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1. 調査団員・氏名

氏名	担当業務	所属
本谷 隆行	業務主任者／組織運営	パデコ
中村 晋作	副業務主任者/技術支援計画	宇宙システム開発利用推進機構
宮川 明貴子（前任）	環境社会配慮	パデコ
井口 次郎（後任）	環境社会配慮	パデコ
久保田 直	サイト調査	パデコ
能村 桃子	社会調査・ジェンダー/業務調整	パデコ
柳 幸喜	機材計画/積算	宇宙システム開発利用推進機構
三原 莊一郎	衛星データ利用	宇宙システム開発利用推進機構
鈴木 正彦	電気・設備	日本工営（システムプランニング）
住谷 航大	都市土木	日本工営
手島 未来	調達/積算	日本工営
長沢 栄蔵	建築 1	パシフィックコンサルタンツ
橋富 一博	建築 2	パシフィックコンサルタンツ
白石 陽子	構造	パシフィックコンサルタンツ

2. 調査行程

日付	会議名	参加者	開催場所
2025 年 1 月 16 日	キックオフ会議	AEP、JICA、コンサルタント JV	オンライン
2025 年 1 月 20 日	設計・積算方針に関する会議	JICA、コンサルタント JV	オンライン
2025 年 1 月 21 日	衝撃試験機に関するヒアリング	熊本大学、コンサルタント JV	熊本大学キャンパス
2025 年 1 月 22 日	Kyutech 施設に関する視察	Kyutech、コンサルタント JV	Kyutech
2025 年 1 月 16 日	サイト選定に関する協議	AEP、JICA、コンサルタント JV	オンライン
2025 年 1 月 29 日	対応方針に関する会議	外務省、JICA、コンサルタント JV	オンライン
2025 年 2 月 3 日	事業目的および期待される成果に関する打合せ	AEP、コンサルタント JV	AEP GEOLab
2025 年 2 月 4 日	必要となる実験機材に関する打合せ	AEP、コンサルタント JV	AEP SPACELab
2025 年 2 月 6 日	事業実施に必要なレギュレーションおよび免税措置に関する協議	AEP、コンサルタント JV	AEP GEOLab
2025 年 2 月 7 日	災害データ提供に関するヒアリング	AEP、SEN、コンサルタント JV	SEN
2025 年 2 月 10 日	建築チーム活動に関するブリーフィング	AEP、コンサルタント JV	AEP GEOLab
2025 年 2 月 10 日	調達予定実験機材の仕様および概算金額に関する打合せ	AEP、Kyutech、コンサルタント JV	AEP SPACELab
2025 年 2 月 10 日	調達予定機材の運用に関する打合せ	AEP、Kyutech、コンサルタント JV	AEP SPACELab
2025 年 2 月 10 日	気象データ提供に関するヒアリング	AEP、DMH、コンサルタント JV	DMH
2025 年 2 月 11 日	日系企業との連携に関する意見交換	商工会議所メンバー、コンサルタント JV	在パラグアイ日本商工会議所
2025 年 2 月 12 日	建築許可およびゾーニング規則に関する打合せ	AEP、サン・ロレンソ市開発局職員、コンサルタント JV	サン・ロレンソ市
2025 年 2 月 13 日	環境影響評価および建築許可・ゾーニング規則に関する協議	AEP、MADES、コンサルタント JV	MADES
2025 年 2 月 18 日	環境社会配慮に関する協議	JICA、コンサルタント JV	オンライン
2025 年 2 月 18 日	液体窒素の購入および輸送に関する打合せ	AEP、Gas Metal（民間企業）、コンサルタント JV	Gas Metal
2025 年 2 月 18 日	液体窒素の購入および輸送に関する打合せ	AEP、Linde（民間企業）、コンサルタント JV	Linde
2025 年 2 月 18 日	在パラグアイ日本国大使館表敬訪問	大使館、JICA パラグアイ事務所、コンサルタント JV	在パラグアイ日本大使館
2025 年 2 月 19 日	機材調達後の支援に関する打合せ	Kurosu（民間企業）、コンサルタント JV	オンライン
2025 年 2 月 20 日	開発ゾーニングおよび環境規制に関する協議	AEP、サン・ロレンソ市開発局職員、JICA、コンサルタント JV	サン・ロレンソ市
2025 年 2 月 20 日	免税措置に関する協議	AEP、DNIT、JICA パラグアイ事務所、コンサルタント JV	DNIT
2025 年 2 月 20 日	機材調達後の支援に関する打合せ	Grupo Sumi（民間企業）、コンサルタント JV	Grupo Sumi
2025 年 2 月 20 日	機材調達後の維持管理支援に関する打合せ	AEP、Everest（民間企業）、コンサルタント JV	Everest

日付	会議名	参加者	開催場所
2025 年 2 月 25 日	調達予定機材の民間企業による活用に関する意見交換	AEP、パラグアイ工業会、コンサルタント JV	Unión Industrial Paraguaya (UIP)
2025 年 2 月 26 日	Universidad Paraguayo Alemana (UPA) 施設視察	AEP、UPA、コンサルタント JV	UPA
2025 年 2 月 26 日	建築図面作成方針に関する会議	AEP、コンサルタント JV	AEP GEOLab
2025 年 2 月 26 日	自然条件調査（地形測量）に関する打合せ	BR SOHLBERG S.R.L.（民間企業）、コンサルタント JV	AEP GEOLab 近辺
2025 年 2 月 26 日	電波規制に関する協議	AEP、DINAC、コンサルタント JV	AEP GEOLab
2025 年 2 月 27 日	ジェンダー主流化および障害配慮に関するヒアリング	AEP、コンサルタント JV	AEP GEOLab
2025 年 2 月 28 日	事業サイト候補地周辺機関に関するヒアリング	AEP、SENAVE、JICA パラグアイ事務所、コンサルタント JV	Servicio Nacional de Calidad y Sanidad Vegetal y de Semillas (SENAVE)
2025 年 2 月 28 日	自然条件調査（土質調査）に関する打合せ	TAF（民間企業）、コンサルタント JV	TAF S.R.L.
2025 年 2 月 28 日	現地建設事業に関するヒアリング	Sociedad Constructora Chaco（民間企業）、コンサルタント JV	Sociedad Constructora Chaco S.A.
2025 年 3 月 4 日	技術データ、価格およびサービスエリアに関する確認	AEP、ESSAP、コンサルタント JV	Empresa de Servicios Sanitarios del Paraguay S.A. (ESSAP)
2025 年 3 月 5 日	技術データ、価格およびサービスエリアに関する確認	COPACO、コンサルタント JV	COPACO S.A.
2025 年 3 月 5 日	現地建設事業に関するヒアリング	Ricardo Martinez（民間企業）、コンサルタント JV	DIAZ Martinez Contracture
2025 年 3 月 5 日	現地建設事業に関するヒアリング	Alberto Gross Brown（民間企業）、コンサルタント JV	AGB Constructora S.A.
2025 年 3 月 7 日	免税措置に関する協議	AEP、DNIT、コンサルタント JV	DNIT
2025 年 3 月 11 日	環境社会配慮調査に関するヒアリング	現地環境コンサルタント、コンサルタント JV	オンライン
2025 年 3 月 11 日	環境社会配慮に関する協議	JICA、コンサルタント JV	オンライン
2025 年 3 月 13 日	障害者雇用に関するヒアリング	労働局担当者、コンサルタント JV	労働局窓口
2025 年 3 月 17 日	現地建設事業に関するヒアリング	Tecnoedil（民間企業）、コンサルタント JV	Tecnoedil
2025 年 3 月 20 日	UNA 土地利用に関する協議	AEP、DGOTI UNA、コンサルタント JV	DGOTI UNA
2025 年 3 月 21 日	テクニカルノートに関する打合せ	AEP、コンサルタント JV	オンライン
2025 年 3 月 21 日	土壌および廃棄物処理に関する打合せ	ECORESA（民間企業）、コンサルタント JV	ECORESA
2025 年 4 月 9 日	機材計画に関する打合せ	Kyutech、コンサルタント JV	オンライン
2025 年 4 月 11 日	仮設道路に関する協議	JICA、コンサルタント JV	オンライン
2025 年 4 月 14 日	設計・積算方針に関する会議	JICA、コンサルタント JV	オンライン
2025 年 4 月 17 日	設計・積算方針に関する会議	JICA、コンサルタント JV	JICA 麹町
2025 年 5 月 7 日	環境社会配慮に関する協議	JICA、コンサルタント JV	オンライン

日付	会議名	参加者	開催場所
2025年5月8日	サン・ロレンソ市との計画確認事項に関する打合せ	AEP、コンサルタント JV	オンライン
2025年5月9日	調達予定機材に関する打合せ	AEP、コンサルタント JV	オンライン
2025年5月14日	ソフトコンポーネントに関する意見交換	Kyutech、コンサルタント JV	Kyutech
2025年5月14日	試験機材の運用に関する意見交換	AEP、コンサルタント JV	Kyutech
2025年5月15日	調達予定機材の活用方法に関する打合せ	Kyutech、コンサルタント JV	Kyutech
2025年5月16日	ソフトコンポーネントに関する協議	JICA、コンサルタント JV	オンライン
2025年5月23日	建設デザイン条件および環境関連法令に関する協議	AEP、サン・ロレンソ開発局、コンサルタント JV	サン・ロレンソ市
2025年5月26日	事業予定サイトにおけるプレ EIA 実施に関する協議	AEP、MADES、コンサルタント JV	環境・持続的開発省 (MADES)
2025年5月26日	1.5 次渡航タスクに関するブリーフィング	AEP、コンサルタント JV	AEP (GEOLab)
2025年5月26日	プレ EIA 再委託（候補）環境コンサルタントとの打合せ	MADES 登録環境コンサルタント、コンサルタント JV	UNA キャンパス
2025年5月27日	プレ EIA 再委託（候補）環境コンサルタントとの打合せ	MADES 登録環境コンサルタント、コンサルタント JV	UNA キャンパス
2025年6月13日	AEP 機材に関する打合せ	AEP、コンサルタント JV	オンライン
2025年6月17日	ソフトコンポーネントに関する意見交換	AEP、コンサルタント JV	オンライン
2025年6月17日	積算審査室会議	JICA、コンサルタント JV	JICA 本部
2025年6月20日	AEP 機材に関する打合せ	AEP、コンサルタント JV	オンライン
2025年6月24日	積算審査室会議	JICA、コンサルタント JV	JICA 本部
2025年6月24日	プレ EIA/IEE 調査に関する打合せ	AEP、再委託環境コンサルタント、コンサルタント JV	ハイブリッド
2025年7月3日	機材運用計画に関する打合せ	AEP、コンサルタント JV	オンライン
2025年7月9日	農業分野における災害影響に関するヒアリング	AEP、MAG、コンサルタント JV	オンライン
2025年7月11日	事業評価に関する打合せ	AEP、コンサルタント JV	オンライン
2025年7月14日	アクセス道路、先方負担事項およびデザイン変更に関する協議	AEP、コンサルタント JV	オンライン
2025年7月18日	タスク進捗に関する確認会議	AEP、コンサルタント JV	オンライン
2025年7月22日	タスク進捗に関する確認会議	AEP、コンサルタント JV	オンライン
2025年7月25日	機材運用計画に関する長官向け説明	AEP、コンサルタント JV	オンライン
2025年8月4日	DFR 内容に関する AEP 向け説明	AEP、コンサルタント JV	AEP
2025年8月5日	DFR 概要に関する在パラグアイ日本国大使向け説明	大使館、JICA パラグアイ事務所、コンサルタント JV	在パラグアイ日本大使館
2025年8月5日	樹木伐採に関する協議	AEP、サン・ロレンソ市、コンサルタント JV	事業サイト
2025年8月13日	サプライヤーに関するヒアリング	GLASSTEX（民間企業）、コンサルタント JV	GLASSTEX
2025年8月13日	サプライヤーに関するヒアリング	CASA MARCOS（民間企業）、コンサルタント JV	CASA MARCOS

