical daily range 23–32°C
Mean relative humidity	Approximately 75–90%; generally high throughout the year
Mean annual rainfall	Approximately 3,000–4,500 mm/year among the wettest urban areas in Indonesia
Rainfall regime	Tropical humid climate with rainfall occurring throughout the year, wetter season generally November - April
Number of rainy days	Approximately 150–220 rainy days/year
Wind speed	Generally low to moderate influenced by coastal sea-breeze circulation
Dominant wind direction	Influenced by seasonal monsoon circulation and coastal airflow patterns
Evaporation rate	Moderate to high due to tropical temperature conditions
Fog incidence	Relatively low in urban coastal area; occasional localized morning haze possible
Solar radiation	Moderate to high tropical solar exposure throughout the year
Extreme weather consideration	High rainfall intensity, localized urban flooding, strong storm events, and climate-related operational risks

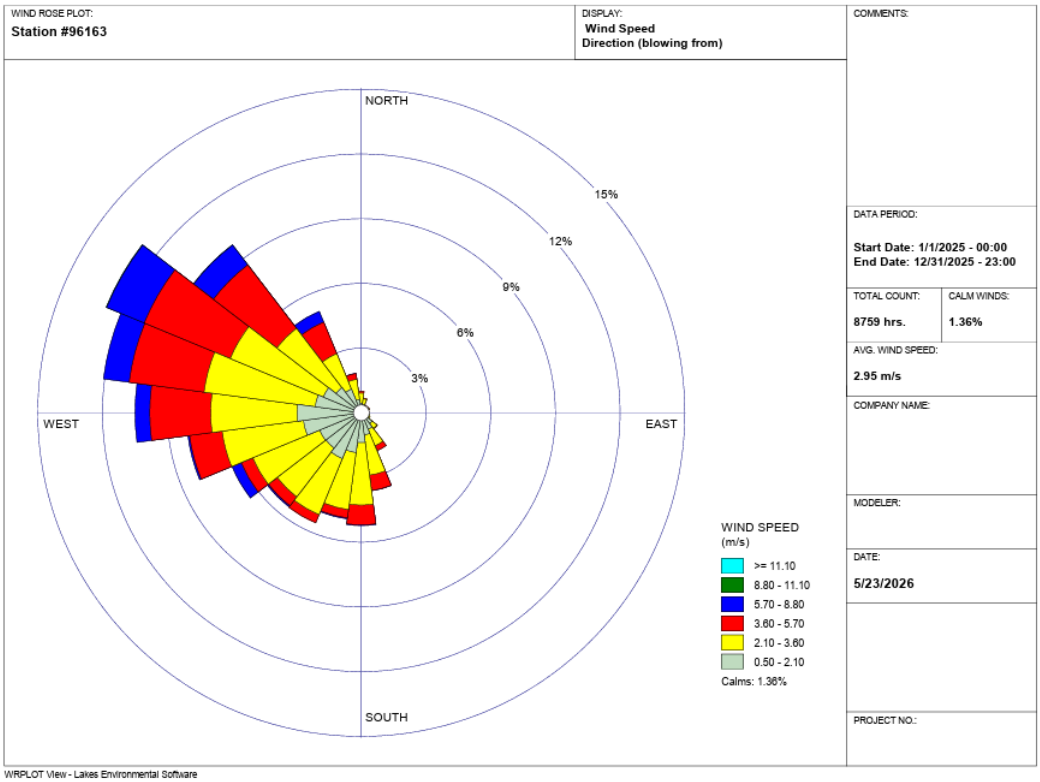


Figure 12 Wind rose plot

The wind rose diagram for Station #96163 illustrates the distribution of wind direction and wind speed recorded during the 2025 monitoring period. The analysis indicates that the dominant winds in the Padang area predominantly originate from the west to northwest sectors, reflecting the strong influence of coastal atmospheric circulation and regional monsoon patterns.

The wind-speed distribution is generally characterized by low to moderate wind conditions, with the majority of recorded wind speeds ranging between 0.5–5.7 m/s. The most frequent wind category falls within the 2.10–3.60 m/s and 3.60–5.70 m/s ranges, while stronger winds above 5.7 m/s occur less frequently. The average recorded wind speed during the monitoring period was approximately 2.95 m/s, indicating moderate atmospheric dispersion potential for airborne pollutants.

The diagram also shows that calm wind conditions are relatively limited, representing only approximately 1.36% of total observations. This suggests that atmospheric movement occurs consistently throughout most of the year, which may support dispersion of dust and emissions generated from construction and operational activities at the RSMDJ development site.

From an ESIA perspective, the prevailing west–northwest wind direction is important for assessing potential dispersion pathways of:

- Construction dust;
- Vehicle emissions;
- Generator and boiler emissions;
- Odor and wastewater-related emissions;
- Temporary air-quality disturbances during demolition and excavation activities.

Because the hospital environment contains highly sensitive receptors such as patients, inpatient wards, ICU facilities, healthcare workers, visitors, and nearby residential areas, the prevailing wind direction should be considered in construction planning, temporary material storage, dust-control systems, ventilation design, and air-quality monitoring locations.

The wind rose analysis also supports climate and meteorological baseline characterization for the ESIA and provides important input for:

- Air dispersion assessment;
- Construction environmental management planning;
- Emergency-response preparedness;
- Hospital ventilation and indoor-air-quality considerations;
- Greenhouse gas and air-emission management strategies.

Overall, the wind characteristics in the project area indicate relatively stable coastal atmospheric conditions with moderate dispersion capability, although localized dust and emission impacts may still occur during intensive construction activities if mitigation measures are not properly implemented.

Table 25 Meteorological Data Resume – BMKG Padang Pariaman & BPS Padang City

Indicator	Value	Unit	Interpretation
Average temperature (2025)	27.53	°C	Warm tropical condition
Average wind speed (2025)	2.96	m/s	Low to moderate wind speed
Average wind direction (2025)	269.94	°	Dominantly westerly to northwesterly
Total rainfall (2025)	4705.8	mm/year	Wettest month: Desember (621.9 mm)
Rainy days (2025)	249	days/year	Highest rainy days: November (27 days)
Total rainfall (2026 data)	5436.6	mm/year	Wettest month: November (1159.2 mm)

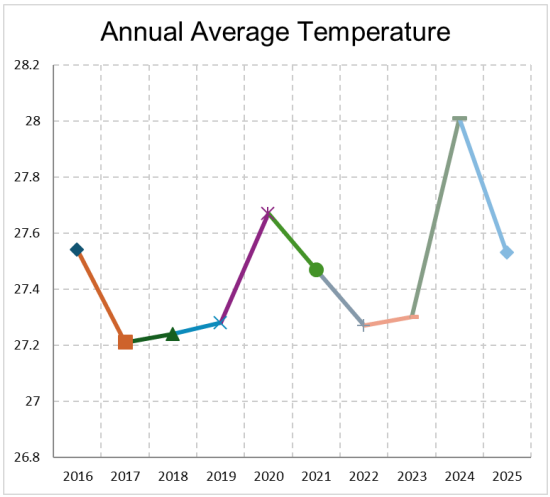


Figure 13 Annual average temperature

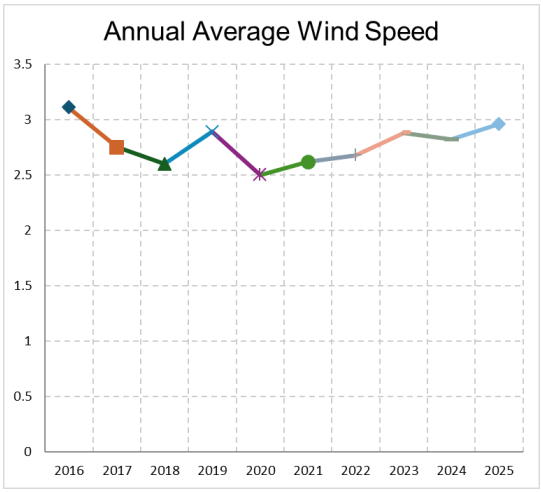


Figure 14 Annual average wind speed

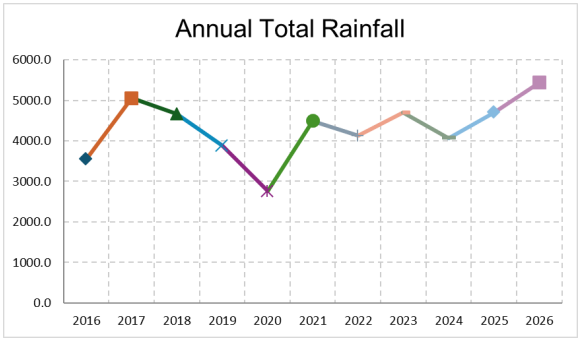


Figure 15 Annual total rainfall

The meteorological dataset shows that the RSMDJ area is located in a humid tropical coastal urban environment. The annual temperature is consistently warm, with average monthly values generally around the high-20s °C. This condition is relevant for hospital building design, particularly HVAC performance, indoor air quality, thermal comfort, and energy efficiency. Rainfall data indicate high precipitation intensity and frequent rainy days in Padang. For ESIA purposes, this means that

construction activities should include robust drainage management, sediment traps, erosion control, covered stockpiles, and emergency stormwater procedures. Wind-speed data show generally low to moderate wind conditions. Although this supports some dispersion of pollutants, dust and emissions may remain localized during demolition, excavation, and material handling. Therefore, air quality monitoring should be positioned around sensitive receptors and downwind boundaries. The average temperature in 2025 was approximately 27.53°C, with an average wind speed of 2.96 m/s and dominant wind direction from the west to northwest. Total annual rainfall in 2025 reached approximately 4,705.8 mm/year. These climatic conditions are important considerations for hospital drainage design, construction dust control, HVAC system planning, and overall climate resilience of the hospital infrastructure.

4.4 Hydrology and Hydrogeology

Hydrological and hydrogeological conditions are important baseline components in assessing environmental risks and water resource management at the RSMDJ site. The assessment will consider watershed and sub-watershed characteristics, groundwater conditions, drainage systems, wastewater management, and potential flood-related risks within the hospital's area of influence.