日付	会議名	参加者	開催場所
2025 年 8 月 13 日	ブレ EIA 再委託先環境コンサルタントとの打合せ	MADES 登録環境コンサルタント、コンサルタント JV	事業サイト
2025 年 8 月 14 日	パラグアイの免税措置に関する課題に関するヒアリング	JICA パラグアイ事務所、コンサルタント JV	JICA パラグアイ事務所
2025 年 8 月 22 日	対応方針に関する会議	外務省、JICA、コンサルタント JV	オンライン
2025 年 8 月 25 日	追加指標案に関する協議	AEP、コンサルタント JV	AEP
2025 年 8 月 26 日	M/D 準備に関する打合せ	AEP、JICA、コンサルタント JV	AEP
2025 年 8 月 27 日	M/D 添付資料（環境チェックリスト、EMP、EMoP）に関する説明	AEP、コンサルタント JV	オンライン
2025 年 8 月 27 日	M/D 添付資料に関する AEP 向け説明	AEP、JICA、コンサルタント JV	AEP
2025 年 8 月 28 日	ステークホルダーミーティング（SHM）	AEP、SHM 参加者、コンサルタント JV	UNA
2025 年 8 月 28 日	M/D 協議	AEP、JICA、コンサルタント JV	AEP
2025 年 8 月 29 日	M/D 締結	AEP、JICA、コンサルタント JV	AEP
2025 年 9 月 2 日	DOD 帰国報告会	外務省、JICA、コンサルタント JV	オンライン
2025 年 12 月 5 日	ソフトコンポーネントによる AEP 支援に関する打合せ	Kyutech、コンサルタント JV	Kyutech
2025 年 12 月 10 日	九州工業大学との打合せ結果共有および運用手順書事前準備に関する打合せ	AEP、コンサルタント JV	オンライン

3. 関係者(面会者)リスト

名前	組織	役職
政府機関 (パラグアイ)		
Mr. Osvaldo Almirón	AEP	Minister-President
Mr. Adolfo Jara	AEP	Director General of Planning and Management / SPACELab General Coordinator
Mr. Alejandro Román	AEP	Director General of Execution and Aerospace Development / GEOLab General Coordinator
Mr. Javier Ferrer	AEP	SPACELab
Mr. Anibal Mendoza	AEP	SPACELab
Ms. Thanya Idoyaga	AEP	GEOLab
Ms. Rebeca Cristaldo	AEP	GEOLab
Mr. Federico Gaona	AEP	SPACELab
Mr. Rodrigo Fleytas	AEP	GEOLab
Ms. Veronica Cano	AEP	GEOLab
Mr. Esteban Fretes	AEP	SPACELab
Mr. Luis Miranda	AEP	SPACELab
Ms. Hebe Romero	AEP	Director General of Legal and International Affairs
Ms. Leticia Garcete	AEP	Director of International Cooperation
Ms. Romina Duarte	AEP	Secretary General
Mr. Eduardo Gomes	SEN	Director of Risk Management
Mr. Eduardo J. Mingo V.	DMH	Director
Mr. Jorge Sánchez	DMH	Subdirector
Ms. María Sol Benítez	DMH	Manager, Hydrological Observations
Ms. Rocío Vázquez	DMH	Manager, Hydrological Forecasting
Ms. Patricia Martínez	Municipality of Asunción	General Director of Planning and Territorial Management
Mr. Mario Encina	Municipality of Asunción	Fire Prevention Director
Mr. Roberto Villalba	Municipality of Asunción	Fire Prevention Technical Advisor
Ms. Lilian Mendoza	Municipality of Asunción	Environmental Management Advisor
Mr. Adolfo Gustavo Rodriguez	MADES	Director, Environmental Quality Department / DGCCARN
Mr. Eleno Centurion	DINAC	Manager, Aeronautical Information
Mr. Roque Vergara	DINAC	Lawyer
Mr. ABG. Lilian R. Roman Florencio	DNIT	Director General
Mr. Alfredo Gryciuk	SENAVE	Technical General Director
Mr. Carlos Ramírez	ESSAP	Technical Manager
Mr. Humberto Maciel	COPACO S.A.	Chief of Corporate Business
Ms. Lilian R. Roman Florencio	DNIT	Director General
大学・公益民間団体 (パラグアイ)		
Mr. Jorge Hiroshi Kurita	CONACYT	AEP Board Member
Mr. Felix Kanazawa	UNA	Coordinator / Docente Investigador
Ms. Ena Narvaez	DGOTI UNA	General Director
Mr. Carlos Rolon	DGOTI UNA	Architect
Ms. Concepcion Benitez	DGOTI UNA	Architect
Ms. Maria Analia Estaque	DGOTI UNA	Architect
Mr. Eladio Martínez Toro	Universidad Paraguayo Alemana / Unión Industrial Paraguaya	Dean, Faculty of Engineering Sciences
Ms. Diana B. Benítez Cáceres	Universidad Paraguayo Alemana	Professor, Academic Coordinator

名前	組織	役職
Mr. Henry Moriya	Cámara Japonesa de Comercio e Industria en Paraguay	Vice Presidente
Mr. Enrique Duarte	Unión Industrial Paraguaya	President
Mr. Diego Oddone	Unión Industrial Paraguaya	Vice President of Strategic Affairs and Planning
民間企業		
Mr. Eduardo Sanabria	CONSULTORA Y LOGISTICA DEL PARAGUAY E.A.S.	Environmental Consultant
Mr. Benjamin Real	BR SOHLBERG S.R.L. (Topographic Survey Company)	Civil Engineer – Surveyor
Mr. Carlos R. Bellassai	TAF S.R.L. (Geotechnical Survey Company)	Civil Engineer, MSc
Mr. Nicolás Zabrodiec	TAF S.R.L. (Geotechnical Survey Company)	ICivil Engineer, MSc
Mr. Juan M. Chilavert	Gas Metal (Industrial Gas Supplier)	Sales Supervisor
Ms. Sara Legal	Linde (Industrial Gas Supplier)	Sales Advisor
Mr. Rodrigo Galeano	Linde (Industrial Gas Supplier)	Sales Advisor
Mr. Jaime Kurosu	Kurosu & Cia. S.A. (Equipment Manufacturing)	President
Mr. Jimmy Kurosu	Kurosu & Cia. S.A. (Equipment Manufacturing)	Manager
Mr. Pablo Benítez	Kurosu & Cia. S.A. (Equipment Manufacturing)	Director of Marketing
Mr. Sumihiro Takaoka	Grupo Sumi (Hi-Tech Equipment Supplier)	President
Mr. Masatake Ohara	Grupo Sumi (Hi-Tech Equipment Supplier)	Sales Manager – Telecommunications
Ms. Mariano Torres	Everest (Industrial Service Provider)	Commercial Manager
Mr. Lopez Cano	Sociedad Constructora Chaco S.A. (Construction Company)	Director
Mr. Ricardo Martinez	DIAZ Martinez Constructure (Construction Company)	Director
Mr. Alberto Gross Brown	AGB Constructora S.A. (Construction Company)	Director General
Mr. Claudio Rojas	Tecnoedil (Construction Company)	Director of New Business
Mr. Mathias Román	GLASSTEX (Glass Manufacturing and Installation Company)	Manager
Mr. Marcelo Román	CASA MARCOS (Glass Manufacturing and Installation Company)	Manager
大学（日本）		
趙 孟佑	九州工業大学	大学院工学研究院 宇宙システム工学研究系 教授
北村 健太郎	九州工業大学	大学院工学研究院 宇宙システム工学研究系 教授
増井 博一	九州工業大学	大学院工学研究院 宇宙システム工学研究系 助教

名前	組織	役職
布施 哲人	九州工業大学	大学院工学研究院 宇宙システム工 学研究系 特任准教授
波多 英寛	熊本大学	大学院先端科学研究部 産業基盤部 門 機械システム設計分野 助教
大使館・JICA 関係者		
板垣 克巳	在パラグアイ日本国大使館	大使
林 俊一郎	在パラグアイ日本国大使館	経済協力班 一等書記官
高畠 千佳	JICA パラグアイ事務所	所長
若林 敏哉	JICA パラグアイ事務所	次長
竹森 久美子	JICA パラグアイ事務所	職員
Takafumi Hirai	JICA パラグアイ事務所	職員
Mirian Ponillaux	JICA パラグアイ事務所	職員

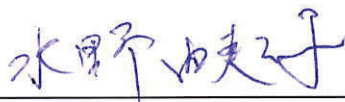
Minutes of Discussions
on the Preparatory Survey for the Project for
the Development of Facilities Related to Satellite Technologies
(Explanation on Draft Preparatory Survey Report)

With reference to the minutes of discussions signed between Agencia Espacial del Paraguay (hereinafter referred to as "AEP") and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on February 20th 2025 and in response to the request from the Government of Republic of Paraguay (hereinafter referred to as "Paraguay") dated March 31st 2025, JICA dispatched the Preparatory Survey Team (hereinafter referred to as "the Team") for the explanation of Draft Preparatory Survey Report (hereinafter referred to as "the Draft Report") for the Project for the Development of Facilities Related to Satellite Technologies (hereinafter referred to as "the Project").

As a result of the discussions, both sides agreed on the main items described in the attached sheets.

This Minutes of Discussions was made in both English and Spanish language in duplicate. In case of any divergence of interpretation, the English text shall prevail.

Asuncion, August 29th, 2025

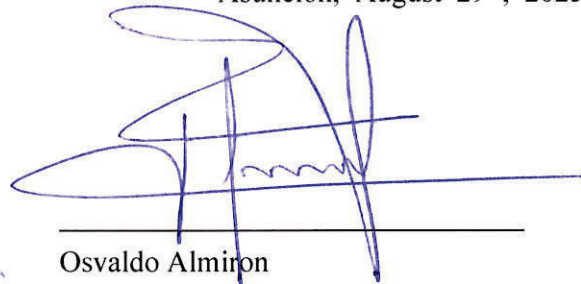


MIZUNO Yukiko

Leader

Preparatory Survey Team

Japan International Cooperation Agency
Japan



Osvaldo Almiron

President

Agencia Espacial del Paraguay
Republic of Paraguay

ATTACHEMENT

1. Objective of the Project

The objective of the Project is to strengthen AEP's satellite development capabilities and enhance the capacity of AEP and related institutions in utilizing satellite data for agricultural development and climate change measures through the provision of small satellite testing equipment, satellite-related ground systems, satellite data and the construction of the center for space technology utilization equipped with these facilities, thereby contributing to the resolution of challenges in Paraguay's agriculture-livestock sector, disaster management, and others aiming to a socioeconomic development.

2. Title of the Preparatory Survey

Both sides confirmed the title of the Preparatory Survey as "the Preparatory Survey for the Project for the Development of Facilities Related to Satellite Technologies".

3. Project site

Both sides confirmed that the site of the Project is in San Lorenzo City, which is shown in Annex1.

4. Responsible authority for the Project

Both sides confirmed the authorities responsible for the Project are as follows:

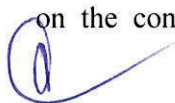
4-1 AEP will be the executing agency for the Project (hereinafter referred to as "the Executing Agency"). The Executing Agency shall coordinate with all the relevant authorities to ensure smooth implementation of the Project and ensure that the undertakings for the Project shall be managed by relevant authorities properly and on time. The organization chart is shown in Annex2.

4-2 AEP depends administratively and functionally on the Presidency of Paraguay under the Law 5151/14.

4-3 AEP will manage and be responsible, subject to the decisions of the Government of Paraguay.

5. Contents of the Draft Report

After the explanation of the contents of the Draft Report by the Team, the Paraguay side agreed to its contents. JICA will finalize the Preparatory Survey Report based on the confirmed items. The report will be sent to the Paraguay side around




November 2025.

6. Cost estimate

Both sides confirmed that the cost estimate including the contingency explained by the Team is provisional and will be examined further by the Government of Japan for its approval. The contingency would cover the additional cost against natural disasters, unexpected natural conditions, etc.

7. Confidentiality of the cost estimate and technical specifications

Both sides confirmed that the cost estimate and technical specifications of the Project should never be disclosed to any third parties until all the contracts under the Project are concluded.

8. Procedures and Basic Principles of Japanese Grant

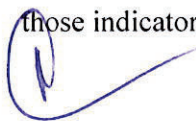
The Paraguay side agreed that the procedures and basic principles of Japanese Grant (hereinafter referred to as “the Grant”) as described in Annex 3 shall be applied to the Project. In addition, the Paraguay side agreed to take necessary measures according to the procedures.

9. Timeline for the project implementation

The Team explained to the Paraguay side that the expected timeline for the project implementation is as attached in Annex 4.

10. Expected outcomes and indicators

Both sides agreed that key indicators for expected outcomes are as follows. The Paraguay side will be responsible for the achievement of agreed key indicators targeted in year 2031 and shall monitor the progress for Ex-Post Evaluation based on those indicators.



[Quantitative indicators]

Indicator	Baseline (2025 Actual)	Target (2031) [3 Years After Project Completion]
Number of small satellite tests conducted in Paraguay (cases/year)	0	4
Number of satellite data analyses and information provided to government agencies (cases/year)	3	12

[Qualitative indicators]

- The satellite development and testing capabilities of AEP will be strengthened, and a sustainable human resource development cycle in Paraguay's space sector will be established.
- Paraguay's role as a regional base and hub for small satellite development in Latin America will be promoted.
- Technologies for disaster and climate change countermeasures will be advanced.
- Disaster risk reduction capabilities during emergencies will be strengthened.
- Agricultural administration will be advanced.

The following quantitative indicators were agreed as alternative candidates;

Indicator for upstream	Baseline (2025 Actual)	Target (2031) [3 Years After Project Completion]
Times of testing of small satellites, components and related technologies (times/year)	0	16
Total operation hours of testing for small satellites, components and related technologies (hour/year)	0	4,800
Number of students applying lab experience in thesis, projects and lectures (students/year)	2	15

Number of cases of co-development and/or collaboration with agencies, companies or academia (cases)	5	50
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Indicator for downstream	Baseline (2025 Actual)	Target (2031) [3 Years After Project Completion]
Number of projects for providing satellite data analysis results utilized by relevant institutions for their responses and/or public policies (projects/year)	3	12
Number of satellite data analysis utilized by relevant institutions for their responses and/or public policies (analysis/year)	48	192
Reduction of people affected or response costs by improvement of evacuation system for floods by utilizing satellite data analysis (%)	-	25
Number of hazard maps on potential affected areas (maps/year)	0	4
Area of hazard maps cover (km ²)	0	2,561
Reduction of crop production Lost by climate change impacts, such as extreme droughts and rainfalls by utilizing satellite data analysis (%)	-	15
Number of trainees at GEOLab (trainee/year)	25	100
Number of GEOLabs created at academia (labs/year)	0	3

Number of students applying lab experience in thesis, projects and lectures (students/year)	2	15
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11. Ex-Post Evaluation

JICA will conduct ex-post evaluation after three (3) years from the project completion, in principle, with respect to six evaluation criteria (Relevance, Coherence Effectiveness, Efficiency, Impact, Sustainability). The result of the evaluation will be publicized. The Paraguay side is required to provide necessary support for the data collection.

12. Technical assistance (“Soft Component” of the Project)

Considering the sustainable operation and maintenance of the products and services granted through the Project, the following technical assistance is planned under the Project. The Paraguay side confirmed to deploy necessary number of counterparts who are appropriate and competent in terms of its purpose of the technical assistance as described in the Draft Report.

13. Undertakings of the Project

13-1 General Undertakings

Both sides confirmed the undertakings of the Project as described in Annex 5. With regard to exemption of customs duties, internal taxes and other fiscal levies as stipulated in (2) No.5 of Annex 5, both sides confirmed that the specific types and scope of such duties, taxes, and levies will be clearly defined in the bid documents to be prepared by AEP during the implementation stage of the Project.

The Paraguay side assured to take the necessary measures and coordination including allocation of the necessary budget which are preconditions of implementation of the Project. It is further agreed that the costs are indicative, i.e. at Outline Design level. More accurate costs will be calculated at the Detailed Design stage.

Both sides also confirmed that Annex 5 will be used as an attachment of G/A.

13-2 Peaceful Use

The Paraguayan side agrees that all equipment, technologies, facilities, and any other resources provided under this Project shall be used exclusively for peaceful purposes. Both JICA and the Paraguayan side confirm that these items shall not be used for military purposes or any activities that may contribute directly or indirectly to military applications. However, it is acknowledged that in certain cases, such as

disaster management and emergency response, coordination between the space agency and relevant national institutions, including the military, may be necessary to serve public safety and humanitarian purposes. The Paraguayan side shall take necessary measures to ensure strict control and management to prevent any military-related use.

13-3 Land usage of the Project site

Since securing land necessary for the Project is precondition of the Project to be implemented by Japanese grant, Paraguay side agreed to conclude Memorandum of Agreement (MOA) between AEP and UNA which includes the clause that AEP and UNA explicitly agree long-term lease with stipulation of the all conditions, and a copy of the MOA shall be promptly shared with JICA along with an official cover letter by September 10th, 2025 (Paraguay local time), and if the above MOA is not concluded by September 10th, 2025, this Minutes of Discussions shall become null and void.

AEP and UNA guaranteed to JICA that the MOA will have legal or equivalent effect, and will be implemented as agreed.

14. Monitoring during the implementation

The Project will be monitored by the Executing Agency and reported to JICA by using the form of Project Monitoring Report (PMR) attached as Annex 6. The timing of submission of the PMR is described in Annex 5.

15. Project completion

Both sides confirmed that the project will be complete when all the facilities constructed and equipment procured by the Grant are in operation. The completion of the Project will be reported to JICA promptly by the Executing Agency, but in any event not later than six months after completion of the Project.

16. Environmental and Social Considerations

16-1 General Issues

16-1-1 Environmental Guidelines and Environmental Category

The Team explained that 'JICA Guidelines for Environmental and Social Considerations (January 2022)' (hereinafter referred to as "the Guidelines") is applicable for the Project. The Project is categorized as B from the following considerations: the project site is in an area zoned for urban development (Área Boscosa) but not designated for nature conservation under national laws, and no

significant adverse impacts on sensitive ecosystems or involuntary resettlement are anticipated. The Paraguay side confirmed to give due environmental and social considerations during implementation, and after completion of the Project, in accordance with the Guidelines.

16-1-2 Environmental Checklist

The environmental and social considerations including major impacts and mitigation measures for the Project are summarized in the Environmental Checklist attached as Annex7. Paraguay side assured that they shall take the necessary measures in accordance with the Environmental Checklist and the Draft Report. Both sides agreed that in case of major modification of the content of the Environmental Checklist, the Paraguay side shall submit the modified version to JICA in a timely manner.

16-2 Environmental Issues

16-2-1 Environmental Impact Assessment (EIA)

Both sides confirmed that a Preliminary Environmental Assessment (Informe de Evaluación Ambiental Preliminar) (hereinafter referred to as “EIAp”) , which includes all the mitigation measures and monitoring as per the Draft Report, will be submitted to the Ministry of Environment and Sustainable Development (hereinafter referred to as “MADES”) in September 2025 by AEP, and the earliest approval is expected by December 2025. Both sides further agreed that the EIAp report will be disclosed on the JICA website until the approved EIA report is submitted to JICA. Once Environmental Clearance Certificate (Declaración de Impacto Ambiental: DIA) and EIA report will be shared with JICA by AEP, they will be disclosed on the JICA website as soon as possible.

Both sides further confirmed that AEP will implement all the mitigation measures and monitoring as per the EIAp and the Draft Report regardless of any changes made during the approval process of the EIA report. Further, Paraguay side assured that if additional mitigation measures and monitoring is required by MADES, AEP will obtain the necessary budget and implement them as required.

16-2-2 Environmental Management Plan and Environmental Monitoring Plan

Both sides confirmed Environmental Management Plan (PMA: Plan de Manejo Ambiental) (EMP) and Environmental Monitoring Plan (Plan de Monitoreo Ambiental) (EMoP) of the Project are attached as Annex 8. Both side agreed that




environmental mitigation measures and monitoring shall be conducted based on the EMP and EMoP, which may be updated during the detailed design stage.

16-2-3 Consultation with Local Stakeholders

The Paraguay side explained that local stakeholder meeting on the Project with relevant stakeholders and local residents with particular attention to directly affected peoples by the Project was held at UNA on August 28th, 2025. Advance announcements were posted on UNA's bulletin board and AEP's SNS (Social Networking Service). Questions and opinions such as clarification regarding waste generated during satellite tests were raised by attendees. The Paraguay side explained that there would not be significant environmental impact because the laboratories will not produce waste beyond normal human activity, and the outcome of such consultations was incorporated into the project plans. However, there were no objections to the implementation of the Project.

16-2-4 Other specific environmental issues which need to be confirmed/agreed between the parties.

Both sides confirmed that during site development, topsoil and cleared vegetation will be managed in accordance with the national guidelines and the EMP. AEP shall coordinate with MADES and relevant municipal authorities to ensure appropriate reuse or disposal of construction debris and vegetative matter.

16-3 Social Issues

16-3-1 Land Acquisition and Resettlement

Both sides confirmed that no land acquisition or involuntary resettlement is required for the implementation of the Project. The project site is on the land under a usufruct agreement secured by AEP. However, if any additional land is required, necessary procedures and compensation in line with national legislation and JICA Guidelines will be followed.

16-3-2 Indigenous People

Both sides confirmed that there are no Indigenous Peoples residing in or having collective attachment to the Project site.

16-3-3 Other specific social issues which need to be confirmed/agreed between the parties

① Both sides confirmed that there are no other major social issues requiring agreement

at this stage of the Project.

16-4 Environmental and Social Monitoring

16-4-1 Environmental Monitoring

Both sides agreed that the Paraguay side will submit results of environmental monitoring to JICA as a part of Monthly Progress Report by using the monitoring form attached as Annex 9. The timing of submission of the monitoring form is described in Annex 5. In case JICA finds that there is a need for improvement in a situation with respect to environmental considerations after the agreed monitoring period, JICA may request to extend the period of monitoring and reporting until JICA confirms the issues have been properly addressed. The extension of the monitoring will be decided in accordance with the agreement between Paraguay and JICA.

16-4-2 Social Monitoring

Both sides confirmed that no land acquisition or resettlement, and no impacts on indigenous peoples are anticipated under the Project.

However, both sides agreed that the Paraguay side will implement basic social monitoring during construction, including employment conditions, worker safety, and grievance redress.

AEP will report results of social monitoring to JICA using the monitoring form attached as Annex 9. In case any unanticipated social impacts arise during implementation, both sides agreed to take appropriate measures in accordance with the JICA Guidelines.

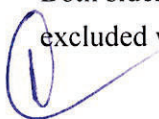
16-4-3 Information Disclosure of Monitoring Results

Both sides confirmed that it will take stipulated procedures for information disclosure in accordance with the Law No. 5282/14 on Access to Public Information and other relevant national regulations. In addition, the Team requested Paraguay side to disclose results of environmental and social monitoring to local stakeholders and Paraguay side agreed to disclose monitoring results through their website / in their field offices by date. The Paraguay side agreed JICA will disclose results of environmental and social monitoring submitted by the Paraguay side as the monitoring forms attached as Annex 9 on its website. If third parties request further information, JICA will disclose the information, subject to approval by Paraguay.

17. Other Relevant Issues

17-1 Disclosure of Information

Both sides confirmed that the Preparatory Survey Report from which project cost is excluded will be disclosed to the public after completion of the Preparatory Survey.




The comprehensive report including the project cost will be disclosed to the public after all the contracts under the Project are concluded.

17-2 Gender Mainstreaming

Both sides confirmed that gender mainstreaming shall be duly ensured in the Project. In particular, both sides agreed on the following gender-responsive activities and indicators in the Project.

Gender Perspectives and Issues	Examples of Efforts	Indicators
Promoting gender balance in AEP internship opportunities may help reduce occupational segregation.	Implement department-specific outreach to encourage underrepresented gender to apply for internships in SPACELab and GEOLab.	Gender ratio of interns accepted at SPACELab and GEOLab respectively.
Opportunities need to be provided equally without nomination bias.	Implement open, competitive application process by ensuring access to criteria information, mentoring, and application support especially for female staff.	Number of female staff who apply for external training and scholarship opportunities.
Access to space/STEM educational programs may be limited for young women especially in rural, indigenous, or low-income communities.	Conduct space/STEM workshops for high school and university students utilizing the newly developed facility and equipment.	Number of female students from local high school and universities participating in workshops and training conducted by AEP.