4.4.1 Water surface

Table 26 Results of Surface Water Quality Analysis

Parameter	Unit	Analysis Result		Quality Standard **)	WHO	LOD	Method
		Upstream	Downstream				
Temperature at location	°C	29.0	29.0	Dev 3	-	-	SNI 06-6989.23-2005
Total Dissolved Solids (TDS)	mg/L	259	233	2,000	<5	4,8	SNI 6989.27:2019
Total Suspended Solids (TSS)	mg/L	28	< 10	400	3	4,2	SNI 6989.3:2019
Color	TCU	74	69	-	-	2	SNI 6989.80-2011
pH at location	-	7.16	7.04	6 - 9	-	-	SNI 6989.11:2019
BOD 5 days 20 °C	mg/L	10.97	11.91	12	-	2	SNI 6989.72:2009
COD by $K_2Cr_2O_7$	mg/L	37.55	32.46	80	-	4	SNI 6989.2:2019
Dissolved Oxygen (DO)	mg/L	1.76	1.25	1 min	-	2,1	PO/PDG-AKL/52
Sulfate (SO_4^{2-})	mg/L	34.76	28.05	400	-	3	SNI 6989.20:2019
Chloride (Cl^-)	mg/L	6.98	7.22	600	200 - 300	2,9	SNI 6989.19:2009

Parameter	Unit	Analysis Result		Quality Standard **)	WHO	LOD	Method
Nitrate (NO_3-N)	mg/L	< 0.002	1.52	20	10	0,08	SNI 6989.79:2011
Nitrite (NO_2-N)	mg/L	0.04	0.04	-	1	0,02	SNI 06-6989.9-2004
Ammonia (NH_3-N)	mg/L	7.15	18.93	-	1.5	0,04	SNI 06-6989.30-2005
Total Nitrogen *	mg/L	7.19	18.97	-	-	0,005	Kalkulasi
Total Phosphate (as P)	mg/L	< 0.088	< 0.088	-	-	0,02	SNI 6989-31:2021
Fluoride (F^-)	mg/L	0.22	0.29	-	1,5	0,06	SNI 6989.29-2005
Sulfur as H_2S *	mg/L	0.02	0.03	-	-	0,001	SM 24th Ed 4500 S^{2-} D,2023
Cyanide (CN^-)	mg/L	< 0.004	< 0.004	-	-	0,004	SM 24th Ed 4500 CN E,2023
Free Chlorine	mg/L	< 0.02	< 0.02	-	5	0,02	PO/PDG-AKL/73
Dissolved Boron (B)	mg/L	< 0.087	< 0.087	1.00	0,5	0,01	SM 24th Ed 4500-B, 2023
Dissolved Mercury (Hg)	mg/L	< 0.0005	< 0.0005	0.01	0,0006	0,0002	SNI 6989-78:2019
Dissolved Arsenic (As)	mg/L	< 0.0004	< 0.0004	0.10	0,01	0,002	SNI 6989.81:2018
Dissolved Selenium (Se)	mg/L	< 0.0006	< 0.0006	0.05	0,01	0,002	SNI 6989.83:2018
Dissolved Iron (Fe)	mg/L	0.12	0.13	-	0,3	0,03	SNI 6989-84:2019
Dissolved Cadmium (Cd)	mg/L	< 0.008	< 0.008	0.01	0,003	0,002	PO/PDG-AKL/85
Dissolved Cobalt (Co)	mg/L	< 0.014	< 0.014	0.20	-	0,04	SM 24th Ed 3111 B; 3030 B,2023
Dissolved Manganese (Mn)	mg/L	0.15	< 0.050	-	0,4	0,01	SNI 6989-84:2019
Dissolved Nickel (Ni) terlarut	mg/L	< 0.019	< 0.019	0.10	0,07	0,01	PO/PDG-AKL/85
Dissolved Zinc (Zn)	mg/L	< 0.018	< 0.018	2	-	0,008	SNI 6989-84:2019
Dissolved Copper (Cu)	mg/L	< 0.004	< 0.004	0.20	-	0,007	PO/PDG-AKL/85
Dissolved Lead (Pb)	mg/L	< 0.022	< 0.022	0.50	-	0,02	PO/PDG-AKL/85

Parameter	Unit	Analysis Result		Quality Standard **)	WHO	LOD	Method
Hexavalent Chromium (Cr^{6+})	mg/L	0.02	0.016	1	-	0,03	SM 24th Ed 3500-Cr B,2023
Oil and Grease *	mg/L	3.6	2.8	10	-	0,8	SM 24th Ed 5520 B,2023
Total Detergent (MBAS)	mg/L	1.0	1.49	-	-	0,08	SNI 06-6989.51-2005
Phenol *	mg/L	< 0.001	< 0.001	0.02	-	0	SM 24th Ed 5530 C,2023
Fecal Coli *	MPN/100 mL	840	940	2,000	-	0	SM 24th Ed 9221 E,2023
Total Coliform *	MPN/100 mL	3,100	3,900	10,000	-	0	SM 24th Ed 9221 B,2023

**) Not included in the scope of KAN Accreditation (LP-603-IDN)*

***) PPRI No 22 2021 Lamp VI*

< = below laboratory detection limit

The following sample was collected and identified by laboratory personnel of PT Sucofindo Padang:

Client: RSUP Dr. M. Djamil

Jl. Perintis Kemerdekaan, Padang Timur District, Padang City 25171

Sample Type: River Water

Sample Receipt Date: 26 August 2025

Analysis Date: 26 August 2025 to 09 September 2025

Analysis / Test: Physics, Chemistry, and Microbiology (PPRI No. 22 2021, Appendix VI)

Sample Identification: Sample Collection Date: 26 August 2025

Sampling Location:

- Upstream: S 00° 56' 41.94" E 100° 22' 10.44"
- Downstream: S 00° 56' 42.52" E 100° 22' 3.71"

Surface water quality was assessed at two sampling points, namely upstream and downstream locations. The analysis covered physical, chemical, heavy metal, organic, and microbiological parameters, with results compared against Class IV water quality standards under Government Regulation No. 22 of 2021, Annex VI.

Overall, the surface water quality at both upstream and downstream locations generally complies with the applicable Class IV standards. Key physical parameters such as temperature, TDS, TSS, and pH were within the allowable limits. Organic parameters, including BOD and COD, also remained below the Class IV thresholds, although BOD values were relatively close to the maximum standard of 12 mg/L.

Dissolved oxygen (DO) levels were low, recorded at 1.76 mg/L upstream and 1.25 mg/L downstream, but still met the minimum Class IV requirement of 1 mg/L. Nutrient-related parameters showed higher ammonia and total nitrogen concentrations at the downstream point, indicating possible organic or domestic wastewater influence along the watercourse.

Heavy metals such as mercury, arsenic, cadmium, nickel, copper, lead, and chromium were below or within the required standards. Oil and grease, phenol, fecal coli, and total coliform were also within the Class IV limits. Microbiological results showed fecal coli and total coliform levels below the

applicable standards, although their presence indicates the need for continued sanitation and wastewater management.

In summary, the surface water quality around the study area is generally acceptable for Class IV water use. However, the relatively high BOD, low DO, and increased downstream ammonia and total nitrogen levels indicate that organic pollution control, drainage management, and wastewater treatment performance should be continuously monitored.



Figure 16 Sampling Location surface water

4.4.2 Waste water

Wastewater management is an important baseline component in the ESIA because RSMDJ generates wastewater from various hospital activities, including inpatient care, outpatient services, laboratories, sanitation facilities, laundry, cleaning activities, and other clinical support operations. As a healthcare facility, wastewater must be properly treated before discharge to prevent potential impacts on surface water, groundwater, public health, and the surrounding environment.

This subsection presents the results of wastewater quality analysis from the hospital's wastewater treatment plant (IPAL), comparing inlet and outlet concentrations to assess treatment performance. The assessment is used to identify whether the existing IPAL system is capable of reducing key pollutants such as BOD, COD, suspended solids, oil and grease, ammonia, coliform, dissolved iron, and manganese before effluent discharge. These findings provide an important basis for evaluating wastewater management capacity, regulatory compliance, and future treatment requirements associated with the planned hospital development.

Table 27 Wastewater Treatment Plant (IPAL) Quality Analysis (Inlet-Outlet)

Parameter	Unit	Inlet	Outlet	Method
Debit	m3/day	117, 27	117, 56	SNI 6989.11:2019
pH di Lab	-	6.7	7.28	SNI 6989.11:2019
BOD 5, days 20°C	mg/L	118	27.8	SNI 6989.72:2009
COD by K2Cr2O7	mg/L	295	69.5	SNI 6989.73:2009
Padatan Tersuspensi Total	mg/L	29	<10	SNI 6989.3:2019
Minyak dan Lemak	mg/L	3	<2	SNI 6989.10:2011
Amoniak (NH3-N)	mg/L	9.7	0.15	SNI 06-6989.30:2005
Total Coliform	MPN/100mL	>16000	390	SM 24th Ed. 9221 B, 2023
Besi Terlarut	mg/L	0.98	0.3	SNI 6989-84:2019
Mangan Terlarut	mg/L	0.18	<0.045	SNI 6989-84:2019

The following sample was collected and identified by laboratory personnel of PT Sucofindo Padang:
Client: RSUP Dr. M. Djamil Jl. Perintis Kemerdekaan, Padang Timur District, Padang City
Sample Type: Wastewater
Sample Receipt Date: 07 August 2025
Analysis Date: 07 August 2025 to 21 August 2025
Analysis / Test: pH, BOD, COD, TSS, Oil and Grease, Dissolved Iron, Dissolved Manganese, Ammonia, Total Coliform
Sample Description: Plastic bottle and glass bottle
Sample Identification: IPAL Inlet and outlet

The wastewater treatment plant (IPAL) quality analysis was conducted by comparing inlet and outlet wastewater characteristics. The results show that the IPAL significantly reduced pollutant concentrations before discharge. The daily flow rate was relatively stable, with 117.27 m^3/day at the inlet and 117.56 m^3/day at the outlet.

The pH increased from 6.7 at the inlet to 7.28 at the outlet, indicating that the treated wastewater remained within a neutral range. Organic pollutant parameters also showed substantial reductions. BOD decreased from 118 mg/L to 27.8 mg/L, while COD decreased from 295 mg/L to 69.5 mg/L. This indicates that the biological and chemical treatment processes were effective in lowering organic loads.

Total suspended solids declined from 29 mg/L to below 10 mg/L, while oil and grease decreased from 3 mg/L to below 2 mg/L. Ammonia showed a very significant reduction from 9.7 mg/L to 0.15 mg/L, suggesting effective nitrogen removal. Microbiological contamination also decreased considerably, with total coliform reduced from more than 16,000 to 390 per 100 mL.

Metals such as dissolved iron and manganese also decreased after treatment. Dissolved iron was reduced from 0.98 mg/L to 0.3 mg/L, while dissolved manganese decreased from 0.18 mg/L to below 0.045 mg/L.

Overall, the IPAL performance indicates effective treatment of hospital wastewater, particularly in reducing organic matter, suspended solids, ammonia, microbiological contamination, and dissolved metals. Continued monitoring is recommended to ensure consistent compliance with wastewater discharge standards and to maintain environmental protection around the hospital area.