17-3 Climate Change and Information Disclosure

- 1) Both sides confirmed that the Project will contribute to climate change (mitigation) , including through enhanced forest fire and flooding monitoring and response capabilities using satellite data.
- 2) Both sides confirmed that the Project will contribute to climate change (adaptation) through climate risk reduction for disasters and crop failure risks associated with climate change, in line with Paraguay's Nationally Determined Contributions (NDC) under the Paris Agreement, which aim to strengthen disaster preparedness and build a resilient agricultural foundation.
- 3) The above information will be disclosed to the public. The mode of disclosure

 will be through the JICA website after the signing of the G/A.



Annex 1 Project Site

Annex 2 Organization Chart

Annex 3 Japanese Grant

Annex 4 Project Implementation Schedule

Annex 5 Major Undertakings to be taken by the Government of Paraguay

Annex 6 Project Monitoring Report (template)

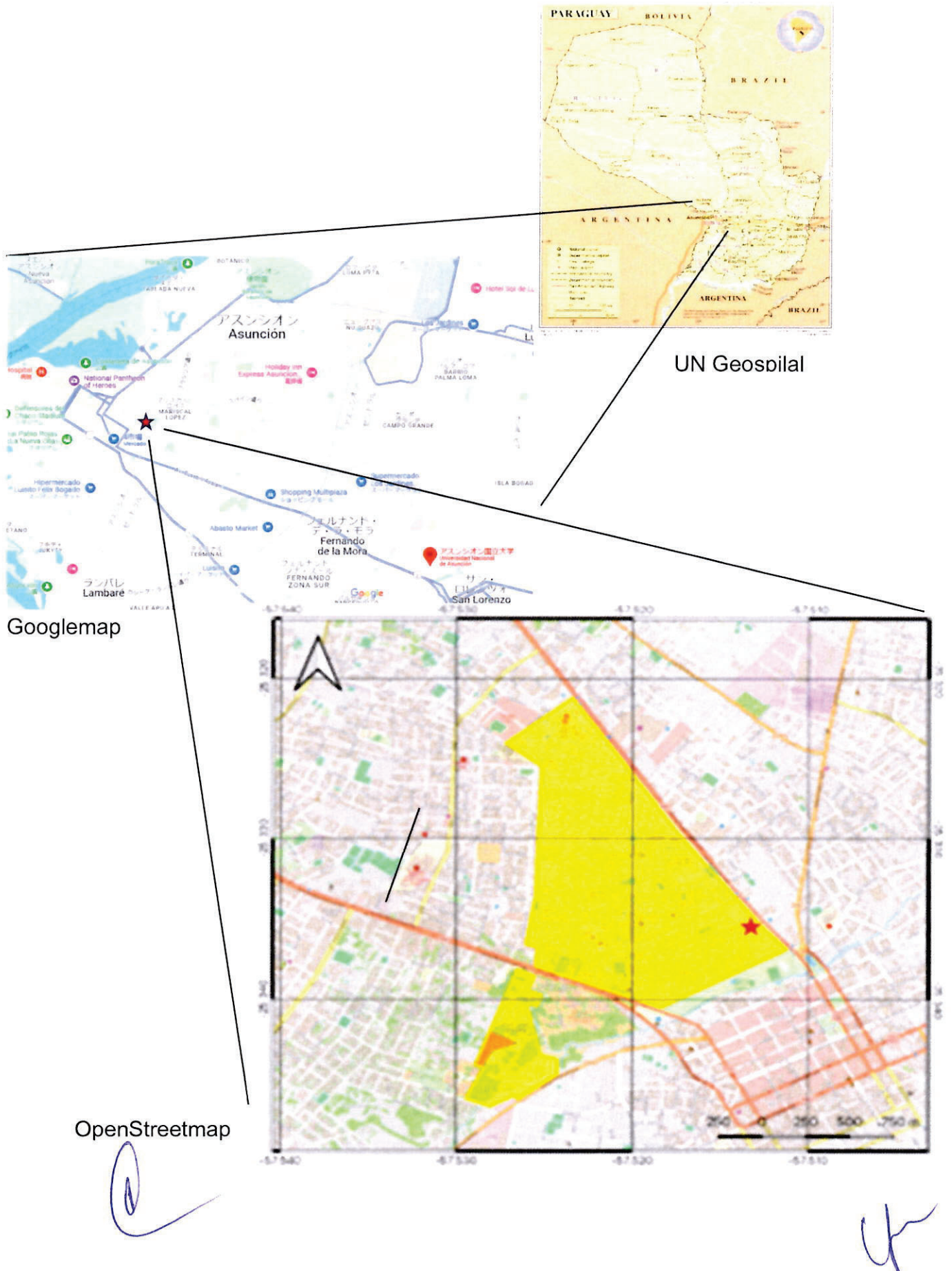
Annex 7 Environmental Check List

Annex 8 Environmental Management Plan/Environmental Monitoring Plan

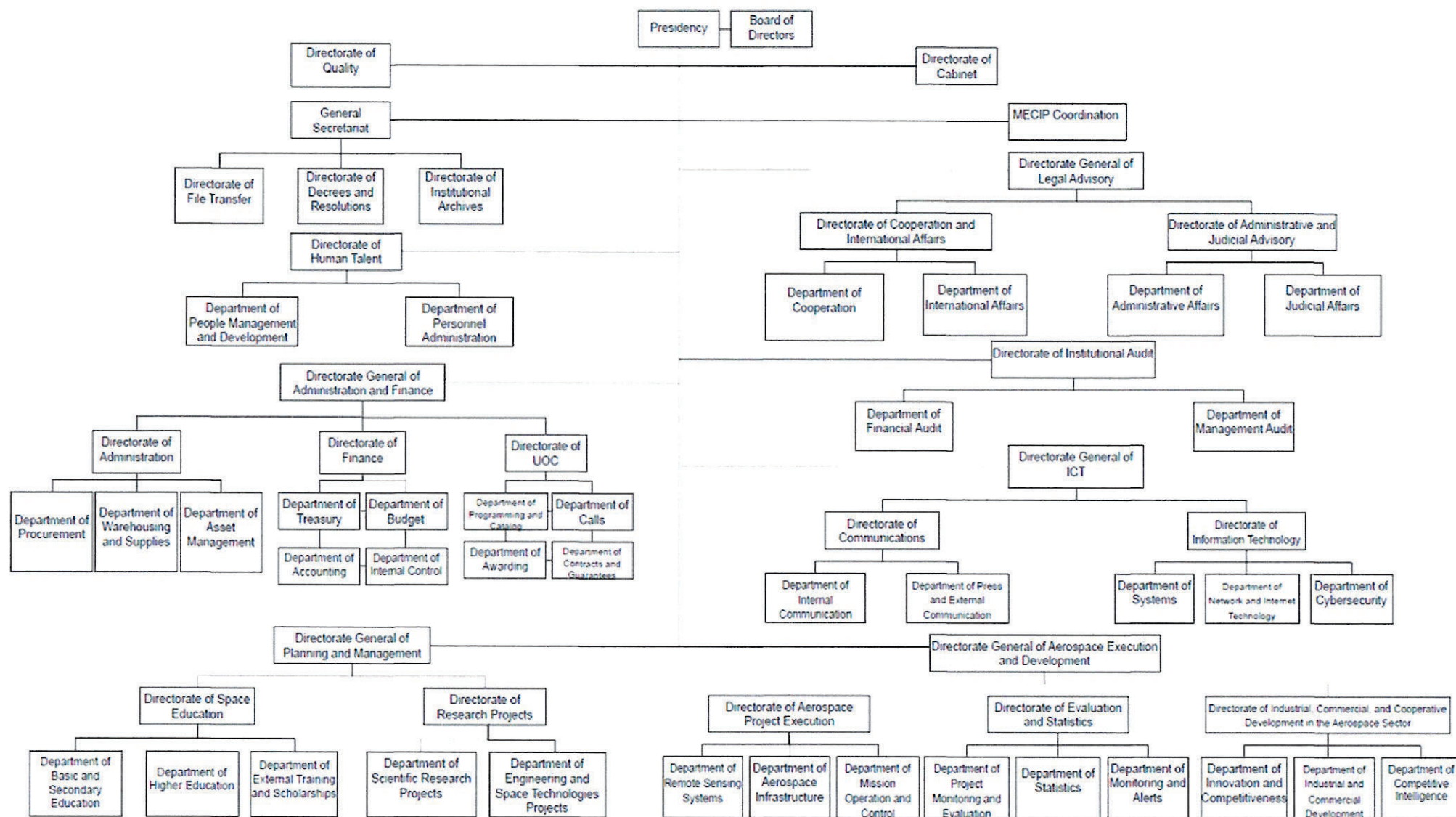
Annex 9 Environmental and Social Monitoring Form



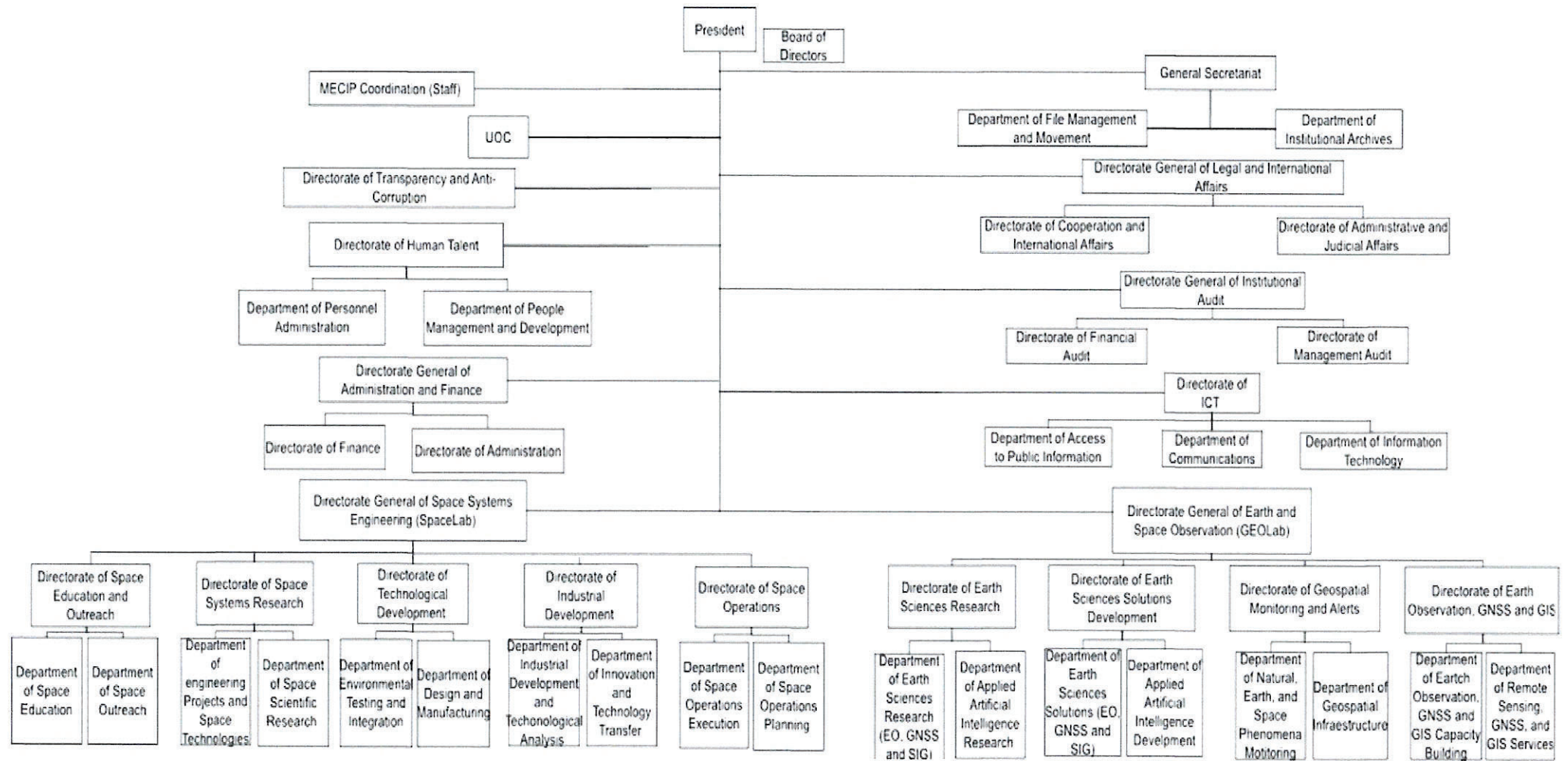
Project site



【Current Organizaition Chart (2025)】



【Future Organization Chart (2028)】



JAPANESE GRANT

The Japanese Grant is non-reimbursable fund provided to the government of recipient country (hereinafter referred to as “the Recipient”) to purchase the products and/or services (engineering services and transportation of the products, etc.) for its economic and social development in accordance with the relevant laws and regulations of Japan. Followings are the basic features of the project grants operated by JICA (hereinafter referred to as “Project Grants”).

1. Procedures of Project Grants

Project Grants are conducted through following procedures (See “PROCEDURES OF JAPANESE GRANT” for details):

(1) Preparation

- The Preparatory Survey (hereinafter referred to as “the Survey”) conducted by JICA

(2) Appraisal

- Appraisal by the government of Japan (hereinafter referred to as “the GOJ”) and JICA, and Approval by the Japanese Cabinet

(3) Implementation

Exchange of Notes (hereinafter referred to as “the E/N”)

- The Notes exchanged between the GOJ and the Recipient

Grant Agreement (hereinafter referred to as “the G/A”)

- Agreement concluded between JICA and the Recipient

Banking Arrangement (hereinafter referred to as “the B/A”)

- Opening of bank account by the Recipient in a bank in Japan (hereinafter referred to as “the Bank”) to receive the grant

Procurement of works/ equipment

- Implementation of the project (hereinafter referred to as “the Project”) on the basis of the G/A

(4) Ex-post Monitoring and Evaluation

- Monitoring and evaluation at post-implementation stage

2. Preparatory Survey

(1) Contents of the Survey

The aim of the Survey is to provide basic documents necessary for the appraisal of the the Project made by the GOJ and JICA. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of relevant agencies of the Recipient necessary for the implementation of the Project.

- Evaluation of the feasibility of the Project to be implemented under the Japanese Grant from the technical, financial, social and economic points of view.
- Confirmation of items agreed between both parties concerning the basic concept of the Project.
- Preparation of an outline design of the Project.
- Estimation of costs of the Project to be born by the Recipient and JICA.
- Confirmation of Environmental and Social Considerations

The contents of the original request by the Recipient may be altered through the Survey. The Outline Design of the Project is confirmed based on the guidelines of the Japanese Grant.

JICA requests the Recipient to take measures necessary to meet all the obligations by the Recipient during the Project's implementation and to achieve its self-reliance after the completion of the Project. Such measures must be taken even though they may fall outside of the jurisdiction of the executing agency of the Project. In case the contents of the Minutes of Discussion need to be confirmed by the organization other than the Executing Agency, the Executing has to coordinate with such an organization.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA contracts with (a) consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

(3) Result of the Survey

JICA reviews the report on the results of the Survey and recommends the GOJ to appraise the implementation of the Project after confirming the feasibility of the Project.

3. Basic Principles of Project Grants

(1) Implementation Stage

1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the E/N will be signed between the GOJ and the Government of the Recipient to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Recipient to agree the further details of the grant, in accordance with the E/N, to order to implement the Project, such as conditions of disbursement, responsibilities of the Recipient, and procurement conditions. The terms and conditions generally applicable to the Japanese Grant are stipulated in the "General Terms and Conditions for Japanese Grant (January 2016)."

2) Banking Arrangements (B/A) (See "Financial Flow of Japanese Grant (A/P Type)" for details)

a) The Recipient shall open an account or shall cause its designated authority to open an account under the name of the Recipient in the Bank, in principle. JICA will disburse the Japanese Grant in Japanese yen for the Recipient to cover the obligations incurred by the Recipient under the verified contracts.

b) The Japanese Grant will be disbursed when payment requests are submitted by the Bank to JICA under an Authorization to Pay (A/P) issued by the Recipient.

3) Procurement Procedure

The products and/or services necessary for the implementation of the Project shall be procured in accordance with JICA's procurement guidelines as stipulated in the G/A.

4) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the Recipient to continue to work on the Project's implementation after the E/N and G/A.

5) Eligible source country

In using the Japanese Grant disbursed by JICA for the purchase of products and/or services, the eligible source countries of such products and/or services shall be Japan and/or the Recipient. The Japanese Grant may be used for the purchase of the products and/or services of a third country as eligible, if necessary, taking into account the quality, competitiveness and economic rationality of products and/or services necessary for achieving the objective of the Project. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm, which enter into contracts with the Recipient, are limited to "Japanese nationals", in principle.

6) Contracts and Concurrence by JICA

The Recipient will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be concurred by JICA in order to be verified as eligible for using the Japanese Grant.

7) Monitoring

The Recipient is required to take their initiative to carefully monitor the progress of the Project in order to ensure its smooth implementation as part of their responsibility in the G/A, and to regularly report to JICA about its status by using the Project Monitoring Report (PMR).

8) Safety Measures

The Recipient must ensure that the safety is highly observed during the implementation of the Project.

9) Construction Quality Control Meeting

Construction Quality Control Meeting (hereinafter referred to as the "Meeting") will be held for quality assurance and smooth implementation of the Works at each stage of the Works. The member of the Meeting will be composed by the Recipient (or executing agency), the Consultant, the Contractor and JICA. The functions of the Meeting are as

followings:

- a) Sharing information on the objective, concept and conditions of design from the Contractor, before start of construction.
- b) Discussing the issues affecting the Works such as modification of the design, test, inspection, safety control and the Client's obligation, during of construction.

(2) Ex-post Monitoring and Evaluation Stage

- 1) After the project completion, JICA will continue to keep in contact with the Recipient in order to monitor that the outputs and outcomes of the Project is used and maintained properly to attain its expected outcomes.
- 2) In principle, JICA will conduct ex-post evaluation of the Project after three years from the completion. It is required for the Recipient to furnish any necessary information as JICA may reasonably request.

(3) Others

1) Environmental and Social Considerations

The Recipient shall carefully consider environmental and social impacts by the Project and must comply with the environmental regulations of the Recipient and JICA Guidelines for Environmental and Social Considerations (January, 2022).

2) Major undertakings to be taken by the Recipient

For the smooth and proper implementation of the Project, the Recipient is required to undertake necessary measures including land acquisition, and bear an advising commission of the A/P and payment commissions paid to the Bank as agreed with the GOJ and/or JICA. The Recipient shall ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the Recipient country with respect to the purchase of the Products and/or the Services be exempted or be borne by its designated authority without using the Grant and its accrued interest, since the grant fund comes from the Japanese taxpayers.

3) Measures to ensure more efficient implementation of the Grant

- i) In the event that the E/N and the G/A concerning a project cannot be signed by the end of the following Japanese fiscal year of the cabinet decision concerned by the GOJ, the authorities concerned of the two Governments will discuss the cancellation of the project.
- ii) In the event that the period, specified in the G/A, during which the grant is available expires before the

completion of the disbursement, the authorities concerned of the GO J will thoroughly review the status, situation and perspective of the implementation of the project concerned before extending the said period. The authorities concerned of the two Governments will discuss the termination of the project including a refund, unless there are concrete prospects for its completion.

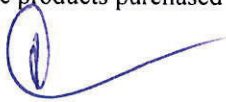
iii) Regardless of the period mentioned in ii) above, the authorities concerned of the two Governments will, in the event that five years have passed since the cabinet decision concerned by the GOJ before the completion of the disbursement, except as otherwise confirmed between them, discuss the termination of a project including a refund, unless there are concrete prospects for its completion.

4) Proper Use

The Recipient is required to maintain and use properly and effectively the products and/or services under the Project (including the facilities constructed and the equipment purchased), to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Japanese Grant.

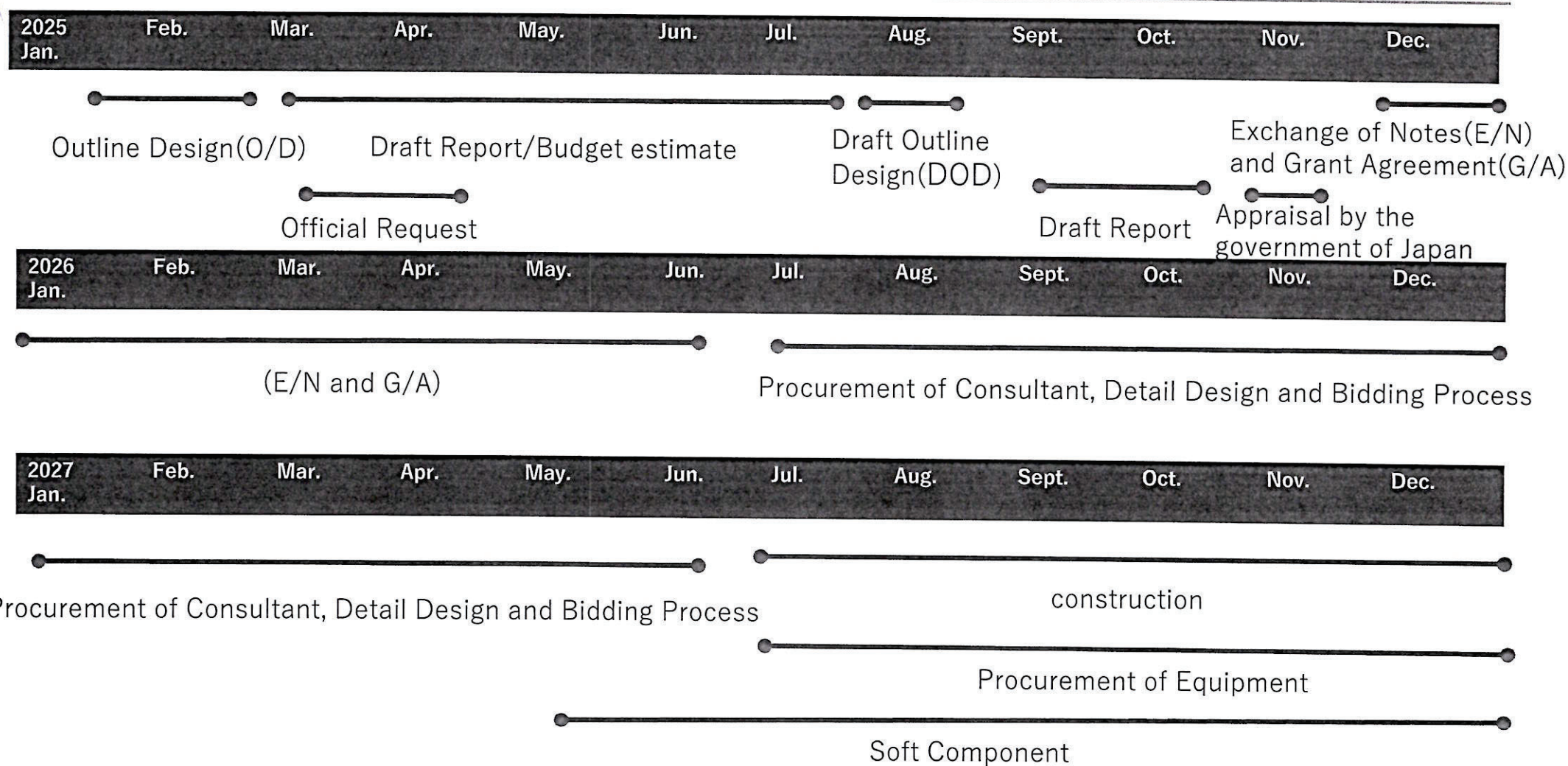
5) Export and Re-export

The products purchased under the Japanese Grant should not be exported or re-exported from the Recipient country.