Figure 17 Waste Water Treatment Plant (WWTP/IPAL)

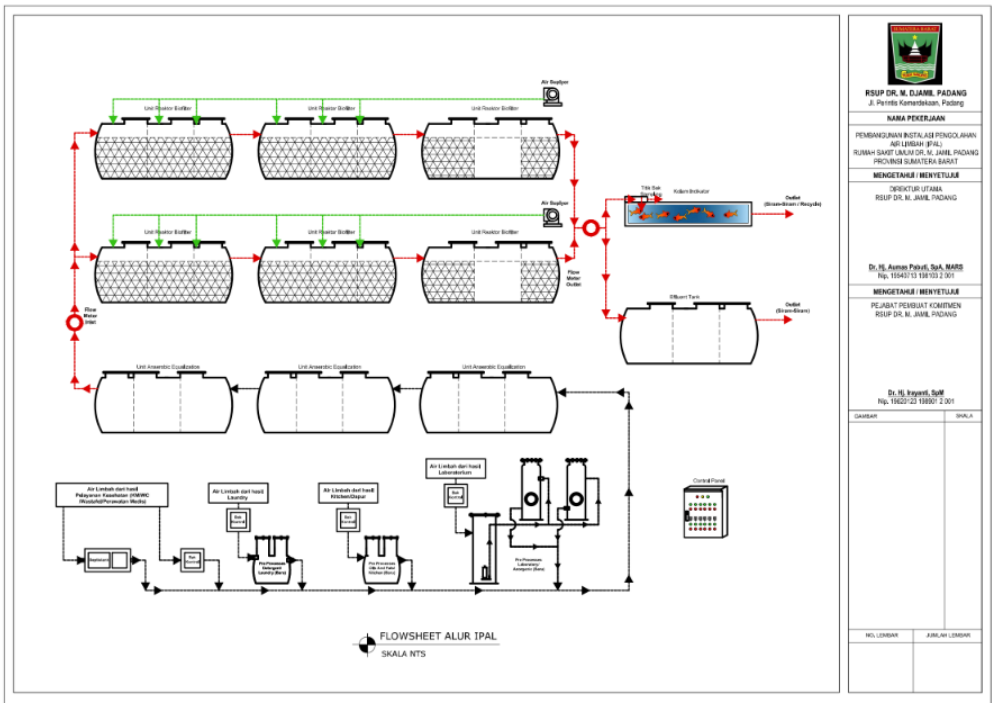


Figure 18 Layout of waste water

Based on the dimensions of the current IPAL layout at RSUP Dr. M. Djamil (16.50 m × 13.00 m total area, inlet width 2.80 m, equipment room 5.00 × 2.50 m, individual tanks ~9 × 3 m). Given standard design assumptions for hospital wastewater treatment:

- Each tank of 9 m × 3 m × 3 m depth can handle roughly 25–30 m^3/day depending on hydraulic retention time and process type.
- There are 6 treatment tanks, so total current hydraulic capacity is approximately 150–180 m^3/day, which aligns closely with the measured operational capacity (117–118 m^3/day).

The figure illustrates the process flow diagram of the wastewater treatment plant (WWTP) system designed for RSMDJ. The treatment process begins with wastewater collection from hospital facilities, which is then directed through several equalization and biological treatment tanks equipped with media filtration systems to reduce organic pollutants and suspended solids. The treated wastewater effluent from the RSMDJ WWTP/IPAL flows through sedimentation and filtration units, followed by disinfection processes to ensure that the effluent meets applicable discharge standards. The treated effluent is then discharged into a drainage channel in front of the hospital, which ultimately flows into the Bandar Bekali River. As the final receiving water body, the Bandar Bekali River should be considered in the ESIA assessment, including potential impacts from treated wastewater discharge, drainage connectivity, downstream water quality, and compliance with applicable standards.

Supporting components such as dosing systems, sludge handling units, pumps, blowers, and control panels are also integrated into the system to ensure efficient and continuous operation of the treatment process in compliance with environmental standards.

4.4.3 Clean water

Clean water availability is a critical operational component for RSMDJ because hospital activities require continuous and reliable water supply to support medical services, inpatient care, sanitation, laboratories, sterilization, laundry, cooling systems, and emergency response operations. As a major referral and teaching hospital in West Sumatra, the hospital experiences high daily water demand associated with intensive healthcare activities, increasing patient visits, and expanding healthcare infrastructure.

To support the ESIA preparation, a baseline assessment of clean water demand and supply was conducted using historical PDAM consumption records, existing utility data, and hospital operational information. The assessment evaluates trends in water consumption, current supply capacity, dependency on PDAM and borewell systems, storage capacity, and future water resilience planning related to the hospital development programme. The analysis is important to identify potential supply gaps, operational vulnerabilities, and environmental considerations associated with increased water demand during both construction and operational phases.

The baseline findings indicate that clean water consumption at RSMDJ has increased significantly over recent years, reflecting the growing complexity and intensity of hospital services. This information forms an important basis for assessing utility adequacy, operational sustainability, groundwater management, climate resilience, and infrastructure planning within the ESIA framework.

Table 28 Clean Water Demand and PDAM Consumption Baseline

Year / Parameter	Key Data
PDAM consumption 2023	387,518 m³/year
Average PDAM use 2023	32,293 m³/month
PDAM consumption 2024	519,415 m³/year
Average PDAM use 2024	43,285 m³/month

Year / Parameter	Key Data
PDAM consumption 2025	595,935 m³/year
Average PDAM use 2025	49,661 m³/month
PDAM consumption Jan–Apr 2026	118,794 m³
Average PDAM use Jan–Apr 2026	29,699 m³/month
Current total clean water demand	1,776 m³/day
Current total clean water supply	1,315 m³/day
Current borewell supply	±264 m³/day
Current PDAM supply	±1,051 m³/day
Current water storage capacity	1,374 m³
Future borewell supply plan	1,128 m³/day
Future water resilience target	>90% of hospital water demand supplied independently

Clean water supply is a critical baseline component for the ESIA of RSMDJ because the hospital operates continuously and requires reliable water for clinical services, sanitation, laundry, laboratories, sterilization, inpatient care, and emergency services. Based on the uploaded PDAM consumption data, annual PDAM water use increased from 387,518 m³ in 2023 to 519,415 m³ in 2024, and further to 595,935 m³ in 2025, indicating growing operational demand and high dependence on external water supply.

The current clean water demand is estimated at 1,776 m³/day, while available supply is approximately 1,315 m³/day, consisting mainly of PDAM supply and limited borewell supply. This indicates a potential water supply gap that must be considered in the hospital development planning. For ESIA purposes, this data is important to assess water resource pressure, operational resilience, emergency preparedness, and the capacity of existing reservoirs and water distribution systems.

The future plan to increase borewell supply to around 1,128 m³/day is relevant to the project's resilience strategy because it may reduce dependence on PDAM and improve water security during peak demand or service disruption. However, the ESIA should also assess groundwater sustainability, licensing, monitoring of abstraction, water quality testing, and potential impacts on local groundwater conditions. Therefore, the clean water baseline will support the assessment of operational impacts, utility planning, climate resilience, and mitigation measures for long-term hospital service continuity.

4.5 Air Quality and Noise

Ambient air quality around RSMDJ is influenced by its urban setting and surrounding traffic activities. The hospital site is located near Jalan Perintis Kemerdekaan, an urban arterial road that supports high vehicle movement, public transport activity, ambulance access, and daily mobility of patients, visitors, and hospital staff. Potential air quality concerns in the area may include vehicle emissions, road dust, construction-related dust, and short-term increases in particulate matter during development activities. These conditions are relevant because hospitals serve sensitive receptors, including

children, elderly patients, pregnant women, patients with respiratory illness, and long-term care patients.

4.5.1 Ambient Air Quality

Ambient air quality is an important environmental component in assessing existing conditions around RSMDJ. The hospital is located within an urban area influenced by road traffic, hospital operational activities, and surrounding commercial and residential land use. As the site is situated near Jalan Perintis Kemerdekaan, an urban arterial road, air quality conditions may be affected by vehicle emissions, road dust, ambulance mobility, and other transportation-related activities.

Potential air quality issues in the area include particulate matter, combustion emissions, and short-term dust generation from future construction activities. These conditions are particularly relevant because hospitals accommodate sensitive receptors such as patients, elderly persons, children, and individuals with respiratory or chronic illnesses.

Baseline ambient air quality will be verified through M1 monitoring and sampling during v0.2. The assessment results will provide the basis for evaluating existing air conditions and developing mitigation measures for both construction and operational phases of the project.

Table 29 Ambient Air Quality

Location	Parameter	Unit	Result	Quality Standard	Method
Front Gate	Sulfur Dioxide (SO_2)	µg/Nm³	37.5	150	SNI 7119-7:2017
Front Gate	Carbon Monoxide (CO)	µg/Nm³	47	10,000	SNI 7119.10:2011
Front Gate	Nitrogen Dioxide (NO_2)	µg/Nm³	11.3	200	SNI 7119-2:2017
Front Gate	Ozone (O_3)	µg/Nm³	<24.5	150	SNI 7119-8:2017
Front Gate	Total Suspended Particulate (TSP)	µg/Nm³	44.4	230	SNI 7119-3:2017
Front Gate	Non-Methane Hydrocarbon (NMHC)	µg/Nm³	<65.4	160	SNI 7119.13:2009
Front Gate	Lead (Pb)	µg/Nm³	<0.0003	2	SNI 7119-4:2017
Back Gate	Sulfur Dioxide (SO_2)	µg/Nm³	22.2	150	SNI 7119-7:2017
Back Gate	Carbon Monoxide (CO)	µg/Nm³	58.6	10,000	SNI 7119.10:2011
Back Gate	Nitrogen Dioxide (NO_2)	µg/Nm³	12.3	200	SNI 7119-2:2017

Location	Parameter	Unit	Result	Quality Standard	Method
Back Gate	Ozone (O_3)	µg/Nm³	24.7	150	SNI 7119-8:2017
Back Gate	Total Suspended Particulate (TSP)	µg/Nm³	75.5	230	SNI 7119-3:2017
Back Gate	Non-Methane Hydrocarbon (NMHC)	µg/Nm³	66.92	160	SNI 7119.13:2009
Back Gate	Lead (Pb)	µg/Nm³	0.01	2	SNI 7119-4:2017
ED Building	Sulfur Dioxide (SO_2)	µg/Nm³	35.3	150	SNI 7119-7:2017
ED Building	Carbon Monoxide (CO)	µg/Nm³	223.4	10,000	SNI 7119.10:2011
ED Building	Nitrogen Dioxide (NO_2)	µg/Nm³	11.3	200	SNI 7119-2:2017
ED Building	Ozone (O_3)	µg/Nm³	24.6	150	SNI 7119-8:2017
ED Building	Total Suspended Particulate (TSP)	µg/Nm³	73.6	230	SNI 7119-3:2017
ED Building	Non-Methane Hydrocarbon (NMHC)	µg/Nm³	134.36	160	SNI 7119.13:2009
ED Building	Lead (Pb)	µg/Nm³	0.004	2	SNI 7119-4:2017

Table 30 Sampling location and time

Location	Full Description	Coordinates (DMS)	Sampling Time
Front Gate	RSUP Dr. M. Djamil Padang – Front Gate, Jl. Perintis Kemerdekaan, Sawahan, Padang	0°56'37.40" S, 100°22'01.0" E	15–16 Jul 2026
Back Gate	RSUP Dr. M. Djamil Padang – Back Gate, Jl. Perintis Kemerdekaan, Sawahan, Padang	0°56'32.7" S, 100°22'12.3" E	13–14 Jul 2026
ED Building Front Area	RSUP Dr. M. Djamil Padang – Front area of Emergency Department (ED), Jl. Perintis Kemerdekaan, Sawahan, Padang	0°56'35.1" S, 100°23'07.3" E	14–15 Jul 2026

Ambient air quality monitoring was conducted at three sampling locations within the RSUP Dr. M. Djamil Padang area, namely Front Gate, Back Gate, and the Emergency Department (ED) Building Area. The laboratory analysis was conducted in accordance with the applicable Indonesian National Standards (SNI), with the ambient air quality standards referenced to Government Regulation of the Republic of Indonesia No. 22 of 2021, Annex VII.

At the Front Gate, the measured concentration of sulfur dioxide (SO_2) was 37.5 µg/Nm³, carbon monoxide (CO) was 47.0 µg/Nm³, nitrogen dioxide (NO_2) was 11.3 µg/Nm³, and ozone (O_3) was <24.5 µg/Nm³. Total suspended particulate (TSP) was measured at 44.4 µg/Nm³. Non-methane hydrocarbons (NMHC) were reported at <65.4 µg/Nm³, while lead (Pb) was <0.0003 µg/Nm³. All parameters with applicable quality standards were below the corresponding limits of 150 µg/Nm³ for SO_2, 10,000 µg/Nm³ for CO, 200 µg/Nm³ for NO_2, 150 µg/Nm³ for O_3, 230 µg/Nm³ for TSP, and 2 µg/Nm³ for Pb.

At the Back Gate, SO_2, CO, NO_2, and O_3 concentrations were 22.2, 58.6, 12.3, and 24.7 µg/Nm³, respectively. TSP was recorded at 75.5 µg/Nm³, while NMHC was 66.92 µg/Nm³ and Pb was 0.01 µg/Nm³. These results were also below the applicable ambient air quality standards. In particular, the measured TSP concentration remained substantially below the standard of 230 µg/Nm³, while Pb was considerably below the limit of 2 µg/Nm³.

At the ED Building Area, SO_2 was measured at 35.3 µg/Nm³, CO at 223.4 µg/Nm³, NO_2 at 11.3 µg/Nm³, and O_3 at 24.6 µg/Nm³. TSP was 73.6 µg/Nm³, NMHC was 134.36 µg/Nm³, and Pb was 0.004 µg/Nm³. All parameters with applicable quality standards remained below their respective limits. Although the CO concentration at the ED Building Area was higher than those measured at the Front and Back Gates, it was still substantially below the applicable standard of 10,000 µg/Nm³. Similarly, the NMHC concentration was the highest among the three locations but remained below the reported reference value of 160 µg/Nm³ in the laboratory table.

Overall, the laboratory results indicate that ambient air quality at all three monitoring locations was within the applicable ambient air quality standards at the time of sampling. The measured concentrations of SO_2, CO, NO_2, O_3, TSP, and Pb were all below the relevant regulatory limits. The highest TSP concentration was observed at the Back Gate (75.5 µg/Nm³), while the highest CO concentration was recorded at the ED Building Area (223.4 µg/Nm³). The ED Building Area also showed the highest NMHC concentration (134.36 µg/Nm³), although this remained below the value presented in the laboratory report.

In addition, PM_{10} and $PM_{2.5}$ were analyzed in the laboratory reports. At the Front Gate, PM_{10} and $PM_{2.5}$ were 18.1 and 11.6 µg/Nm³, respectively; at the Back Gate, they were 39.4 and 32.4 µg/Nm³; and at the ED Building Area, they were 42.4 and 26.6 µg/Nm³, respectively. These values were below the respective standards of 75 µg/Nm³ for PM_{10} and 55 µg/Nm³ for $PM_{2.5}$.

Magnesium (Mg) was also analyzed as an additional parameter, with concentrations of <0.0007 µg/Nm³ at the Front Gate, 0.37 µg/Nm³ at the Back Gate, and 0.018 µg/Nm³ at the ED Building Area. The laboratory report indicates that Mg does not have an applicable quality standard in the presented table and that this parameter was not accredited.

4.5.2 Stationary Source Emissions

RSMDJ operates several stationary combustion sources that support hospital operations and emergency preparedness. These sources include emergency diesel generators, boiler and sterilizer steam systems, and potentially medical waste incineration facilities, subject to further confirmation

in v0.2. The operation of these systems may generate air emissions such as particulate matter, sulfur oxides, nitrogen oxides, carbon monoxide, and other combustion-related pollutants.

Considering the hospital's urban location and the presence of sensitive receptors such as patients, healthcare workers, and nearby communities, proper management of stationary source emissions is important to maintain environmental quality and regulatory compliance. Emission management is also necessary to support occupational health and safety within the hospital environment.

An inventory of emission sources, including chimney locations, stack height, fuel type, operational characteristics, and emission parameters, will be conducted as part of the preparation of the Technical Approval for Emission Standards Compliance (Pertek BMUE), as referenced in the KAK Beauty Contest (pages 7–8). Further assessment and emission monitoring will be undertaken by the Physical-Chemical Technical Team during the next phase of the study (v0.2).

Table 31 Stack Emission Monitoring Result – Boiler No. 2 RSMDJ

Parameter	Unit	Measured Concentration	Standard Quality	Regulatory Standard	Test Method
Particulate	mg/Nm³	8.3	MoEF Regulations No. 11 Tahun 2021 / PP 22 Tahun 2021	200	SNI 7117-21:2021
Nitrogen Oxides (NOx as NO_2)	mg/Nm³	102.7	MoEF Regulations No. 11 Tahun 2021 / PP 22 Tahun 2021	700	PO/PDG-AKL/31
Sulfur Dioxide (SO_2)	mg/Nm³	<3.1	MoEF Regulations No. 11 Tahun 2021 / PP 22 Tahun 2021	700	PO/PDG-AKL/31
Opacity	%	<20	MoEF Regulations No. 11 Tahun 2021 / PP 22 Tahun 2021	15	SNI 19-7117.11-2005

Table 32 Stack Emission Monitoring Result – Diesel Generator No. 2 RSMDJ

Parameter	Unit	Measured Concentration	Baku Mutu	Regulatory Standard	Test Method
Particulate	mg/Nm³	7.2	MoEF Regulations No. 11 Tahun 2021 / PP 22 Tahun 2021	95	SNI 7117-21:2021 (Type B)
Carbon Monoxide (CO)	mg/Nm³	44.7	MoEF Regulations No. 11 Tahun 2021 / PP 22 Tahun 2021	77	SNI 7117-21:2021 (Type B)
Nitrogen Oxides (NOx as NO_2)	mg/Nm³	389.4	MoEF Regulations No. 11 Tahun 2021 / PP 22 Tahun 2021	1,850	PO/PDG-AKL/31
Sulfur Dioxide (SO_2)	mg/Nm³	15.7	MoEF Regulations No. 11 Tahun 2021 / PP 22 Tahun 2021	160	PO/PDG-AKL/31
Opacity	%	<20	-	-	SNI 19-7117.11-2005

The stack emission monitoring results from Boiler No. 2 and Diesel Generator No. 2 at RSUP Dr. M. Djamil Padang indicate that all measured parameters, including particulate matter, carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO_2), and opacity, remain well within the applicable regulatory standards (MoEF Regulation No. 11 of 2021 in conjunction with Government Regulation No. 22 of 2021 and relevant SNI standards). Overall, Boiler No. 2 demonstrates relatively low gaseous emissions, with SO_2 recorded at <3.1 mg/Nm³ and NO_x at 102.7 mg/Nm³, while Diesel Generator No. 2 shows higher NO_x emissions at 389.4 mg/Nm³, reflecting typical diesel combustion characteristics, yet still within permissible limits. Opacity values for both sources are consistently below 20%, indicating stable combustion conditions without significant smoke formation. In general, the results confirm full compliance with environmental emission standards and suggest that operational activities do not contribute significantly to ambient air quality deterioration in the surrounding area.

Table 33 Stationary Emission Source

No	Stack / Unit	Emission Source	Capacity	Fuel Type	Air Pollution Control Device	Monitoring Status	Remarks
1	Genset 02	Generator set	649 kVA	Oil / diesel fuel	Not available	Not monitored	Not required to be monitored
2	Genset 03	Generator set	400 kVA	Oil / diesel fuel	Not available	Not monitored	Not required to be monitored
3	Genset 01	Generator set	950 kVA	Oil / diesel fuel	Not available	Monitored	Every 6 months
4	Boiler 02	Hoval Boiler	2.5 ton/hour	Oil / diesel fuel	Not available	Not monitored	Not operating
5	Boiler 01	Miura Boiler	750 kg/hour	Oil / diesel fuel	Not available	Monitored	Every 6 months

Source: RSUP Dr. M. Djamil (2026)[1]

Table 34 Stack Technical Data

Component	Data
Boiler stack height	12 meters from floor level
Sampling port	Available
Stack diameter	70 cm

The stationary emission sources at RSMDJ consist of three generator sets and two boilers used to support hospital utility operations. The available data show that the generator capacities range from 400 kVA to 950 kVA, while the boiler capacities are 750 kg/hour and 2.5 ton/hour. All units use oil-based fuel and are not equipped with specific air pollution control devices.

[1] https://drive.google.com/file/d/1HfAvQcLJHf_TuUsP9ZUyHvxnW00clZt3/view?usp=sharing

Based on the RSMDJ stationary emission source inventory and emission monitoring records, Genset 01 and Boiler 01 are monitored every six months, while Genset 02 and Genset 03 are not currently subject to routine emission monitoring. Boiler 02 is not monitored because it is not operational. The boiler stack has a height of 12 meters from the floor, is equipped with a sampling port, and has a stack diameter of 70 cm. These data are important for the ESIA baseline because they identify the hospital's stationary emission sources, monitoring obligations, and technical conditions for stack emission testing.

Human resource competency certificate for air pollution control. obtained by two personnel who already have competency certificates from BNSP through the Industrial Chemical Professional Certification Institute, namely Yon Mairizal as the Person in Charge of Air Pollution Control Installation Operations / Air Pollution Control Operations Manager and Hasbi Muhammad Zahlevi, S.T. as the Person in Charge of Air Pollution Control / Air Pollution Control Manager. The certificate was issued in 2023 and is valid for 3 years.