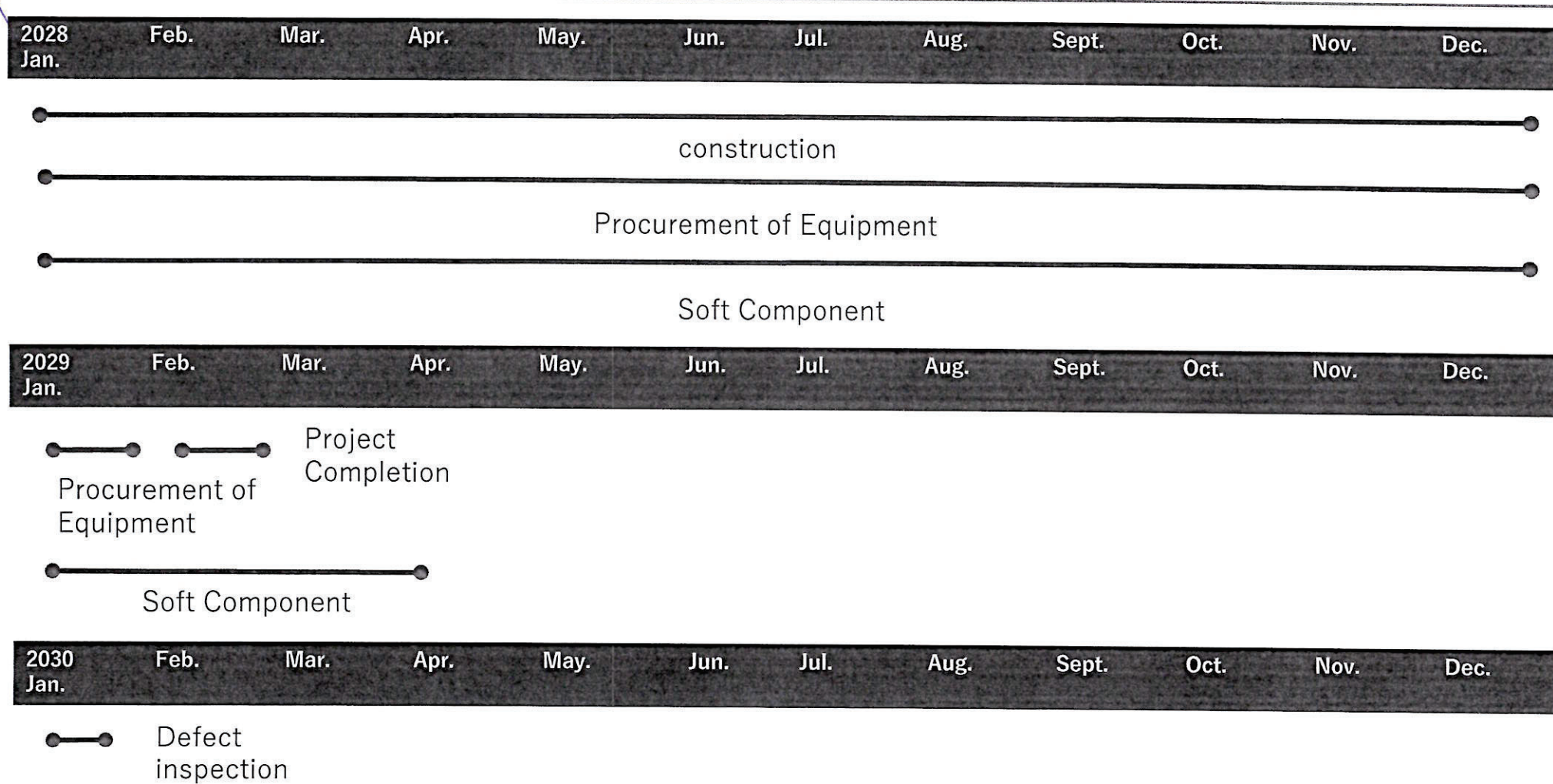


Annex 4 Project Implementation Schedule①

Annex4



Annex 4 Project Implementation Schedule②



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Major Undertakings to be taken by the Government of Paraguay

1. Specific obligations of the Government of Paraguay which will not be funded with the Grant

(1) Before the Tender

施工・調達業者契約認証まで非公表

施工・調達業者契約認証まで非公表

UK

(2) During the Project Implementation

施工・調達業者契約認証まで非公表

(3) After the Project

施工・調達業者契約認証まで非公表

①

OK

2. Other obligations of the Government of Paraguay funded with the Grant

)*

施工・調達業者契約認証まで非公表

(1)

4

Project Monitoring Report (PMR)
on
[Project Name]
~ [Month], 202# ~

1. General Information

(a) Exchange of Notes (E/N):

- (i) signed on _____
- (ii) grant amount up to _____ yen
- (ii) grant available until _____

(b) Grant Agreement (G/A):

- (i) signed on _____,
- (ii) grant amount up to _____ yen
- (iii) including contingency up to _____ yen
- (iv) grant available until _____
- (v) grant availability by Terms:
 - Term 1: Amount: _____ yen, available from the signing date
 - Term 2: Amount: _____ yen, available from _____
 - Term 3: Amount: _____ yen, available from _____
 - Term 4: Amount: _____ yen, available from _____
 - Term 5: Amount: _____ yen, available from _____

(c) Banking Arrangement (B/A):

- (i) signed on _____
- (ii) with _____

2. Contract/Agreement verified

(a) Consultant Agreement

- (i) the Consultant: _____
- (ii) signed on _____, and verified on _____
- (iii) Authorization to Pay (A/P) is issued on _____
- (iv) 1st amended on _____, and verified on _____
- (v) amended A/P issued on _____
- (vi) 2nd amended on _____, and verified on _____
- (vii) amended A/P issued on _____

(b) Procurement Contract (works)

- (i) the Contractor: _____
- (ii) signed on _____, and verified on _____
- (iii) Authorization to Pay (A/P) issued on _____
- (iv) 1st amended on _____, and verified on _____
- (vi) amended A/P issued on _____
- (vi) 2nd amended on _____, and verified on _____
- (vii) amended A/P issued on _____
- (viii) 3rd amended on _____, and verified on _____
- (ix) amended A/P issued on _____

(c) Procurement Contract (goods I)

- (i) the Supplier: _____
 (ii) signed on _____, and verified on _____
 (iii) Authorization to Pay (A/P) issued on _____
 (iv) 1st amended on _____, and verified on _____
 (v) amended A/P issued on _____
 (vi) 2nd amended on _____, and verified on _____
 (vii) amended A/P issued on _____

(d) Procurement Contract (goods II)

- (i) the Supplier: _____
 (ii) signed on _____, and verified on _____
 (iii) Authorization to Pay (A/P) issued on _____
 (iv) 1st amended on _____, and verified on _____
 (v) amended A/P issued on _____

(e) Remaining Balance

JPY ##,###,000- including contingency amount of JPY ##,000/

3. Payment Schedule and Status**(a) Consultant Agreement:**

revised or confirmed 202X/XX/XX

Stage	Amount	Terms of Payment	Date of Payment
Advance Payment	JY ##,###,000	Verification of the Agreement by JICA	_____
1 st Interim Payment		Verification of (all) the Contract(s) by JICA	
2 nd Interim Payment			
Final Payment		Completion of the Service for design and supervision	
Payment for Start-up Operation		Completion of Start-up Operation	
Payment for Defect Inspection		Completion of Defect Inspection	
		Expiry date of A/P	

(b) Procurement Contract (works):

revised or confirmed 202X/XX/XX

Stage	Amount	Terms of Payment	Date of Payment
Advance Payment	JPY ##,###,000	Verification of the Agreement by JICA	_____ _____ _____
1 st Interim Payment		Completion of 50% of the Construction Works	
2 nd Interim Payment		Completion of 85% of the Construction Works	

Final Payment		Completion of the Construction Works	
Payment for Operation Training		Completion of Operation Training	
		Expiry date of A/P	

(c) Procurement Contract (goods):

revised or confirmed 202X/XX/XX

Stage	Amount	Terms of Payment	Date of Payment
Payment on 1 st Shipment		Shipment of the said equipment	
Payment on 2 nd Shipment		Shipment of the said equipment	
Payment on 3 rd Shipment		Shipment of the said equipment	
Payment on 1 st Delivery		Delivery of the said equipment	
Payment on 2 nd Delivery		Delivery of the said equipment	
Payment for Installation Works		Completion of the Installation Works	
Payment for Operation Training		Completion of Operation Training	
Payment for Maintenance Services (2nd year)			
Payment for Maintenance Services (3rd year)			
		Expiry date of A/P	

4. Summary of the Progress**(a) Works****(b) Goods****5. Variation or Modification****(a) Variation or modification of this month****(b) Variation or modification to be expected****(c) Variation or modification caused amendment of the Contract****i) 1st Amendment dated 202X/XX/XX**

- Contract Price amended:

①

UF

- Contents of amendment:
- ii) 2nd Amendment dated
 - Contract Price amended:
 - Contents of amendment:
- iii) 3rd Amendment dated
 - Contract Price amended:
 - Contents of amendment:

6. Potential Risk and Mitigation Measures

Attachments :

- Construction Schedule with bar chart and cumulative curve
- Monthly Progress Report submitted by the Contractor(s)/Supplier(s)
- Environmental (Social) Monitoring Sheet (*if indicated in G/A*)



Annex 7

JICA Environmental Checklist 20: Other Infrastructure Projects

Using the JICA Environment I Checklist No. 20 (Other Infrastructure Projects), an annex to the JICA Guidelines for Environmental and Social Considerations, the survey team summarizes the results of the environmental and social considerations.

Category	Article	Main elements to verify	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
1. Permissions and Queries	(1) Environmental assessment and environmental permits	(a) Have EIA reports already been prepared in the official process? (b) Are EIA reports written in the official or widely used language of the host country? (c) Have the EIA reports been approved by the host country government authorities? (If not yet approved, indicate the expected approval date in the "Confirmation of Environmental Considerations" column.) (d) Have the environmental impact assessment reports been approved subject to any conditions? If conditions are imposed on the approval of environmental impact assessment reports, are they met? (e) In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country government? (f) Do the environmental impact assessment reports cover the aspects described in Appendix 2 of the JICA Guidelines? (The scope and detail of the impact assessment may be adjusted according to the project impact.) (g) Does the confirmation of environmental and social considerations cover the entire scope of the project, cumulative impacts, derivative and secondary impacts, as well as impacts of indivisible projects?	(a)Y (b)Y (c)N (d)N (e)N (f)Y (g)Y	(a) On 30 Jul., 2025, the EIAP report was prepared by the proponent (AEP). (b) The reports are written in Spanish, the official language of Paraguay. (c) The EIAP has not yet been submitted to MADES. Upon acquisition of the MOA between AEP and UNA and its attachment to the EIAP report, the report shall be submitted. (d) Not yet approved, and no condition have been issued by MADES yet. Approval by MADES (DIA) is expected within three months of submission. (e) There is no record of previous approvals. (f) An EIAP has been carried out in accordance with Appendix 2 covering the entire scope of the project. Since a SEIA was not applied, cumulative impacts, derivative as well as secondary impacts were not scoped in its way.
	(2) Explanation and consultation with local stakeholders	(a) Are local actors adequately analyzed and identified? (b) Does the project provide appropriate explanations to local stakeholders about the content and impact of the project and obtain their understanding through the process of ensuring meaningful consultation, including information disclosure? (c) For consultations with local stakeholders, are records of the consultations prepared, including the gender and other attributes of participants? (d) Have comments from local stakeholders (such as local residents) been reflected in the project design, etc.?	(a)Y (b)Y (c)Y (d)Y	(a) All relevant social actors, which are state institutions, such as INFONA, SENAIVE, MAG and UNA, have been identified. (b) It is proposed to hold a meeting with stakeholders including interested parties. Information on the project will be disseminated through notes from the AEP to the stakeholders, also through publication in the media, as required by Law 294/93 (c) The consultation will be conducted in this manner. (d) Consultations have been conducted; any comments from local stakeholders were reflected in the project design.