4.5.3 Noise

Ambient noise conditions at RSMDJ are influenced by both external urban traffic and internal hospital operational activities. The hospital is located near Jalan Perintis Kemerdekaan, a major urban arterial road with continuous vehicle movement, while hospital operations such as ambulance circulation, generators, air handling units (AHU), and other mechanical systems may also contribute to the surrounding noise environment.

Noise management is particularly important because hospitals are considered sensitive receptors where excessive noise may affect patient comfort, recovery, staff performance, and the surrounding community. Vulnerable groups such as intensive care patients, elderly patients, children, and patients with respiratory or chronic illnesses may be more sensitive to prolonged noise exposure.

The assessment will refer to applicable Indonesian noise standards, including KepmenLH No. 48/1996 and relevant Ministry of Health regulations concerning hospital environmental noise limits. The results will be used to evaluate existing noise conditions and identify mitigation measures required during construction and operational phases.

Table 35 Noise Quality

No	Sampling Location	Spatial Coordinates (GPS)	Leq (dBA)	L10 (dBA)	L90 (dBA)	Lmax (dBA)	Standard Quality	EHS	WHO	LOD	Status
1	Back GateS: 00°56'32,7", E:100°22'12.3"	55,6	N.A	N.A	N.A	55 dBA	55 50	-	-		
2	Emergency Department Building Area	S: 00°56'35,1", E:100°23'07.3"	66.5	N.A	N.A	N.A	55 dBA	55	50	-	-

No	Sampling Location	Spatial Coordinates (GPS)	Leq (dBA)	L10 (dBA)	L90 (dBA)	Lmax (dBA)	Standard Quality	EHS	WHO	LOD	Status
3	Near the ICU/patient room	S: 00°56'37,40", E:100°22'01.0"	58.1	N.A	N.A	N.A	55 dBA	55	50	-	-
4	Residential Around Hospital	S: 00°56'36.7", E:100°22'14.1"	54.7	N.A	N.A	N.A	55 dBA	55	50	-	-

4.5.4 Vibration

The vibration level assessment at RSUP Dr. M. Djamil Padang is conducted to evaluate the existing physical environmental conditions that may be influenced by ongoing hospital operations as well as surrounding construction activities. Vibration is an important environmental parameter as it can affect patient comfort, structural stability, and the overall quality of healthcare services delivered within the hospital premises.

The primary sources of vibration in the study area are associated with traffic movement along the main roads surrounding the hospital, the operation of heavy vehicles, and potential construction activities related to ongoing or future infrastructure development. Although baseline vibration levels are generally low to moderate under normal conditions, increased construction and material transportation activities may contribute to changes in vibration intensity, particularly in sensitive areas such as patient wards, operating rooms, and critical care facilities.

Therefore, the vibration assessment was carried out as part of the baseline environmental study to characterize existing vibration conditions and to ensure that future project activities remain within acceptable vibration limits. Vibration monitoring was conducted on 14 July 2026 at three representative monitoring locations, namely the Sensitive Structure, Nearest Building, and Demolition Area, using the MUK.PKV.41 (Vibration Meter) method. The measured vibration levels were 0.3 mm/s, 0.4 mm/s, and 0.1 mm/s, respectively. The highest vibration level was recorded at the Nearest Building (0.4 mm/s), while the lowest was measured at the Demolition Area (0.1 mm/s). The monitoring results were evaluated with reference to the Decree of the Minister of Environment No. 49 of 1996 concerning Environmental Vibration Quality Standards, which serves as the applicable regulatory framework for assessing environmental vibration levels. The results provide baseline information for the environmental impact assessment and support the development of appropriate environmental management and mitigation measures to protect patient comfort, structural safety, and the surrounding hospital environment.

Table 36 Vibration

Location	Coordinates (DMS)	Date of testing	Unit	Result	Method
Sensitive Structures	00° 56' 36.4" S , 100° 22' 12.6" E	14 July 2026	mm/s	0.3	MUK.PKV.41 (Vibration Meter)

Location	Coordinates (DMS)	Date of testing	Unit	Result	Method
Nearest Buildings to the Demolition Area	00° 56' 39.4" S, 100° 22' 09.3" E	14 July 2026	mm/s	0.4	MUK.PKV.41 (Vibration Meter)
Demolition Area	00° 56' 40.1" S 100° 22' 11.5" E	14 July 2026	mm/s	0.1	MUK.PKV.41 (Vibration Meter)

4.5.5 Indoor Air and Ventilation

Indoor air quality and ventilation are critical components of environmental health and infection prevention in healthcare facilities. At RSMDJ, adequate ventilation is required to support patient safety, staff health, thermal comfort, and control of airborne infection risks, particularly in sensitive clinical areas.

Priority areas for assessment include operating rooms, ICUs, isolation rooms, and other high-risk wards such as TB treatment areas, if available. These spaces require appropriate air exchange, filtration, pressure control, humidity, temperature, and microbiological air quality management in accordance with applicable Ministry of Health regulations on hospital environmental health.

Indoor air quality (IAQ) measurements will be conducted during the construction stage, particularly when the relevant building areas and ventilation systems have been sufficiently installed and are ready for performance assessment. The monitoring will be undertaken to evaluate indoor environmental conditions, assess the performance of ventilation systems, and identify potential air quality risks associated with construction activities, building materials, dust, and other potential sources of indoor air pollutants.

The results of the IAQ measurements will be used to determine any necessary corrective or improvement measures, including ventilation optimization, dust and pollutant control, and other mitigation measures required to ensure that indoor environmental conditions are appropriate for clinical use. Where applicable, follow-up measurements will also be conducted prior to commissioning and occupancy to confirm compliance with applicable health, safety, and regulatory requirements and to support the safe operation of the hospital facilities. The following table presents the Indoor Air and Ventilation Quality Assessment Plan, which identifies the rooms and functional areas to be assessed, the relevant indoor air quality and ventilation parameters to be measured, and the applicable quality standards or acceptance criteria. This assessment framework will be used during the construction phase, particularly once the relevant building areas and ventilation systems have been sufficiently completed and are ready for testing. The assessment will provide a basis for evaluating indoor air and ventilation performance, identifying potential deficiencies, and determining any necessary corrective measures to ensure that the completed facilities meet the applicable health, safety, and clinical requirements prior to commissioning and operation

Table 37 Indoor Air and Ventilation Quality

No	Room	Parameter	Sampling Results	Unit	Quality Standard	Status
1	Operating Theatre 1	CO_2	TBD	ppm	< 1000	TBD
		Temperature	TBD	°C	20–24	TBD
		RH	TBD	%	40–60	TBD
		Particulate Count	TBD	Particle/m^3	< 3500	TBD
		Microbial Colony Count	TBD	CFU/m^3	< 100	TBD
2	ICU	CO_2	TBD	ppm	< 1000	TBD
		Temperature	TBD	°C	22–26	TBD
		RH	TBD	%	40–60	TBD
		Particulate Count	TBD	Particle/m^3	< 3500	TBD
		Microbial Colony Count	TBD	CFU/m^3	< 200	TBD
3	Isolation Room	CO_2	TBD	ppm	< 1000	TBD
		Temperature	TBD	°C	22–26	TBD
		RH	TBD	%	40–60	TBD
		Particulate Count	TBD	Particle/m^3	< 3500	TBD
		Microbial Colony Count	TBD	CFU/m^3	< 200	TBD
4	TB Ward	CO_2	TBD	ppm	< 1000	TBD
		Temperature	TBD	°C	22–26	TBD
		RH	TBD	%	40–60	TBD
		Particulate Count	TBD	Particle/m^3	< 3500	TBD
		Microbial Colony Count	TBD	CFU/m^3	< 200	TBD

Indoor air quality and ventilation are critical components of environmental health and infection prevention in healthcare facilities. At RSMDJ, adequate ventilation is required to support patient safety, staff health, thermal comfort, and control of airborne infection risks, particularly in sensitive clinical areas.

Priority areas for assessment include operating rooms, ICUs, isolation rooms, and other high-risk wards such as TB treatment areas, if available. These spaces require appropriate air exchange, filtration, pressure control, humidity, temperature, and microbiological air quality management in accordance with applicable Ministry of Health regulations on hospital environmental health.

4.6 Solid Waste dan Hazardous Medical Waste

The assessment of waste and hazardous medical waste is an important component of the ESIA baseline for a hospital development project, as hospital activities generate various types of waste that require proper segregation, storage, handling, transportation, treatment, and final disposal. Waste generated from hospital operations may include general domestic waste, recyclable waste, organic waste, wastewater-related residuals, and healthcare waste. In addition, hazardous medical waste such as infectious waste, sharps, pathological waste, pharmaceutical waste, chemical waste, used personal protective equipment, and contaminated materials may pose risks to patients, healthcare workers, waste handlers, visitors, surrounding communities, and the environment if not properly managed.

The baseline assessment aims to identify the existing waste management practices within the hospital, including waste generation sources, waste types and quantities, segregation system, color-coded bins, temporary storage facilities, internal transport routes, treatment methods, third-party waste collection, licensing, documentation, and compliance with applicable regulations and good international industry practice. The findings will provide the basis for assessing potential impacts during the construction and operational phases of the project and for developing appropriate mitigation measures under the ESMP, including improved waste segregation, safe handling procedures, hazardous medical waste management, occupational health and safety measures, emergency response procedures, contractor requirements, and monitoring arrangements.

Table 38 Solid Waste and Hazardous Medical Waste Management Baseline Data

Component	Updated Available Data / Status
General waste generation record	Cooperation document with Padang City Environmental Agency (DLH Padang City) is available. Monthly/annual waste volume are recorded in manifest
Hazardous waste manifest	Manifest/transfer documentation is indicated through B3 waste storage and handover records. Complete electronic manifest/Festronik records still need to be collected.
TPS B3 permit / technical details	Available. RSMDJ has Rintek TPS Limbah B3 documentation. TPS B3 size: 22.6 m × 8 m; highest roof 5 m; wall height 4.5 m. Coordinates: 0.94485° LS, 100.36836° BT.
B3 waste transporter and processor	Available. Contract/cooperation for B3 waste transportation and destruction in 2026 is available, with PT Wastec International identified as provider.
WWTP / IPAL	Available. 2024 wastewater flow data exists, and maximum IPAL treatment capacity is 350 m^3/day. Effluent quality data has compiled.
WWTP sludge	Identified as B3 waste stream: Sludge IPAL, code B337-2, stored in metal drum/jumbo bag, maximum storage period 90 days.
Incinerator	No current incinerator operation data identified. Current available data indicates autoclave technical approval for B3 waste treatment.
Updated SOP	Partly available through Rintek TPS B3 references, including storage, packaging, layout, labeling, emergency response, and K3 requirements.
OHS for waste handlers	Partly available through TPS B3 emergency response and K3 provisions. Records on vaccination, PPE, training, needle-stick injury, and exposure incidents still need to be obtained.