Category	Article	Main elements to verify	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(3) Examination of alternatives	(a) Is the scope of the multiple alternatives of the project/plan adequately considered? (b) Are viable alternatives considered from a technical, financial, environmental and social point of view, and, if necessary, reducing total greenhouse gas emissions? (c) Are comparisons made with the "no project" scenario?	(a)Y (b)Y (c)Y	(a) In the EIAP, several alternatives—including the "no project" scenario, two alternative locations, and different designs for the building and facilities—have been proposed and compared. (b) The alternatives were compared using multiple criteria, including their impacts on forests, such as damages on native tree species. (c) A comparison with the "no project" scenario has been verified.
2. Pollution control	(1) Air quality	(a) Do air pollutants, such as sulfur oxides (SO₂), nitrogen oxides (NO_x), and soot and dust, emitted by the proposed infrastructure facilities and auxiliary facilities comply with the emission standards of the host country, etc.? (b) Do air pollutants emitted by the project cause areas to fail to meet host country ambient air quality standards, etc.? (c) Does the construction have any negative impacts? Are there mitigation measures for these impacts?	(a)Y (b)N (c)Y	(a) As of July, and August 2025, both construction and operational activities of the project have not yet commenced; therefore, air quality data are not available at this stage. It is expected that the construction and operation of the infrastructure will comply with the applicable emission standards. (b) AEP is not expected to fail to meet the air pollution standards stipulated under Law 259/15. Air quality parameter has been measured under the current scenario (without the project), for the parameters of CO, CO₂, NH₄, Sox, particulate matter PM_{2.5} and PM₁₀, in accordance with the TDR, which has yielded values within the range of Law 259/15 on air quality. (c) During the construction phase, potential negative impacts are evident, and mitigation measures are proposed in the environmental management plan.
	(2) Water quality	(a) Do effluents or leachates from various facilities, such as infrastructure facilities and auxiliary facilities, comply with host country effluents, etc.? (b) Does the quality of sanitary and stormwater wastewater meet host country effluent standards, etc.? (c) Do project effluents generate areas that do not meet the host country's ambient water quality standards, etc.? (d) Does the construction have negative impacts? Are there mitigation measures for these impacts?	(a)Y (b)Y (c)N (d)Y	(a) Wastewater from the building will be treated through septic tanks and subsequently discharged into absorption wells, in compliance with applicable Paraguayan environmental regulations. It is therefore expected that effluents will meet national discharge standards. (b) The quality of sanitary and stormwater wastewater is expected to comply with national effluent standards. The wastewater treatment system is designed to prevent contamination of groundwater and surface water. (c) Project effluents are not expected to generate any areas that fail to meet the host country's ambient water quality standards. (d) During the construction phase, potential negative impacts on water quality—such as sediment runoff and accidental spills—are anticipated. Mitigation measures, including proper site drainage, sediment control structures, and spill prevention protocols, are proposed in the Environmental Management Plan.

Category	Article	Main elements to verify	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(3) Waste	a) Are wastes generated by infrastructure facilities and auxiliary facilities properly treated and disposed of in accordance with host country regulations? (b) Does the construction have negative impacts? Are there mitigation measures for these impacts?	(a)Y (b)Y	(a) Waste will be managed in compliance with Paraguayan regulations, as outlined in the Environmental Management Plan (segregation, storage, disposal by authorized providers). (b) Potential negative impacts from waste generation during construction are addressed through measures in the Environmental Management Plan.
	(4) Soil Pollution	(a) Has the soil at the project site been contaminated in the past? b) Are adequate measures taken to prevent contamination of soil and groundwater by effluents or leachates from infrastructure facilities and auxiliary installations? c) Does the construction have any negative impacts? Are there mitigation measures for these impacts?	(a)N (b)Y (c)N	(a) Soil sampling detected no pesticide residues (e.g., glyphosate) despite proximity to a former pesticide warehouse. However, there is a potential risk of soil contamination along the access road and the adjacent property, which was used for pesticide application/treatment for a long time. (b) Measures to prevent soil and groundwater contamination, including control of runoff from adjacent areas, are included in the Environmental Management Plan. (c) No significant soil contamination impacts are anticipated during construction.
	(5) Noise and vibration	(a) Does the noise and vibration of passing vehicles comply with the standards of the host country, etc.? (b) Does the construction have negative impacts? Are there mitigation measures for these impacts?	(a)Y (b)Y	(a) Baseline noise measurements were conducted at the project site, and results were within national standards. (b) Potential construction noise and vibration impacts are identified in the EIAP; mitigation measures, such as restricting work to daytime hours and maintaining equipment, are included in the Environmental Management Plan.
	(6) Sinking	(a) Is there a possibility that the extraction of a large volume of groundwater will cause subsidence? (b) Does the construction have negative impacts? Are there mitigation measures for these impacts?	(a)N (b)N	(a)No groundwater extraction is anticipated in the project. (b) No negative impacts on groundwater are expected, in relation to the use
	(7) Smell	a) Are there any sources of odor? Are mitigation measures being taken? (b) Does the construction have negative impacts? Are there mitigation measures for these impacts?	(a)N (b)N	(a) No odor sources are associated with the project. (b) No odor-related impacts are expected during construction or operation.
3. Natural environment	(1) Protected areas	(a) Is the project site located in protected areas designated by the laws of the country or international treaties/conventions? (b) Does the project affect protected areas? c) Does the construction have any negative impacts? Are there mitigation measures for these impacts?	(a)N (b)N (c)N	(a) The project is not within any legally designated or internationally recognized protected areas. (b) No protected areas will be affected by the project. (c) No related impacts are anticipated.

Category	Article	Main elements to verify	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(2) Biodiversity	(a) Does the project site encompass primary forests, natural forests in tropical areas, Habitats with important ecological value (coral reefs, mangroves, marshes, etc.)? (b) Does the project site encompass habitats of rare species that require protection under national legislation, international treaties, etc.? (c) Are there any concerns about the project's significant impact on biodiversity, with significant conversion or degradation of critical habitats or forests? If so, are appropriate measures being taken to address this impact? (d) Does the amount of water (e.g., surface or groundwater) used by the project have a negative impact on surrounding water bodies, such as rivers? (Mitigation measures to reduce impacts on aquatic organisms should also be described in the "Confirmation of Environmental Considerations" column.) (e) If there are other concerns about significant impacts on biodiversity, are measures taken to reduce such impacts? (f) Does the construction have negative impacts? Are there mitigation measures for these impacts?	(a)N (b)N (c)N (d)N (e)N (f)N	(a) Satellite pictures of the site over the 20 years indicate that there would be no forest older than 20 years existing within the project site. The project site contains individuals of the tree species, <i>Handroanthus heptaphyllus</i> (EN, IUCN Red List), which will be affected by construction. (b) Potential habitats for IUCN-listed bird species such as <i>Amazona aestiva</i> (NT) and <i>Amazona pretrei</i> (VU) may exist in surrounding urban green areas and forest patches; however, no direct observations were made during field surveys, and it could not be confirmed that the project site constitutes an important habitat for these threatened species. Significant impacts are not expected. The EMP includes transplantation of EN-listed trees and avoidance of sensitive habitats. (c) No other significant forest or biodiversity impacts are anticipated. (d) No impact on surrounding water bodies or aquatic organisms is expected from project water use. (e) No other significant biodiversity impacts requiring mitigation. (f) Construction will not cause significant biodiversity impacts beyond those addressed above.
	(3) Hydrology	(a) Do hydrological changes due to the project adversely affect surface and groundwater flows? (b) Does the construction have negative impacts? Are there mitigation measures for these impacts?	(a)Y (b)Y	(a) Wastewater from the facility will be treated through septic tanks and subsequently discharged into absorption wells. Potential risk to groundwater quality has been identified and assessed; the design ensures compliance with national standards, and no significant adverse impact is expected. (b) During the construction stage, particles may be carried over and clog the stream near the AEP property, 100m away, which is why impact mitigation measures are included in the environmental management plan.
	(4) Topography and geology	(a) Does the project cause a large-scale alteration of the topographic features and geological structures of the surrounding areas? (b) Does the construction have negative impacts? Are there mitigation measures for these impacts?	(a)N (b)Y	(a) The planned land grading and earthworks will be limited to the project site and will not cause large-scale alterations to the surrounding topography or geological structures. (b) During the construction stage, land leveling and earthworks will alter the micro-topography within the site and may cause localized erosion or sediment displacement. The Environmental Management Plan includes measures such as slope stabilization, surface turfing, and site drainage control to minimize these impacts.

Category	Article	Main elements to verify	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
4. Social environment	(1) Resettlement and land acquisition	a) Is land acquisition with involuntary resettlement due to project implementation? If so, please describe the extent of land acquisition and resettlement. b) Are efforts being made to minimize the impacts of resettlement? Are there any other land acquisitions or loss of livelihoods? (c) Is an adequate explanation of the compensation and livelihood restoration programme given to affected persons prior to resettlement? (d) Is the resettlement plan, including compensation with full replacement costs and restoration of livelihoods and standard of living, developed on the basis of socio-economic studies on resettlement? (e) Are compensations paid before resettlement? (f) Are compensation policies prepared in a document? g) Does the resettlement plan pay special attention to vulnerable social groups, such as women, children, the elderly, people living in poverty, people with disabilities, refugees, internally displaced persons and minorities? (h) Is the compensation to be agreed upon explained in writing to the people affected by the project and are agreements obtained with them prior to resettlement? i) Has the organizational framework been established to adequately implement resettlement? Is there the necessary capacity and budget to implement the plan? (j) Have plans been developed to monitor the impacts of resettlement? (k) Is the grievance redressal mechanism established?	(a) N (b) N/A (c) N/A (d) N/A (e) N/A (f) N/A (g) N/A (h) N/A (i) N/A (j) N/A (k) N/A	(a) There is no private land acquisition or resettlement required for the project. (b) The project does not involve resettlement; therefore, no mitigation efforts are required. (c) ditto (d) ditto (e) ditto (f) ditto (g) ditto (h) ditto (i) ditto (j) ditto (k) ditto
	(2) Life and livelihood	a) Does the project negatively affect the living conditions of residents? Are appropriate measures being considered to reduce the impacts, if necessary? (b) Does the project have a negative impact on ecosystem services (provisioning services and regulating services) and affect the health and safety of the community (especially indigenous peoples who depend on the services)? c) Does the construction have any negative impacts? Are there mitigation measures for these impacts?	(a) N/A (b) N (c) N	(a) The project does not involve resettlement; therefore, no mitigation efforts are required. (b) The EIAp did not identify any direct adverse impacts on ecosystem services relied upon by nearby residents. (c) No additional negative impacts on life and livelihood were identified beyond those addressed under pollution control measures.
	(3) Vulnerable social groups	a) Is due consideration given to vulnerable social groups, such as women, children, the elderly, people living in poverty, people with disabilities, refugees, internally displaced persons and minorities? (b) Does the construction have negative impacts? Are there mitigation measures for these impacts?	(a) N/A (b) N/A	(a) The EIAp did not identify any specific impacts on vulnerable social groups in the project area. (b) No negative impacts on vulnerable social groups during construction were identified.

Category	Article	Main elements to verify	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(4) Heritage	a) Does the project damage archaeological, historical, cultural, and religious heritage? Are appropriate measures being considered to protect these sites in accordance with the host country's legislation? (b) Does the construction have negative impacts? Are there mitigation measures for these impacts?	(a)N (b)N	(a) There are no archaeological, historical, cultural, or religious heritage sites within or near the project area. (b) No negative impacts on heritage are expected during construction.
	(5) Landscape	(a) Does the project adversely affect landscapes that require special considerations? (b) Does the construction have negative impacts? Are there mitigation measures for these impacts?	(a)N (b)N	(a) No landscapes requiring special consideration are present in the project area. (b) Only visual modifications to the landscape.
	(6) Ethnic minorities and indigenous peoples	a) Are considerations taken into account to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples? b) Should all rights of ethnic minorities and indigenous peoples in relation to land and resources be respected? c) Is a plan for indigenous peoples developed and published, if necessary? (d) Does the project make efforts to obtain free, prior and informed consent (FPIC) of the affected indigenous peoples? e) Does the construction have any negative impacts? Are there mitigation measures for these impacts?	(a)N/A (b)N/A (c)N/A (d)N/A (e)N/A	(a) No ethnic minorities or indigenous peoples are present in or near the project area. (b) ditto (c) ditto (d) ditto (e) ditto
	(7) Working conditions	(a) Does the project comply with the host country's laws relating to occupational health and safety? (b) Are there tangible safety considerations for people involved in the project, such as the installation of safety equipment that prevents industrial accidents and the management of hazardous materials, etc.? (c) Are intangible measures being planned and implemented for people involved in the project, such as the development of health and safety plans and the conduct of safety training (including road safety and public health) for workers, etc.?	(a)Y (b)Y (c)Y	(a) In the Environmental Impact Study, compliance with Law 5804/17 and Decree 14390/92 is foreseen. (b) Safety facilities are included in the environmental management plan. (c) They are included in the EIAP PGA.

Category	Article	Main elements to verify	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(8) Health, safety and protection of local communities	(a) Are there negative impacts on the health/hygiene of the local community, such as disease outbreaks (including HIV and other infectious diseases) due to the influx of workers, etc., associated with the project? Are there mitigation measures for these impacts? (b) Are there any negative impacts on local community safety, such as a deterioration in public safety due to the influx of workers, etc., associated with the project? Are there mitigation measures for these impacts? (c) When security guards are hired for the project or other personnel are deployed to ensure and maintain the security of the project area as well as of persons related to the implementation of the project during the preparation and execution of the project, are appropriate measures taken to ensure that such personnel do not use force to provide security, except for preventive and defensive purposes? (d) Does the construction have negative impacts? Are there mitigation measures for these impacts?	(a)N (b)N (c)Y (d)N	(a) Influx of external population/labour force is not expected. (b) No impact is expected. (c) Induction of personnel is planned, in accordance with decree 14390/92 (d) No impact is expected.
5. Others	(1) Monitoring	(a) Does the project proponent develop and implement a monitoring program for environmental and social elements that are considered to have potential impacts? (b) What are the elements, methods and frequencies of the monitoring program? (c) Does the project proponent establish an adequate monitoring framework (organization, personnel, equipment and budget to sustain such framework)? (d) Have regulatory requirements relating to the monitoring reporting system, such as the format and frequency with which the project proponent reports monitoring results to regulatory authorities, been identified? (e) Is the mechanism for redressing grievances relating to environmental and social considerations established?	(a)Y (b)Y (c)Y (d)Y (e)Y	(a) EMP and EMoP will be planned and implemented by AEP. (b) The mitigation measures are planned in the assessed impacts and included in the Environmental Management Plan. (c) They are planned in EMoP and implemented by AEP. (d) ditto (e) AEP will establish a clear grievance redress mechanism at the stakeholder consultation stage for this project.
6. Note	(1) Reference to the checklist of other sectors	(a) Where necessary, relevant items described in the road, railway and bridge checklists (e.g., projects including access roads to infrastructure facilities) shall also be verified. (b) For projects such as installation of telecommunications cables, power line towers and submarine cables, where necessary, the relevant items described in the power transmission and distribution line checklists shall also be verified.	(a)N/A (b)N/A	(a) No road, railway, or bridge components are included in the project. (b) No telecommunications or power transmission facilities are included in the project.

Category	Article	Main elements to verify	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(2) Note on the use of the environmental checklist	(a) Where necessary, impacts on transboundary or global issues should be confirmed (for example, the project includes factors that may cause problems, such as transboundary waste treatment or global warming). (b) For projects that are expected to generate more than a certain amount of greenhouse gas emissions, is the total amount of greenhouse gas emissions estimated prior to project implementation?	(a)N/A (b)N/A	(a) The project does not involve transboundary waste treatment or other activities with potential transboundary or global impacts. (b) JICA has confirmed that estimation of GHG emission is not required for this preparatory survey for the project. This may be considered at the project implementation stage.

N/A: not applicable

ENVIRONMENTAL MONITORING PLAN								
Before and during construction								
No.	Item	Mitigation measures	Monitoring element	Monitoring standard	Monitoring site	Implementing agency	Period and frequency	costs in USD
1	Air pollution, noise and vibrations	Construction of perimeter fence in construction area.	Installation of the fence	N/A	Project area boundary	Construction company	Permanent	5000 USD
		Periodic irrigation of the removed soil storage area	Daily irrigation control	N/A	Project area	Construction company	Diary	\$800 USD/month
		Reduction of working hours during dry seasons	PM 10 control and measurement	Law 259/15	Project area	Construction company	biannual	1000 USD/semester
		Use of personal protective equipment (PPE) for noise control	PPE control, ambient noise measurement	Law 6390/2020	Project area	Construction company, Occupational Safety Manager	quarterly	1000/month
2	Surface water quality	Modification of the topography due to excavations and soil movement can alter the drainage capacity of the soil, so soil movements should be carefully accommodated and located in an area far from the watercourse.	Inspections	N/A	Project area	Responsible construction company	Daily	100 usd/month
		All vegetation and soil removal materials must be sent to a sanitary landfill and properly protected to prevent runoff on rainy days.	Inspections	N/A	Project area	Responsible Construction Com	AEP	\$10,000 USD/month
		Carry out periodic maintenance on machinery and perform it in workshops authorized by MADES	Inspections	N/A	Project area	Responsible Construction Company	AEP	5000USD/month
		Conduct sampling of stream water to determine water quality parameters	Water quality analysis	Resolution 222/02	100 m, upstream of the project and 100 m downstream of the project	Responsible Construction Company	AEP	\$300 USD/month
3	Impact on soil	The impact is irreversible; vegetation must be maintained in the designated area to prevent soil compaction and erosion.	Inspections	N/A	Project area	Responsible Construction Company	AEP	5000 USD/month
4	Impact on vegetation	A forest inventory should be conducted and endangered forest species should be identified and, if possible, relocated to forest reserve areas within the property.	Forest inventory	Forestry Law 422/73	Project area	Responsible Construction Company	AEP	8000 USD/Month
5	Impact on wildlife	Fauna inventory on species affected by ground movement.	Fauna inventory	N/A	Project area	Responsible Construction Company	AEP	5000 USD/month
6	Landscape	Phased commencement of construction sections	Inspections	N/A	Project area	Responsible Construction Company	AEP	5000 USD/month
		Carry out a subsequent restoration of degraded areas, landscape restoration	Inspections and controls	N/A	Project area	Responsible Construction Company	AEP	5000 USD/month

Environmental Management Plan						
Before and during construction						
No.	Item	Expected effect	Mitigation measures	Implementing agency	Responsible agency	costs in USD
1	Air pollution	During the construction stage, it is expected that particulate matter will be generated due to soil movements and the generation of CO and CO2 gases by the machinery used.	Construction of perimeter fence in construction area.	Construction company	AEP	5000 USD
			Periodic irrigation of the removed soil storage area	Construction company	AEP	\$800 USD/month
			Reduction of working hours during dry seasons	Construction company	AEP	N/A
		Generation of environmental noise due to heavy machinery activities.	Use of personal protection, installation of a fence with insulating material.	Construction company, Occupational Safety Manager	AEP	1000/month
2	Surface water quality	Alteration of surface drainage and clogging of the nearby stream by fill material from soil movement.	Modification of the topography due to excavations and soil movements can alter the drainage capacity of the soil, so soil movements should be carefully accommodated and located in an area far from the watercourse.	Responsible Construction Company	AEP	10,000 USD/month
		The main physical contamination is due to suspended solids, caused by the lack of protection of materials due to the removal of vegetation and its degradation, leaving them at the mercy of the erosive force of surface runoff. This phenomenon is permanent if a restoration plan is not implemented.	All vegetation and soil removal materials must be sent to a sanitary landfill and properly protected to prevent runoff on rainy days.	Responsible Construction Company	AEP	\$10,000 USD/month
		Chemical contamination of surface water due to the carryover of oils from heavy machinery used in the excavation process.	Carry out periodic maintenance on machinery in workshops authorized by MADES.	Responsible Construction Company	AEP	5000USD/month
3	Impact on soil	Occupation and compaction of soil by heavy machinery	The impact is irreversible; vegetation must be maintained in the designated area to prevent soil compaction and erosion.	Responsible Construction Company	AEP	5000 USD/month

4	Impact on vegetation	Vegetation removal for excavation and foundation pouring.	A forest inventory should be conducted and endangered forest species should be identified and, if possible, relocated to forest reserve areas within the property.	Responsible Construction Company	AEP	8000 USD/Month
5	Impact on wildlife	Changes in the behavior patterns of insects and small mammals such as raccoons, mukure (white-eared opossum), and various bird species identified within the project's area of influence.	Fauna inventory on species affected by ground movement.	Responsible Construction Company	AEP	5000 USD/month
6	Landscape	Visual impact and landscape modifications due to the movement of vegetation cover and soil	Phased commencement of construction sections	Responsible Construction Company	AEP	5000 USD/month
		In order to reduce the visual impact of landscape modification	Carry out a subsequent restoration of degraded areas, landscape restoration	Responsible Construction Company	AEP	5000 USD/month

Environmental Monitoring Form

- Monitoring is conducted by AEP through the periodic submission of results for the monitoring items identified as necessary by JICA in the project's EIA. Refer to the monitoring form below as needed.
- When determining monitoring items, frequency, methods, etc., pay attention to the project phase or life cycle (construction phase and the operation phase, etc.).

1. Permits and Queries

Monitoring Items	Situation during the reporting period (in the case of consultations with residents, the presence of minutes, date, the number of participants, etc.)
Submission and approval of the Environmental Impact Study for the Project by the Municipality of San Lorenzo, referring to file No. 4013/2025 dated June 20, 2025, regarding the approval of plans and hydrogeological studies.	
Submission of EIAP and Environmental Impact Statement (if required) to MADES and issuance of Environmental Impact Declaration by MADES	
Status of consultation with stakeholders in compliance with the JICA Guidelines (a single stakeholder meeting will be held in the last week of August 2025.) and the requirements under the environmental clearance process by MADES	

2. Pollution control

Article ※	Tracking element (unit)	Measured value (mean)	Measured value (max.)	Country standards	International standards	Observations
Air pollution	CO (mg/m ³)	0.02	0.06	10 mg/m ³ for 8 hours		5 points, only once per 24 hours
	NO ₂ (µg/m ³)	15.52	18.2	300 (µg/m ³)		5 points, only once per 24 hours
	O ₃ (µg/m ³)	13	15	120 (µg/m ³)		5 points, only once per 24 hours
	SO ₂ (µg/m ³)	1.3	3.20	200 (µg/m ³)		5 points, only once per 24 hours
	PM2.5(µg/m ³)	13	16	30 (µg/m ³)		5 points, only once per 24 hours
	PM10 (µg/m ³)	22	32	150 (µg/m ³)		5 points, only once per 24 hours
	Noise	50	52	Up to 55 dB		Law 6390/2020 and Parameters 1100/97

Water quality, Surface water	Turbidity	0.01	X	MR		Resolution 222/02
	Dissolved oxygen (mg/l)	5.10	X	<5		Resolution 222/02
	BOD ₅ (mgO ₂ /l)	2.2	X	50		Resolution 222/02
	COD(mgO ₂ /l)	40.9	X	150		Resolution 222/02
	Total phosphorus (mg/l)	1	X	≤ 4		Resolution 222/02
	Total Fats and Oils (mg/l)	4	X	≤ 70		Resolution 222/02
	NTK (mg/l)	5	X	≤ 40		Resolution 222/02
	pH	5	X	5 to 9		Resolution 222/02
	TSS (mg/l)	45	X	MR		Resolution 222/02
	Fecal coliforms	3600	X	MR		Resolution 222/02
Soil contamination	Cadmium	ND	X	MR		MR
	Lead	ND	X	MR		MR
	Arsenic	ND	X	MR		MR
	Chrome	ND	X	MR		MR
	Glyphosate	ND	X	MR		MR
	Multi-residue pesticides - organic solvent based, up to 3.PA (2,4D, imidacprolid, lamethoxan)	ND	X	MR		MR

3. Natural environment (biodiversity, ecosystem)

Monitoring element	Monitoring results during the reporting period
Protected areas: Impact of the Project on Arroyo Yukyry Protected Landscape	
Fauna study: Distribution of faunal species in the project site and impacts of the Project on them, including the endangered bird species listed in IUCN Red List and the other species identified in the EIA.	
Flora Study: Status of the trees identified in the EIA study, including those listed as endangered or protected under the IUCN Red List and Paraguayan laws; impacts on the individual trees; and the status of mitigation measures implemented.	

4. Complaints

Numbers and contents of complaints	Responsible agency	Situation

End.