Component	Updated Available Data / Status
Waste-related complaints	Still on progress searching data to hospital about Complaint records related to odor, spills, vectors, transportation, or patient/staff/community exposure should be requested from Humas/GRM and Kesling units.

The baseline assessment of solid waste and hazardous medical waste management at RSMDJ indicates that the hospital has established several key systems and administrative arrangements to support healthcare waste management operations. Existing records show that general domestic waste management is coordinated with the Padang City Environmental Agency (DLH Padang City), and waste generation volumes are documented through regular manifests and transportation records. For hazardous waste (B3 waste), the hospital already operates a documented manifest and transfer system associated with temporary hazardous waste storage (TPS B3) and waste handover procedures. However, complete integration of electronic manifest systems (Festronik) and supporting digital documentation still requires further consolidation and verification.

The hospital also possesses technical documentation and permits related to the TPS B3 facility, including a dedicated hazardous waste storage building measuring approximately 22.6 m × 8 m with a roof height of 5 meters and wall height of 4.5 meters. The facility is located within the hospital complex and serves as the temporary storage area for infectious waste, sludge from the wastewater treatment plant (IPAL), pharmaceutical waste, and other hazardous healthcare waste streams. The hospital has established contractual cooperation with PT Wastec International for the transportation and destruction of B3 waste during 2026, indicating that hazardous waste treatment and disposal are handled by licensed third-party providers. Existing data also confirm the availability of a centralized wastewater treatment plant (WWTP/IPAL) with a maximum treatment capacity of approximately 350 m^3/day, along with compiled wastewater quality monitoring records.

From an operational perspective, several waste management supporting elements are already partially available, including SOP references for storage, packaging, labeling, emergency response, and occupational health and safety (OHS) provisions for waste handlers. Nevertheless, some records still require strengthening, particularly related to worker vaccination records, PPE documentation, training records, exposure incidents, and waste-related complaint management systems. Existing information also indicates that no active incinerator operation is currently identified within the hospital, while available documentation suggests the use of autoclave technology for B3 waste treatment. Additional verification and data collection remain necessary regarding complaint handling related to odors, spills, vectors, transportation impacts, and potential community exposure.

Overall, the baseline findings suggest that RSMDJ has established a relatively structured healthcare waste management system aligned with Indonesian hazardous waste management requirements. However, several aspects still require improvement and further documentation strengthening to support ESIA compliance and future project expansion activities, particularly regarding electronic tracking systems, occupational safety records, monitoring documentation, and integrated environmental management reporting.

4.6.1 Hazardous Waste Transportation and Disposal Agreement

RSMDJ cooperates with PT Wastec International for the transportation and destruction of B3 waste for the year 2026. The contract value is Rp 2,285,060,652 with a contract period from 1 January 2026 until 31 December 2026.

Table 39 Transportation and destruction of B3 profil

Item	Information
Service Provider	PT Wastec International
Service Scope	Transportation and destruction of B3 waste
Contract Period	January–December 2026
Contract Value	Rp 2.285 billion
Transportation Frequency	Twice per week
Transportation Schedule	Every Monday and Thursday
Temporary Storage	Cold storage facility available
Monitoring System	GPS, CCTV, and SILACAK KLHK integration
Waste Types	Infectious waste, pharmaceutical waste, batteries, sludge, electronic waste, used oil, cartridges, filters

4.6.2 Technical Approval for B3 Temporary Storage (TPS LB3)

The hospital possesses a technical document for temporary hazardous waste storage in accordance with Indonesian environmental regulations.

Table 40 Technical Details

Component	Description
Facility Type	Temporary hazardous waste storage (TPS LB3)
Location	Inside hospital area
Building Dimension	22.6 m × 8 m
Roof Height	5 m
Wall Height	4.5 m
Coordinate	0.94485 LS ; 100.36836 BT
Storage Duration	Maximum 90 days

The storage facility accommodates: infectious clinical waste, expired pharmaceutical products, batteries and accumulators, electronic waste, sludge from WWTP, used filters, chemical waste, used lubricating oil, contaminated packaging.

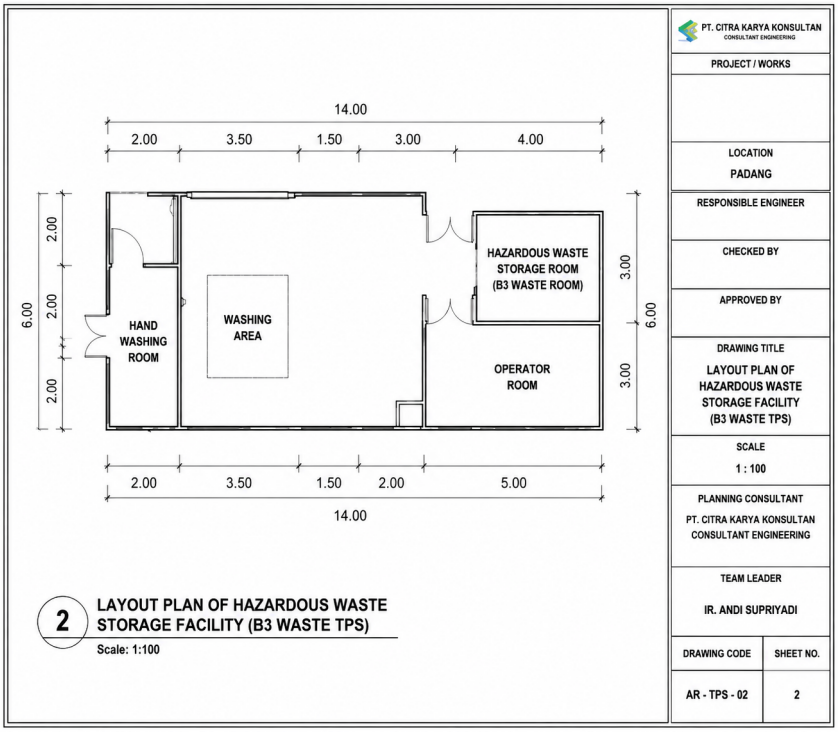


Figure 19 TPS LB3 Layout and Facility Design

Table 41 Main Facility Components

Area	Function
Cold Storage	Infectious waste storage
Autoclave Room	Waste sterilization
B3 Waste Room	Hazardous waste holding area
Operator Room	Staff operational area

4.6.3 Domestic Waste Transportation Agreement

RSMDJ also signed a cooperation agreement with the Environmental Agency of Padang City (DLH Padang City) for domestic waste transportation during 2025.

Table 42 Transportation and destruction of solid wate profile

Item	Information
Partner Institution	DLH Padang City
Waste Type	Domestic/non-B3 waste
Agreement Period	1 January – 31 December 2025
Waste Collection Formula	Based on waste container volume
Collection Fee	Rp 3,189,470 per collection

The transportation interval document confirms that B3 waste is transported regularly twice per week, specifically every Monday and Thursday. If transportation delays occur due to force majeure conditions, the waste is temporarily stored in cold storage to maintain safe conditions and prevent environmental or health risks.

4.7 Biodiversity and Ecology

Biodiversity and ecology assessment is required to identify existing ecological conditions within and around the RSMDJ site. As the hospital is located in an urban setting, biodiversity is expected to be limited and mainly associated with landscaped areas, ornamental vegetation, roadside trees, and small urban fauna commonly found in built-up environments.

The assessment will focus on identifying vegetation types, potential fauna presence, ecological sensitivity, and any protected or conservation-relevant species within the project area. A walkover survey will be conducted in v0.2 by the Biodiversity Technical Expert to verify baseline ecological conditions and determine whether any biodiversity-related mitigation measures are required during construction and operation. The types of plants in the RSMDJ hospital area are presented in the table below.

Table 43 The Types of Plants in the RSMDJ Hospital Area

No	Indonesia Name	Scientific Name	Diameter (cm)	Tree Height (m)	Condition
1	Mahoni	Swietenia macrophylla	35	12	Good
2	Ketapang	Terminalia catappa	28	10	Good
3	Mangga	*Mangifera indica*	22	8	Moderate
4	Pisang	*Musa paradisiaca*	16	6	Good
5	Jambu air	*Syzigium aquem*	8	4	Good
6	Matoa	*Pometia pinnata*	12	4	Good
7	Palem raja	*Archontophoenix alexandrae*	18	8	Good
8	Pinang merah	*Areca vestiaria*	7	7	Good
9	Sawo	*Manilkara zapota*	5	4	Good
10	Beringin	*Ficus sp*	18	14	Good
11	Sirsak	*Annona muricata*	7	5	Good
12	Lengkeng	*Dimocarpus longan*	8	4	Good
13	Jambu biji	*Psidium guajava*	7	3	Good
14	Kamboja	*Plumeria alba*	7	3	Good
15	Durian	*Durio zibethinus*	8	4	Good
16	Petai Cina	*Leucaena leucocephala*	9	4	Good



1. *Pometia pinnata*



2. *Dimocarpus longan*



3. *Musa paradisiaca*



4. *Syzigium aquem*

Figure 20 Several Plants in the RSMDJ

The number of plant species found at the RSMDJ site is 16 species. The vegetation inventory shows that the RSMDJ site contains common urban and landscape tree species, including mahogany (*Swietenia macrophylla*), tropical almond (*Terminalia catappa*), mango (*Mangifera indica*), etc. These species are generally planted or naturally maintained in urban hospital environments to provide shade, improve visual quality, reduce heat, and support local microhabitats.

Based on the preliminary inventory, the recorded trees are mostly in good to moderate condition, with stem diameters ranging from 5 to 65 cm and heights between 8 and 14 meters. Mahogany and tropical almond were observed in good condition, while mango was recorded in moderate condition. This indicates that the existing vegetation contributes to the hospital's green open space and should be considered during site planning.

Overall, vegetation management should prioritize tree retention where possible, especially healthy and mature trees. If removal is required during construction, compensation planting and landscape restoration should be implemented to maintain shade, ecological value, and environmental comfort within the RSMDJ area.

Table 44 The fauna species found at RSMDJ location

No	Indonesia Name	Scientific Name	PP No. 106 Year 2018	Location
A	**Mammals**			
1	Celurut rumah	*Suncus murinus*	Not protected	RSMDJ Area
2	Tikus got	*Rattus norvegicus*	Not protected	RSMDJ Got
3	Bajing kelapa	*Callosciurus notatus*	Not protected	Tree

No	Indonesia Name	Scientific Name	PP No. 106 Year 2018	Location
B	**Birds**			
1	Merbah	*Pycnonotus goaivier*	Not protected	Tree
2	Merbah	*P. aurigaster*	Not protected	Tree
3	Burung madu	*Nectarinia jugularis*	Not protected	Tree
4	Burung madu	*Anthreptes malacensis*	Not protected	Tree
5	Pipit	*Lonchura punctulata*	Not protected	Tree
6	Burung Gereja	*Passer montanus*	Not protected	Parking Area
7	Wiwik kelabu	*Cacomantis merulinus*	Not protected	Parking Area
8	Takur	*Megalaima* sp	Not protected	Parking Area
C	**Reptiles**			
1	Kadal	*Eutropis multifasciata*	Not protected	Open Space
2	Ular lidi	*Liopeltis tricolor*	Not protected	Open Space
3	Bunglon surai	*Bronchocela jubata*	Not protected	Open Space
4	Biawak	*Varanus salvator*	Not protected	Parking Area
5	Ular Kobra	*Naja sumatrana*	Not protected	Parking Area
6	Ular Piton	*Phyton reticulatus*	Not protected	Parking Area



Figure 21 Two Types of Birds Found at the RSMDJ Location

The fauna observation indicates that the RSMDJ area is located within an urban ecological setting, where wildlife presence is generally limited to common urban species and species associated with landscaped areas, parking areas, and nearby water bodies. The number of fauna species found at the RSMDJ location is 17 species, consist of three species of Mammal, six species of Bird, and three species of Reptile. All of them are not protected species and are commonly found in urban environments.

Overall, biodiversity management should focus on maintaining urban green areas, minimizing disturbance to fauna during construction, protecting riverbank habitats, and ensuring that any protected species sightings are recorded and managed according to applicable regulations.

Table 45 Aquatic Biota (Fish) in the Drainage of the RSMDJ Entrance Padang

No.	Scientific Name	Local Name	Information	Protected Status	Abundance Status
1.	*Puntius binotatus*	Kapareh	Reseacher / Local People	Not Protected	High
2.	*Clarias bathracus*	Limbek	Local People	Not Protected	Moderate
3.	*Puntius lateristriatus*	Pantau Gadang	Reseacher / Local People	Not Protected	Abundance
4.	*Puntius sp*	Pantau Timah	Reseacher / Local People	Not Protected	Abundance
5.	*Ophiocephalus striatus*	Bakok	Local People	Not Protected	Moderate
-6.	*Tilapia nilotica*	Nila	Reseacher / Local People	Not Protected	Moderate
7.	*Anabas testudineus*	Puyu	Local People	Not Protected	Moderate

The number of aquatic biotas, especially fish, in the drainage before the RSMDJ entrance is relatively small. We found eight species of fish at this location. All of these fish species tend to migrate during rain – due to the drainage discharge factor. In addition, all fish species can survive in cloudy or lightly polluted water. During field observations, no protected fish species were found according to the Regulation of the Minister of Environment and Forestry Number: P.106/MENLHK/SETJEN/KUM.1/12/2018 concerning the Second Amendment to the Regulation of the Minister of Environment Number: P.20/MENLHK/SETJEN/KUM.1/6/2018 concerning Protected Plant and Animal Species.

Table 46 Green Cover

No	Types of land cover	Area (m^2)	Percentage (%)	Condition
1	Grasses Area	1.2	35	Good
2	Trees	850	25	Good
3	Decorative plants/ shrubs	400	12	Moderate

The green cover inventory indicates that the RSMDJ site still contains several types of vegetated areas, including grassed areas, trees, and ornamental shrubs. These green spaces provide environmental benefits such as shade, microclimate regulation, dust reduction, visual comfort, and limited urban habitat for common fauna.

Based on the preliminary data, grassed areas represent the largest proportion of green cover at 35%, followed by tree cover at 25% and shrubs or ornamental plants at 12%. Built-up areas account for approximately 28% of the assessed area. Overall, the existing green cover is in good to moderate condition and should be considered in site planning to maintain environmental comfort and reduce construction-related impacts.

Where possible, existing trees and functional green areas should be retained. If land clearing or vegetation removal is required, replacement planting and landscape restoration should be implemented to maintain the ecological and aesthetic function of the hospital environment.

Based on the vest control report, it is known that there are 8 species of vector animals in the RSMDJ hospital. They come from the mammal and insect class. The presence of these animals has been controlled with various treatments, depending on the species of vector, mosquitoes are controlled by fumigation, rats are controlled by catching them using traps and are further classified as B3 waste, ets. The control of vector animals is one of RSMDJ's efforts to maintain cleanliness and prevent the spread of diseases between patients.

Table 47 Vector animals

No	Indonesia Name	Scientific Name	PP No. 106 Year 2018	Location
1	Celurut rumah	*Suncus murinus*	Not protected	RSMDJ Area
2	Tikus got	*Rattus norvegicus*	Not protected	RSMDJ Got
3	Kecoa	*Periplaneta americana*	Not protected	RSMDJ Got
4	Lalat rumah	*Musca domestica*	Not protected	RSMDJ Area
5	Lalat hijau	*Calliphora vomitoria*	Not protected	RSMDJ Area
6	Nyamuk	*Aedes aegypti*	Not protected	RSMDJ Area
7	Kucing	*Felis catus*	Not protected	RSMDJ Area
8	Rayap	*Coptotermes* sp	Not protected	RSMDJ Area

4.7.1 Site Planning and Green Open Space Strategy

This site plan illustrates the integrated development of the hospital complex emphasizing the relationship between built structures and green open spaces. The design highlights spatial organization, circulation systems, and environmental considerations that support both functional efficiency and ecological balance. A significant portion of the site is allocated for green open space, ensuring a healthy and comfortable environment for patients, staff, and visitors. The planning also incorporates preserved existing trees and a well-structured inter-building corridor system to enhance connectivity across the site.

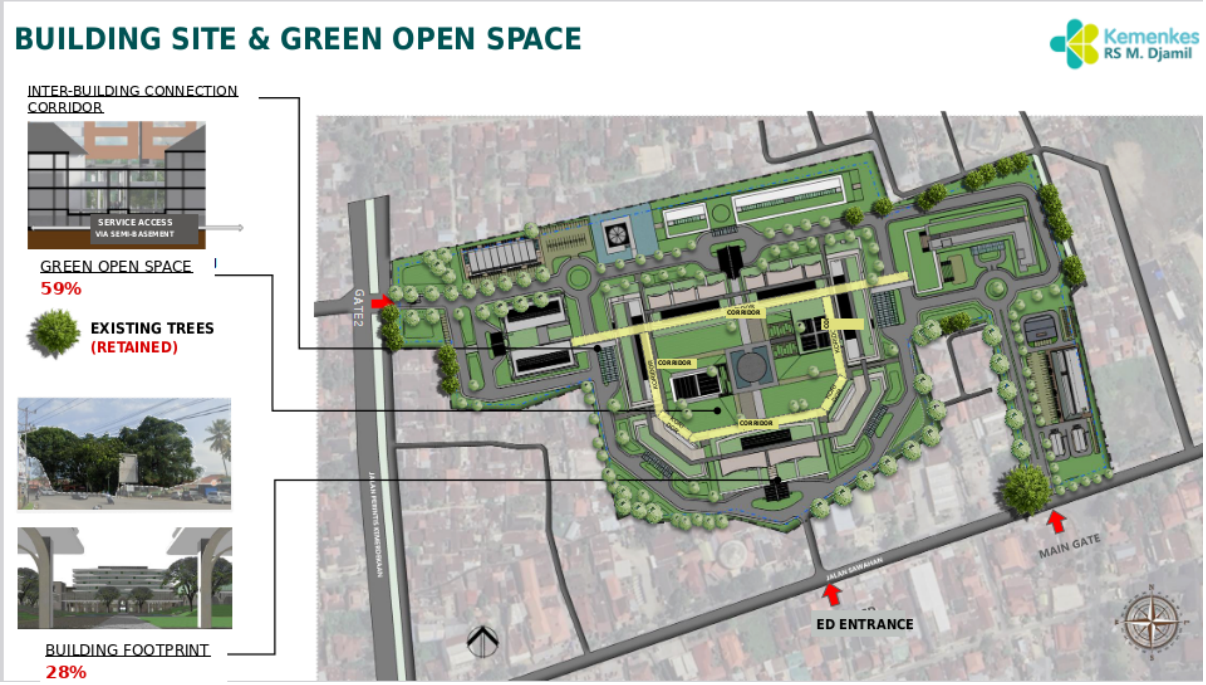


Figure 22 Building Site and Green Open Space Plan of RSMDJ

Overall, the proposed site development demonstrates a balanced approach between architectural density and landscape sustainability. The configuration of buildings, circulation routes, and open green areas reflects a commitment to creating a therapeutic and environmentally responsive hospital environment. By maintaining existing vegetation and maximizing green coverage, the design not only improves microclimatic conditions but also strengthens the overall quality of the healing environment within the hospital complex.

4.8 Traffic

Traffic and transportation conditions are important components of the environmental and social baseline, particularly for a hospital development project located within an active urban area. The existing traffic condition around RSUP Dr. M. Djamil (RSMDJ) reflects the interaction between hospital-related movements, public transportation, private vehicles, emergency access, pedestrian activities, parking demand, and surrounding community mobility. Understanding these baseline conditions is essential to assess how the proposed project may influence traffic flow, road safety, accessibility, travel time, and the overall mobility pattern within and around the hospital area.

The traffic baseline assessment aims to identify the existing road network, access points, vehicle composition, peak-hour traffic conditions, parking arrangements, pedestrian circulation, public transport availability, and potential congestion or safety issues. This information will provide the basis for evaluating potential traffic impacts during the construction and operational phases, including increased movement of construction vehicles, material delivery, workforce transportation, ambulance access, patient and visitor trips, and additional parking demand. The findings will support the development of appropriate traffic management measures to ensure safe, efficient, and continuous access for patients, emergency services, hospital staff, visitors, and surrounding road users.

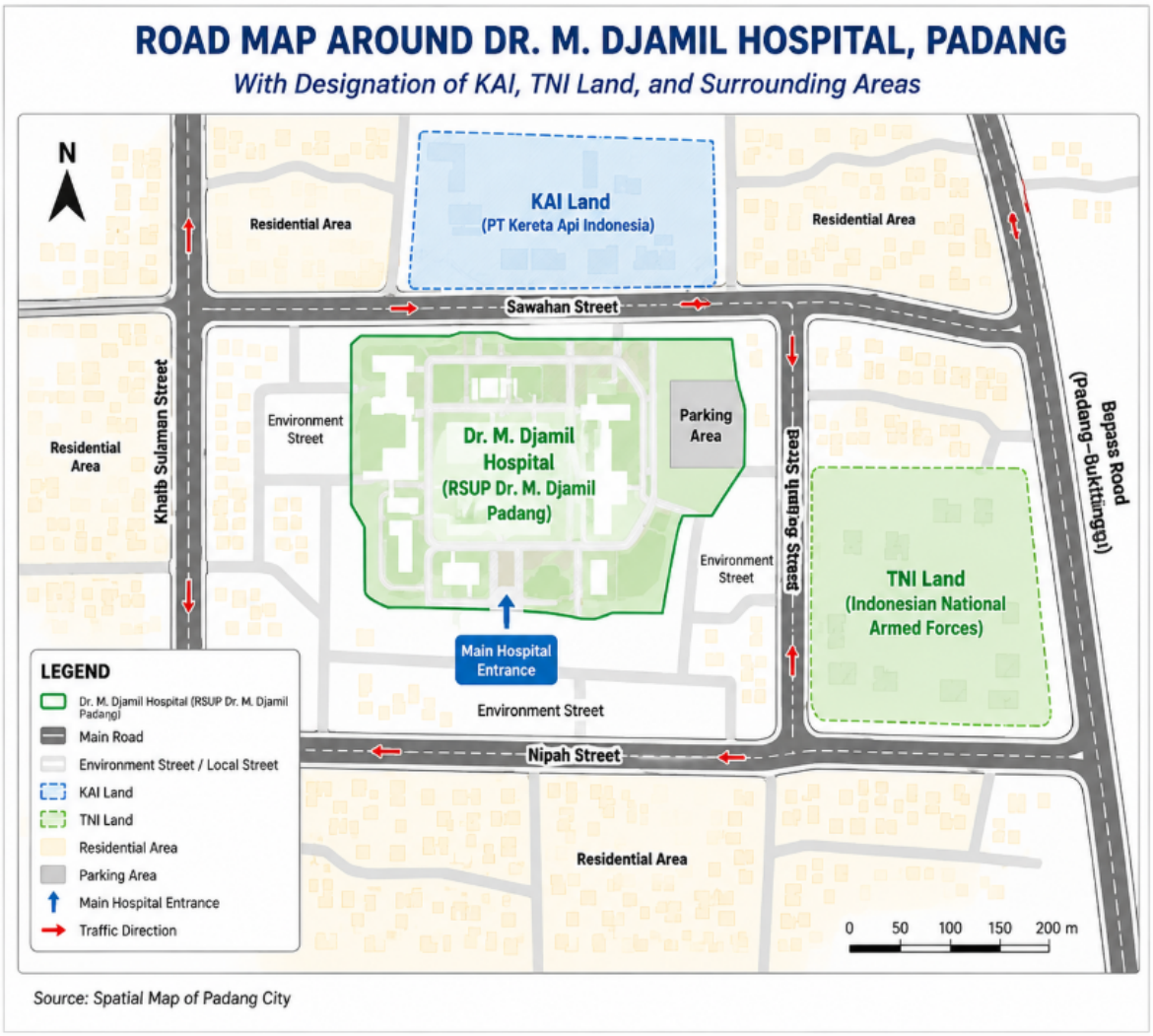


Figure 23 Traffic Surrounding RSMDJ

Table 48 Traffic baseline

Traffic Baseline Component	Existing Condition / Data Found	Potential Issue
Road network	RSMDJ is located on Jalan Perintis Kemerdekaan, Padang. The surrounding road network includes the four-leg intersection of RSUP Dr. M. Djamil, which is connected to Jalan Perintis Kemerdekaan and the hospital access road. A recent study noted that the intersection has traffic signal infrastructure; however, the signal was not functioning, causing the intersection to operate as an unsignalized intersection. (SIRS Kemenkes)	Potential congestion and traffic conflicts at the intersection, particularly due to hospital-related traffic, non-functioning traffic signals, and movements from several approaches.
Hospital access	The hospital is accessed mainly from the surrounding road network along Jalan Perintis Kemerdekaan. RSMDJ is a Class A public hospital and provides 24-hour emergency services, making uninterrupted access for patients, ambulances, staff, and visitors critical.	Potential obstruction to patient access, ambulance movement, visitor drop-off, staff access, and logistics vehicles, especially during peak hours and when parking areas are full.

Traffic Baseline Component	Existing Condition / Data Found	Potential Issue
Traffic volume	Complete road-section traffic volume data are not publicly available. However, a traffic performance study at the RSMDJ four-leg intersection collected primary survey data for four days during morning, midday, and afternoon peak periods. The existing condition during the Saturday afternoon peak hour, 17:00–18:00, showed a degree of saturation of 0.89, an average intersection delay of 15.34 seconds/vehicle, and Level of Service C.	Primary traffic counts are still required for the ESIA. The degree of saturation of 0.89 indicates that the intersection is already relatively congested and may be sensitive to additional project-generated traffic.
Vehicle composition	Detailed classified vehicle composition is not publicly available. Available parking studies indicate significant demand from private vehicles, particularly cars and motorcycles. One parking capacity evaluation reported that available parking spaces consisted of 319 car spaces and 551 motorcycle spaces, while maximum demand reached 453 car spaces and 1,038 motorcycle spaces.	A classified traffic count is required to confirm the composition of motorcycles, private cars, public transport, ambulances, logistics vehicles, and construction vehicles. High motorcycle and private vehicle volumes may increase maneuvering conflicts at hospital access points and intersections.
Intersection performance	The four-leg intersection near RSMDJ has been identified as a critical congestion point. The study found that although the intersection has traffic signal infrastructure, it operates as an unsignalized intersection because the traffic lights were not functioning. Under existing conditions, the Saturday afternoon peak hour showed degree of saturation 0.89, delay 15.34 seconds/vehicle, and Level of Service C.	The intersection may experience reduced performance if the project generates additional construction traffic, material delivery vehicles, workers' vehicles, patient trips, visitor trips, and operational traffic.
Parking	Parking is already a major issue at RSMDJ. A parking study concluded that the existing parking provision did not meet the applicable hospital parking space standard. Another evaluation reported that parking demand exceeded available capacity, with 453 car spaces required compared with 319 available, and 1,038 motorcycle spaces required compared with 551 available.	Parking shortage may lead to queuing, informal parking, obstruction of internal circulation, reduced patient comfort, and potential disruption to ambulance access and hospital entry/exit points.
Pedestrian safety	Public pedestrian count data are not available. However, the hospital environment involves continuous movement of patients, caregivers, elderly persons, persons with disabilities, staff, and visitors. Local reporting also highlights that surface parking is often full from morning to afternoon, increasing the need for safer pedestrian space, wheelchair movement, drop-off areas, and clear circulation.	Potential conflict between pedestrians and vehicles may occur around drop-off areas, parking areas, hospital entrances, road crossings, and the nearby intersection. A pedestrian count and road safety audit are required.
Public transport	Detailed public transport data serving the hospital frontage are not publicly available. Field verification is required to identify angkot routes, bus stops, online transport pick-up/drop-off points, informal stopping	Public transport stopping activity near the entrance or intersection may reduce road capacity, create side friction, and increase pedestrian-vehicle conflict.

Traffic Baseline Component	Existing Condition / Data Found	Potential Issue
	locations, and public transport passenger activity around the hospital.	
Ambulance access	RSMDJ provides 24-hour emergency services. Local reporting states that vehicle density and parking congestion around the hospital have affected patient comfort, obstructed ambulance access, and contributed to congestion near the main entrance.	Ambulance access must be prioritized. Potential measures include a dedicated emergency access route, strict no-parking zones, traffic marshals, signage, drop-off control, and coordination with hospital security.
Road safety	A traffic performance study confirms congestion-related issues at the four-leg intersection near the hospital, including non-functioning traffic signals and moderate-density traffic conditions during peak periods.	Potential road safety risks include vehicle conflicts at the intersection, unsafe pedestrian crossings, illegal stopping, parking conflicts, blind spots, and obstruction of hospital access.
Construction traffic	Public information on the proposed construction traffic route is not yet available. Based on the existing access context, construction vehicles would likely need to use the surrounding road network near Jalan Perintis Kemerdekaan and hospital internal access routes, but this must be confirmed through the contractor's construction logistics plan.	Potential impacts include truck traffic, material delivery, heavy equipment movement, construction waste transport, temporary road occupation, dust, noise, queuing, pedestrian safety risks, and disruption to ambulance or patient access.
Community complaints	Public reports indicate recurring complaints related to full parking areas, poor information on parking capacity, and difficulties experienced by patients and visitors when finding parking. One report also questioned the availability of traffic impact analysis documentation for the parking operation.	Main social issues may include user dissatisfaction, traffic congestion, informal parking, conflict with nearby road users, delayed access to hospital services, and increased complaints during construction.

Based on available secondary data, the traffic baseline around RSMDJ indicates existing congestion and road safety concerns, particularly at the four-leg intersection connecting Jl. Perintis Kemerdekaan, Jl. Dr. H. Abdullah Ahmad, and Jl. Kutilang as the hospital access road. Existing issues include non-functioning traffic signals, high hospital-related traffic, near-capacity parking conditions, potential obstruction to ambulance access, and reported public complaints related to parking and congestion. These findings should be verified through primary traffic surveys, parking surveys, pedestrian counts, and consultation with hospital management and local transport authorities.

4.8.1 Transport Material

To minimize disturbance to sensitive receptors and avoid potential impacts on cultural heritage assets around central Padang, the transportation route for construction material delivery trucks to RSMDJ should prioritize primary urban roads and avoid areas containing historical buildings, heritage corridors, dense traditional settlements, and religious/cultural landmarks.

Table 49 Project Material Sources

No.	Stores	Address
1	Official Jaya Home Inovasi	Jl. Purus II No.10, Purus, Kec. Padang Bar., Padang City, Sumatera Barat 25115, Indonesia
2	Toko Bangunan HAPDI	Jl. Pasar Raya I No. 6 D Kp. Jao Padang
3	Toko Bangunan MUKRA	Jl. Raya Ampang, Padang

Based on the identified material suppliers and the hospital location at Jl. Perintis Kemerdekaan, the recommended truck access route is as follows:

- **Route from Official Jaya Home Inovasi (Jl. Purus II)**

- Recommended Route:

Jl. Purus II → Jl. Samudera → Jl. Jenderal Sudirman → Jl. Rasuna Said → Jl. Perintis Kemerdekaan → RSUP Dr. M. Djamil Padang.

- Reason for Selection:
  - Utilizes wider collector and arterial roads suitable for material transport vehicles.
  - Avoids heritage-sensitive areas near Kota Tua Padang and Muaro heritage corridor.
  - Reduces truck movement through dense residential alleys and local cultural activity zones.
  - Provides better access control and easier traffic management



Figure 24 Route from Jl. Purus II to RSMDJ

- **Route from Toko Bangunan HAPDI (Pasar Raya Area)**

- Recommended Route:

Jl. Pasar Raya → Jl. M. Yamin → Jl. Rasuna Said → Jl. Perintis Kemerdekaan → RSUP Dr. M. Djamil Padang

- Restriction -> Heavy vehicles should avoid: