INDO RAYA TENAGA

Jawa-9&10 Coal Fired Steam Power Plant

2x1000 MW Project

Environmental and Social Management System

Document Number: IRT-EHS-ESMS-0001

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14-Dec-20	II	Addressing LEC comment	SAD	TYE	SAD

Document Revision History

Date	Revision	Remarks
14-Dec-20	H	Addressing LEC comment
4-Nov-19	G	Addressing LEC comment
26-Sep-19	F	Addressing LEC comment
5-August-19	E	Addressing LEC comment
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03-Dec-18	A	Issued for Review

Date	Revision	Remarks
26-Sep-19	F	**Reissued for Use (updated to accommodate comments from LEC):** • Final ESMS, reviewed and agreed with Lenders as well as internal management, has incorporated ESMP and IRKL RPL recommendation. *Update is provided in: Appendix 1* • Final ESMS with detailed responsibilities for the key roles will be involved for the ESMS implementation, Inclusion of competency improvement/ training plan for key personnel, additional social training component in the training matrix plan *Update is provided in: Section 3 Role and Responsible* • Final ESMS, reviewed and agreed by Lenders as well as internal management, has incorporated roles for key personnel or department will be in charge in managing/ supervising grievance mechanism for workers *Update is provided in: Section 3 Role and Responsible*
4-Nov-19	G	**Reissued for Use (updated to accommodate comments from LEC):** In the ESMP/ESMS document, mentioned that: "The Project will identify the presence of all persons under the age of 18 and ensure they are not employed in hazardous work". - But there is also: "Workers under 18 is prohibited to be accepted as employee in project." This requires clarification. *Update is provided in: Section 10.1 Human Resources* Child labor is prohibited and illegal since it can interfere with the child's education, or to be harmful to the child's health or physical, mental spiritual, moral, or social development.

Date	Revision	Remarks
14-Dec-20	H	▪ The ESMS will need to be updated once the Supplementary ESIA is completed (to add e.g. ash disposal/handling plan, updates in resettlement plan/LRP, etc – as per Supplementary ESIA requirements). *Updated is provided in Section 1.* Specific comments on some components required for ESMS: ▪ On training, some of the skills need to be added to support the implementation of ESMS for related implementing departments (align with requirements in the individual sub plans under ESMP) i.e. stakeholder engagement, grievance mechanism, LRP, biodiversity (coral reef offset), etc. *Updated is provided in Table 9-1* ▪ To ensure contractors understanding on each responsibility, please add induction program for all contractors and employee will be involved in the ESMS implementation. *To ensure contractor understanding on each responsibility, socialization regarding ESMS will be conducted to related personnel in EPC Contractor. Construction subplans will be included in induction program for the Subcontractor which conducted by the EPC Contractor. This response is updated in Section 9.1.* ▪ Noted that all management and monitoring commitments under ESIA-ESMP and Regulatory EIA (RKL-RPL and UKL-UPL) are included, however missing responsibilities assignment in the EIA commitment table (between IRT and Contractor) – please add a column to define this, align with the Contractor's ESMP (J910-DD08-P0ZEN-070002 Construction Environment Social Management Plan Rev. C (30 Oct 19)) *Updated in ESMS Appendix*

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1. INTRODUCTION

An ESMS is designed to establish a methodological approach to managing environmental and social risks and impacts in a structured way, on a continuous basis. The goal of an ESMS is to make sure that there are appropriate environmental and social policies and procedures in place and that people consistently follow them. A key feature is the idea of continual improvement an ongoing process of reviewing, correcting and improving the system. The most common method is the Plan-Do-Check-Act cycle (PDCA), shown below in **Figure 1.1.**

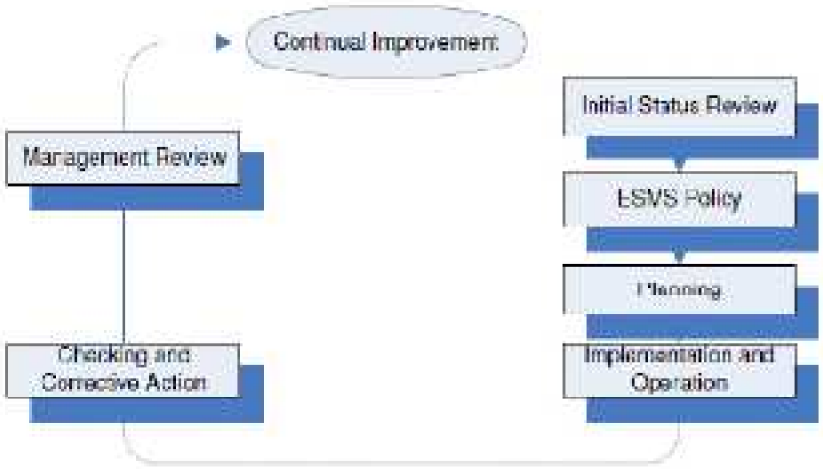

Figure 1-1 : Elements of an Environmental and Social Management System

The purpose of this document is to provide a framework for a systematic assessment, mitigation and management of Environmental and Social Risk in accordance with in-country requirements as well as international good practice. The system provides a mechanism for PT Indo Raya Tenaga (IRT) as Project Company to identify and to comply with any relevant legislation, permitting and authorization obligations, as well as enabling international good practice standards to be implemented within a consistent management approach.

The project is the Jawa 9 & 10 Coal Fired Steam Power Plant (CFSPP), 2x1000 MW, at Suralaya, Pulo Merak District, Cilegon City, Banten Province. It is developed and executed by IRT under the terms of the Power Purchase Agreement (PPA) which has been agreed with PT Perusahaan Listrik Negara (Persero) ("PLN"). The construction will be undertaken by Doosan-Hutama Karya Consortium as the EPC Contractor.

This Environmental and Social Management System (ESMS) is intended to be a live document, subject to review at planned intervals or in the event of significant project or contextual changes. The ESMS will be updated once the Supplementary ESIA for Ash Handling and Ash Disposal Facilities is completed. This will enable the continues improvement in environmental and social risk management to be effective and aligned to changing project plans,

personnel, environmental conditions, social circumstances, stakeholder considerations and legal requirements.

1.1. OBJECTIVE OF ESMS

The objectives of the ESMS are as follows:

- To set out and to detail the Environmental and Social Policy for the project;
- To identify and to address the risks and opportunities applicable to the project in order to control and, where possible, to enhance the project's environmental performance;
- To identify and to establish the resources required to implement, maintain and continually improve the ESMS;
- To identify and to establish the roles and responsibilities applicable to the ESMS;
- To establish a mechanism and process to provide awareness and communication to employees and to all stakeholders and interested parties;
- To provide a method and process for documentation and documenting information including for the provision of updates and control;
- To establish a process to meet operational planning and control throughout the life cycle of the project;
- To establish a process for emergency preparedness and response;
- To establish a process for any requirements for monitoring, measurement, analysis and evaluation throughout the life cycle of the project;
- To establish a process for internal audit and review;
- To establish a process for identifying relevant nonconformity and corrective actions.

1.2. SCOPE AND REFERENCES

The Environmental and Social Management System (ESMS) document is developed in compliance with national regulation, international regulation such as International Finance Corporation (IFC) Performance Standards.

This document contains nine (9) elements of ESMS, follows guideline from IFC about ESMS Implementation Handbook – Construction (2014), as can be seen in **Figure 1-2** below.

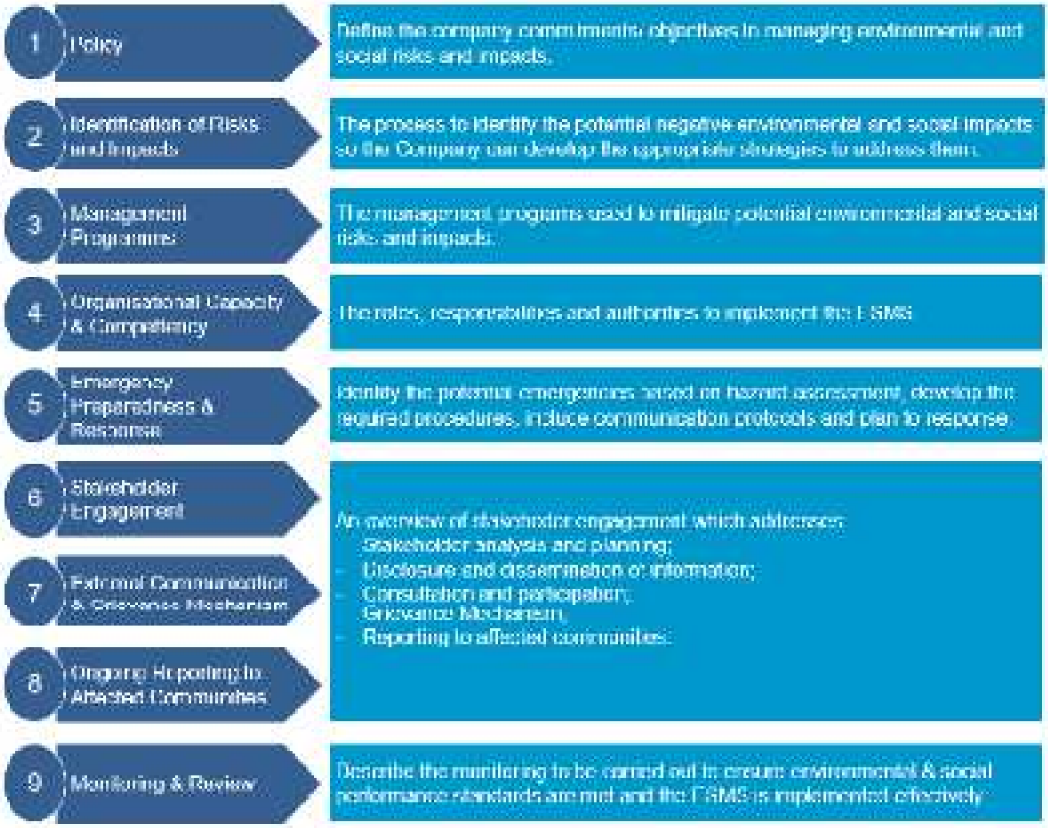

Figure 1-2: Nine (9) Elements of ESMS

This Environmental and Social Management System (ESMS) document is also developed from the associated documentation such as the ESMP (as part of ESIA) and EIA (AMDAL). The framework of the ESMS shown as below in **Figure 1-3**

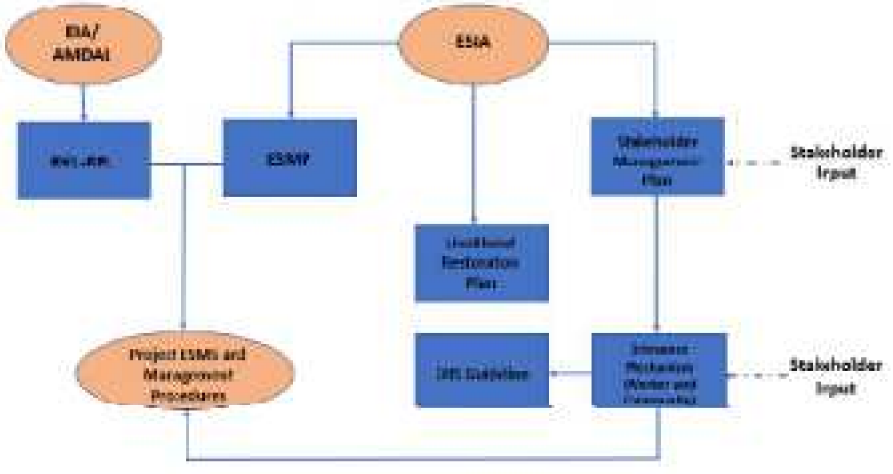

Figure 1-3. Flow diagram showing how ESMS is developed from the ESIA and EIA

2. POLICIES

2.1. IRT ENVIRONMENT AND SAFETY POLICY

Company EHS Policy is stated at Company EHS Guideline, Doc. IRT EHS GEN 0001. The policy related to the Environmental and Social is shown below.

IRT ENVIRONMENTAL AND SOCIAL POLICY

The Jawa-9&10 Coal Fired Steam Power Plant is committed to promoting responsible environmental stewardship and socially responsible development for the benefit of present and future generations and improving the quality of life for the community within the Surabaya area. For PT. Indo Raya Tenaga, Environmental and Community protection is a priority, and, to this end, we will strive to maximise positive opportunities associated with our work and minimize the risks and impacts.

Specifically, for the Jawa-9&10 Coal Fired Steam Power Plant Project, we will:

- Comply and, where possible, exceed all the environmental and social obligations to applicable local, national and international environmental and social legislation and standards including IFC Performance Standards of Environmental and Social Sustainability;
- Work with stakeholders to ensure due consideration of the environmental, sustainability and social issues associated with this project during design, construction, operation and decommissioning;
- Seek opportunities to support economic and social development in surrounding communities, thereby enhancing the social context of our project and promoting the health, safety and security of both our workers and the local community;
- Contribute positively with direct and indirect employment opportunities to the local workforce at each project stage;
- Respect human rights and implement appropriate labour rights, including providing a safe and healthy work environment. Take steps to ensure that operations do not have negative impacts on community members and workers, and attempt to mitigate and remediate any adverse impacts that may arise; Not discriminate in terms of recruitment, progression, terms and conditions of work and representation on the basis of personal characteristics unrelated to the inherent job requirements, including gender, race, colour, disability, age, religion, marital status etc;
- Provide fairness and transparency in land acquisition and resettlement;
- Operate in a manner compliant with national and international anti-bribery and corruption legislation and with appropriate consideration of audit, due diligence and potential conflicts of interest;
- Deliver safe, reliable and efficient operations in a manner which contributes to our goal of no damage to the environment;
- Strive to use proven, commercially feasible state-of-the-art technology. Target high energy efficiency, reduce water consumption, and maximise waste reuse and recycling, thereby reducing the quantities of waste going to landfill. Monitor, measure and improve our environmental performance through a risk-based approach to environmental protection;
- Accommodate and adopt a decommissioning and remediation strategy to consider site after care when plant operations have ended;
- Review the environmental and social policy and objectives annually in order to consider the need for any amendments in the light of changing circumstances.

Figure 2-1 Company Environmental and Social Policy

2.2. EPC CONTRACTOR EHS POLICY

During construction, separate policies, plans and procedures relating to assessment, monitoring and control of environmental and social aspects will be prepared and implemented by the EPC Contractors. This policy will align with IRT's ESMS, which will cover construction phases.

EPC Contractor's EHS POLICY

Contractor Consortium is fully committed to strongly implementing its EHS policies based on the people first business strategy and through the use of valuable technology conserving the Environment and improving Safety and Health.	Kontraktor Konsorsium berkomitmen penuh untuk menerapkan dengan kuat kebijakan EHS Proyek berdasarkan pada strategi bisnis pelanggan melalui penggunaan teknologi berharga yang berwawasan pelesarikan Lingkungan dan peningkatan aspek Keselamatan dan Kesehatan.
Fully comply with all relevant EHS Laws and continuously enhance the business environment based on the EHS management system.	Sepenuhnya mematuhi semua regulasi EHS yang relevan dan secara berkelanjutan bisnis berwawasan lingkungan berdasarkan sistem manajemen EHS.
To conserve the environment through reducing the pollutant and Greenhouse Gases emission and developing eco-friendly products by the Green Management Principle.	Untuk melestarikan lingkungan melalui pengurangan polus dan emisi Gas Rumah Kaca serta mengembangkan produk ramah lingkungan dengan menerapkan Prinsip Manajemen Hijau.
Maintain a clear workplace and promote healthy lifestyle participaton and maintain our facilities and working environment in the best conditions and practices.	Menjaga aspek kebersihan tempat kerja dan mempromosikan partisipasi gaya hidup sehat serta menjaga fasilitas dan lingkungan kerja dalam kondisi dan praktik terbaik.
To build an autonomous safety of continuous development, through training, to discover potential risks proactively, and to subsidize safety workshop to pre-emptive prevention activities before uninstalling.	Untuk membangun keselamatan otonom dari pengembangan berkelanjutan, melalui pelatihan, untuk menemukan risiko potensial secara pro-aktif, dan untuk mensubsidi lokakarya keselamatan untuk kegiatan pencegahan sebelum proses uninstall.
Implement the EHS policy giving the highest priority to the value of EHS in all business activities, and to publish transparently to stakeholders.	Mengimplementasikan kebijakan EHS dengan memberikan prioritas tertinggi terhadap nilai EHS dalam aktivitas bisnis, serta mensosialisasikannya secara transparan kepada pihak terkait.

Figure 4-2 EPC Contractor EHS Policy

3. ROLES AND RESPONSIBILITIES

During construction, IRT, in collaboration with EPC Contractor and Subcontractors, will establish, maintain, and strengthen as necessary an organisational structure that defines roles, responsibilities and authority to implement the ESMS and the mitigation and monitoring measures as set out in the ESMP. Key ESMS responsibilities are defined and will be communicated to the relevant personnel, as well as the EPC Contractors and any Subcontractors. Sufficient management sponsorship and human and financial resources will be provided on an ongoing

basis to achieve effective and continuous ESMS performance. Specific personnel with clear lines of responsibility and authority are designated in this section.

The IRT and EPC Contractor Project line management is responsible for ensuring ESMS/ EHS requirements, plans and systems are implemented, and that compliance is verified and documented. Line management is accountable to the IRT Board for overall Project ESMS performance, as with other business objectives for the project

Management of environmental and social risks and impacts during construction on a day to day basis will primarily be the responsibility of the EPC Contractors.

IRT ROLES AND RESPONSIBILITIES

During the construction phase, IRT will review and monitor EPC Contractors' performance in accordance with their Environment, Health and Safety (EHS) Plans and related management plans/procedures to ensure alignment with this overarching ESMS. IRT is responsible to report every six months to relevant authorities and the Lenders regarding the environmental and social performance being achieved by the Project.

IRT shall report to the relevant financial institutions and government authorities on the implementation of the AMDAL, ESMP and on the Projects environmental and social performance on a six-monthly basis. IRT will engage an external third party to monitor the environmental and social performance of the Project and report back to Lenders. This would be every six months during construction and annually during operation.

Functional responsibility for implementing ESMS is organized through the line management structure of IRT and EPC Contractor (Doosan-HK Consortium). The structure breaks into a number of level and areas. The organization of management functions, which includes safety and environment management, is arranged in a manner that is compatible with the nature of the work being conducted.

During the project stage, the General Manager of the project with full support from Management Team and Board of Directors (BOD) is accountable for ensuring this ESMS Guideline is implemented and maintained.

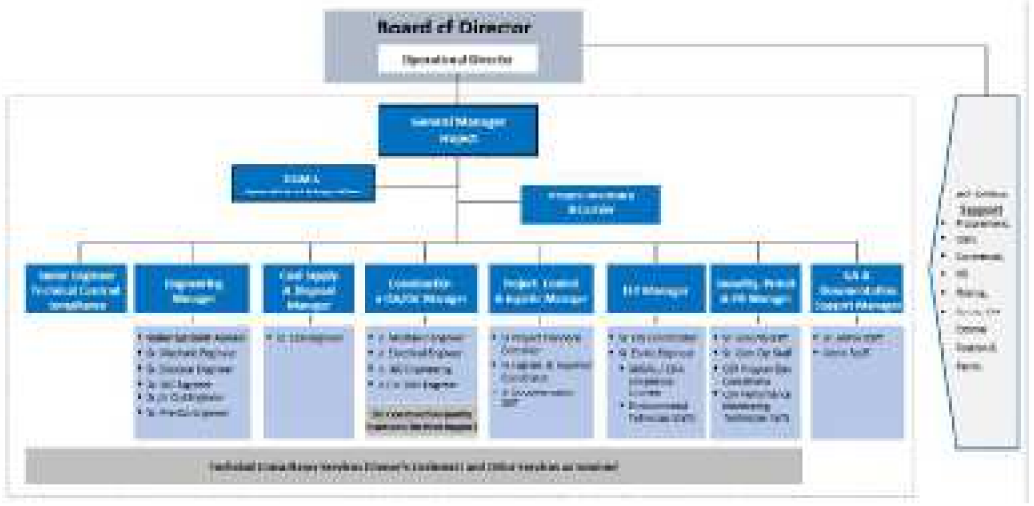

Figure 3-1. Company Project Organizational Structure (live Org chart)

The following role descriptions are provided for IRT roles for implementation of the ESMS. These roles will be confirmed prior to construction and operation of the Project.

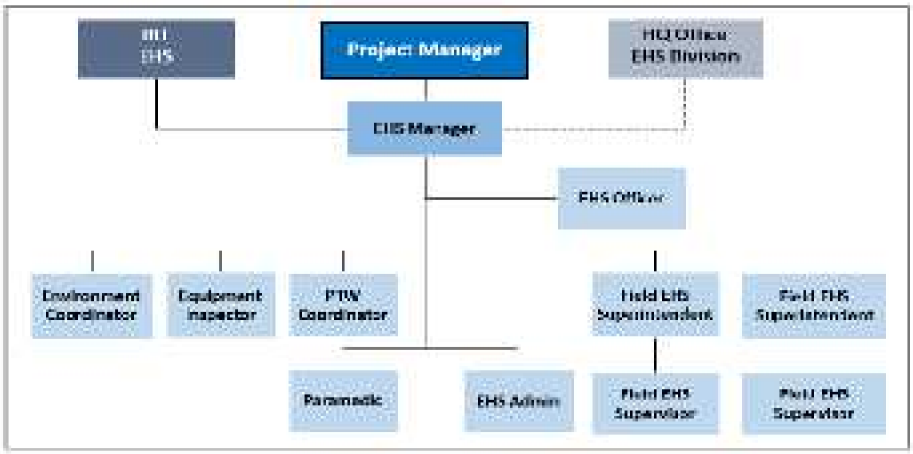

Figure 2-3: EPC Contractor Site HSE Organization Chart

IRT General Manager

- Review and approve strategic Project EHS Policy and Objectives.
- Approve the Project ESMS and procedures.
- Define roles, responsibilities and provide resources for ensuring that environmental requirements are implemented and maintained in all areas of Project activities.
- Ensure that Project Environmental and Social Management System is managed in a structured manner throughout the site organisation.
- Ensure sufficient resources are available to support the implementation of the Project ESMS.

- Review suitability and effectiveness of the Project ESMS.
- Monitor overall performance of the construction and commissioning works.
- Liaison with EPC Contractors; • Liaison with IRT staff; engineers, managers etc.; and
- Overall responsibility to ensure the following:
  - Compliance with Contract and IRT Standards
  - Compliance with IRT safety and environmental standards
  - Compliance with all relevant regulations

IRT HSE Manager

- Report periodically to the Project management on the performance of the Project environmental management system; Ensuring the development and implementation of the ESMS and implementation of the ESMS together with responsibility for developing and ensuring training schedules to be implemented throughout the Company, in accordance with a training matrix.
- Develop and maintain environmental documents (e.g. Project environmental procedures and control procedures) and records.
- Monitor adherence to the Project environmental policy & objectives, alerting management of noncompliance, and providing advice on remedial actions, through environmental audits, reviews, inspections etc.
- Developing and implementing organizational safety programs
- Review and update institutional EHS policies and conduct risk assessments to detect potential hazards and plan precautionary measures
- Supports the Top Management in the EHS Policy and Guidelines issue.
- Supports the Top Management in the Organization roles and responsibilities definition, for what concerns safety aspects.
- Supports the Top Management in the EHS Management System standard issue.

IRT HR Manager

- To comply Indonesian and international standards regulations related to the labor and working condition in relation to recruitment with attention given to appropriate contracting and the establishment of clear terms and conditions to address issues related to child and forced labor as well as human trafficking; and
- Publication and give information, and regularly report about available vacancies to the Department of Labor Cilegon in accordance with the Decree of The President of the Republic Indonesia No. 4 Year 1996
- To widely socialize the worker grievance mechanism and make investigation to close the case committed to undertake an immediate investigation should complaints be received to close the

matter out fairly.

- To ensure the EPC liaises closely with the local village leaders and local government authorities to agree on the appropriate procedures and set out a fair and transparent process for recruitment and hiring avoiding the use of agents.
- To monitor the number of local workers hired to support meeting local content targets.
- To make sure a clear agreement with the EPC (and its sub-contractors) to prioritize qualified local labor, optimize unskilled local labor and supplier in accordance with the needs of the Project, and recruitment process in a transparent manner with a clear acceptance criteria;

IRT **Environment Engineer**

- Make sure the implementation of Environment Mitigation in this ESMS, includes Air quality, groundwater quality, seawater quality, noise, vibration, waste management, biodiversity action plan, wastewater) monitoring and mitigation
- Ensure that the environmental requirements are established implemented and maintained across the Project site activities, specifically including:
  - Identification and assessment of environmental aspects
  - Environmental objectives, targets and environmental management program
- Review detail design of environment facility in accordance with national and international regulation
- Update or modification of this ESMS Plan and supporting Management Plans in response to changing project conditions.
- Report results of inspections and documentation reviews to the IRT HSE Manager.
- Regularly report ESMP implementation to Lenders
- Define a monitoring mechanism and identify monitoring parameters in order to:
  - Ensure the complete implementation of all mitigation measures.
  - Ensure the effectiveness of the mitigation measures.
  - Define requirements for environmental monitoring and auditing.
  - Provide a mechanism for taking timely action in the face of unanticipated environmental situations; and
  - Identify training requirements at various levels.

IRT **HSE Coordinator**

- Conduct daily and weekly health and safety inspections of site and routine (at least every three months) audits.
- Report results of inspections/audits and documentation reviews to the IRT HSE Manager.

- Assist the EPC Contractor to define appropriate corrective actions to be implemented as a result of any identified non-compliances and providing project-wide advice to ensure consistent approach and outcomes are achieved; and • Ensure on an on-going basis, that health and safety requirements are communicated via formal training programs to all personnel engaged in work on behalf of IRT.

IRT AMDAL/ESIA Compliance Engineer

- Assist the EPC Contractor to define appropriate corrective actions to be implemented as a result of any identified non-compliances and providing project-wide advice to ensure consistent approach and outcomes are achieved; and
- Working with contractors to ensure that their environmental procedures and plans are appropriate to the issues at hand and are able to be readily implemented
- Supports the Senior Environment Engineer in supervising the compliance and implementation of ESMS
- Regularly report RKL-RPL implementation
- Regular monitoring of project activities to ensure continuing compliance with this ESMS Plan
- Conduct daily and weekly environmental inspections of site and routine (at least every three months) audits
- Monitor and verify closeout of actions arising from environmental audits
- Ensure on an on-going basis, that environmental requirements are communicated via formal training programs to all personnel engaged in work or behalf of IRT.

IRT Environment Technician Staff

- Maintaining environment records and documentation
- Supervise external third-party laboratories or Consultant in site when conducting environment monitoring
- Supervise in environment sampling activity
- Supports the Senior Environment Engineer in supervising the compliance and implementation of ESMS

IRT Security, Permit, and PR Manager

- Make sure the implementation of monitoring and mitigation in this ESMS, includes stakeholder engagement, grievance mechanism, security management, livelihood restoration and other plan related to community relation.

- Has overall accountability security management on site, together with the necessary social training requirements
- Organizes and supervises the submittal, approval and permit issuance process
- Manage the implementation and continuance of the Corporate Social Responsibility (CSR) program to ensure consistency and effectiveness
- Develop strategies and materials for the communication of CSR initiatives to all internal and external audiences, ensuring overall messaging consistency across business units and throughout corporate communications
- Assisting the company in developing, managing and altering social responsibility policies
- Using internal communication to reinforce the company's social responsibility policies
- Monitor and track the implementation of the social commitments established in the ESMP
- Manage stakeholder and develop the engagement program

IRT Community Development Staff

- Actively engage communities in making sense of the issues which affect their lives, setting goals for improvement and responding to problems and needs through empowerment and active participation
- Build relationships and networks with residents and community groups
- Monitor and evaluation of LRP program
- Report the social related program in accordance with ESMS to Lender
- Monitor the compliance of social mitigation in this ESMS plan
- Update social mitigation and monitoring plan/procedure
- Responsible in Stakeholder register

IRT CSR Program Coordinator

- Implement and coordinate a range of activities and initiatives which are designed to have a positive impact on the environment and local communities
- Maintain an open line of communication with the environment, health and safety, construction, operations, and human resources functions (including contractors);
- Defining and developing the CSR strategies
- Conduct socialization to impacted community
- Build relationships and networks with residents, community groups, and government
- Plan and promote events to engage employees and raise awareness of CSR programs.
- Assist in the development and recommendation of the CSR budget

- Monitor Project activities that may affect the local population;
- Create and implement a directed, systematic communications strategy to help coordinate with local stakeholders;
- Consult with, and provide appropriate information to, all local stakeholders;
- Coordinate with construction personnel to provide information to community stakeholders during local meetings where the project's activites are discussed; and
- Report any incident that takes place during the Project to the relevant externa parties
- Receive grievance from community and conduct investigation tracking of community grievances (both those raised through the Project's community grievance mechanism and those received through Contractor grievance mechanisms, where applicable

4. REGULATORY FRAMEWORK

The project will be supported financially by international lenders, many of whom are signatories to or follow the Equator Principles (EPs) or require projects to which they provide financing to comply with IFC Performance Standards and World Bank Guidelines. The EP, IFC Performance Standards and World Bank Guidelines will require the Project to perform an environmental and social impact assessment (ESIA) study to adequataly identify and mitigate potential impacts. Besides, Jawa 9&10 Coal Fired Steam Power Plant 2x1000 MW Project shall follow national, provincial, and regional applicable regulation as required in AMDAL.

Environmental standards under Indonesian law and WBG IFC EHS Guidelines are presented in more detail in Appendix B. When national regulations differ from the performance levels and measures presented in the WBG EHS Guidelines, the Project is expected to achieve whichever is more stringent (ADB, 2012). The environmental standards include air emission, ambient air quality, noise, groundwater, marine water quality and wastewater quality.

4.1 RELEVANT GOVERNMENT OF INDONESIA LEGISLATIVE REQUIREMENTS

Table 4-1 GOI Legislative Requirements

Regulation	Summary
General Requirements	
Law No. 32 of 2009 regarding Environmental Protection and Management	Overarching environmental law for Indonesia
Law No. 05 of 1990 regarding Natural Resources Conservation and its Ecosystems	Overarching on natural resources conservation with ecosystems on all over Indonesia
Law No. 30 of 2009 regarding Electricity	Overarching on Electricity for Indonesia
Environmental Impact Assessment	
Government Regulation No. 27 of 2012 regarding Environmental Permit	Defines requirement to prepare an AMDAL including timeframes. Key components include technical assessments, developing an ongoing monitoring program and consultation

Regulation	Summary
Ministerial Environment Regulation No. 5 of 2012 regarding Types of Projects and/or Activities which require AMDAL	Defines activities that require an AMDAL including CCGT generation and electricity transmission.
Ministerial Environment Regulation No.16 of 2012 regarding guidelines for environmental documentation	Provides guidance of the preparation of environmental documents, including an AMDAL and UKL/UP.
Ministerial Environment Regulation No.17 of 2012 regarding community participation in the AMDAL and environmental permit process	Outlines the public involvement requirements in the AMDAL and Environmental Permit process
Ministerial Environment Decree No.45 of 2005 regarding guideline of RKL-RPL implementation report	Guidelines for preparing implementation report for RKL-RPL
Ministerial Environment Regulation No. 2 of 2013 regarding sanctions for Environmental Management and Protection	Regulates sanctions for violations in environmental protection and management regulations
Ministerial Environment Regulation No. 8 of 2013 regarding Procedures of Assessment and Examination of Environmental Documents	Regulates how to assess and examine an AMDAL or UKL/UP documents prior to Environmental Permit
Water and Wastewater	
Government Regulation No. 82 of 2001 regarding Water Quality Management and Water Pollution Control	Regulates the ambient surface water quality standards.
Government Regulation No. 121 of 2015 regarding Water Resources Enterprise	Regulates the water resources utilization for both surface water and groundwater. The project proponent must apply for and obtain a water extraction permit from the regency/provincial local government.
Ministry of Environment Regulation No. 8 of 2009 regarding wastewater quality standards for thermal power plants	Regulates the minimum effluent quality of thermal power plants
Ministry of Environment Regulation No. 1 of 2010 regarding procedure for water pollution control	Provides guidance for central and local governments to implement water pollution control.
Ministry of Environment and Forestry Regulation No. 68 of 2016 regarding standards for domestic Wastewater	Provides the standards for domestic wastewater
Ministry of Health Regulation No. 32 of 2017 regarding groundwater health and hygiene in relation to pool, solus per aqua and public bath	Provides the standards for using groundwater for daily activities.
Natural Protection and Free Zone	
Presidential Decree No. 32 of 1990 regarding Protected Area	Determines environmentally sensitive areas that must be protected and used only for green / natural areas.
Energy and Mineral Resources Minister Regulation No. 18 Year 2015 on Free Space and Minimum Distance of High Voltage Transmission Line and Extra High Voltage Transmission Line	Determines distance of free space and minimum distance of high voltage transmission line and extra high voltage transmission line.
Biodiversity and Conservation	
Government Regulation No. 68 of 1998 on Natural Protection Area and Natural Conservation Area	Determines the natural protected area and conservation area

Regulation	Summary
Law No. 5 of 1994 on Ratification on the UN Convention relating Biodiversity	Ratification of the United Nations Biological Diversity
Law No. 41 of 1999 on Forestry	Determines management procedures on forest
Government Regulation No. 19 of 1999 on Marine Pollution and/or Damage Control	Determines management procedures for marine pollution and/or damage control
Ministerial Fishery Regulation No. 30 of 2010 on Management Plan and Zonation of Marine Conservation Area	Determines management plan and zonation of marine conservation area
Government Regulation No. 20 of 2011 on Natural Reserve and Natural Conservation Area Management	Determines management procedure on natural reserve and natural conservation area
Ministerial Environment and Forestry Regulation No. 94 Regulates invasive species of 2016 on Invasive Species	
Ambient Air Quality and Air Emissions	
Government Regulation No. 41 of 1999 regarding Air Pollution Control	Regulates ambient air quality standards
Ministerial Environment Regulation No. 21 of 200 regarding Emission Standard of Stationary Source	Regulates emission standards
Ministerial Environment and Forestry Regulation No. 15 of 2019 regarding Emission Standards for Thermal Power Plants	Regulates emission standards for thermal power plants
Noise	
Ministerial Decree of State Minister of Environment No. 48 of 1996 regarding Noise Level Standard	Regulates 55 dBA and 70 dBA as the noise thresholds for residential areas and at the site boundary of the power station respectively.
Hazardous Waste & Substances	
Government Regulation No. 101 of 2014 regarding classification and management of hazardous materials	Determines characteristics of substances that should be classified as hazardous and toxic goods. Under this regulation, hazardous substances are to be managed in a manner similar to managing hazardous wastes
Ministerial Environment Regulation No. 18 of 2009 regarding permit procedure of hazardous waste management	Regulates the hazardous waste management licensing procedure.
Ministerial Environment Regulation No. 30 of 2009 regarding System of permit and supervision on management of hazardous and toxic waste material and supervision on recovery from the result of pollution by hazardous and toxic waste material by regional government	Regulates the supervision of hazardous waste management. This excludes the management of used oils
Ministerial Environment and Forestry Regulation No. 63/MENLHK/SETJEN /KUM.1/7/2016 on the Requirements and procedures for B3 Waste Stockpiling in Landfill Facilities	Determines the requirement and procedures for hazardous waste stockpiling in landfill facilities
Head of BAPEDAL Decree No. 1 of 1995 regarding procedures and technical requirements of hazardous waste storage and collection	Determines procedures and technical requirements for hazardous waste storage and collection
Head of BAPEDAL Decree No. 2 of 1995 regarding documentation of hazardous waste	Regulates requirements for documentation of hazardous waste generated from oil operation.
Head of BAPEDAL Decree No. 3 of 1995 regarding technical requirements for hazardous waste management	Determines technical requirements for hazardous management waste management

Regulation	Summary
Ministerial Environment Regulation No. 14 of 2013 regarding Symbol and label of hazardous waste	Regulates requirements for reviewing management of hazardous and toxic wastes particularly for symbolizing and labeling of hazardous waste
Solid Waste	
Law No. 18 of 2008 regarding the management of Indonesia	Regulates waste management in
Government Regulation No. 81 of 2012 regarding Management of Domestic Waste	Determines requirements for domestic waste management
Ministry of Internal Affair Regulation No.33 of 2010 regarding Waste Management Guideline	Determines guidelines for management of waste
Spatial Planning	
Law No. 26 of 2007 regarding spatial planning	Regulates spatial planning and requires the Project to be within the industrial zone determined in the local government strategic planning for land use.
Cilegon City Regional Regulation No. 3 of 2011	Regulation for development in Cilegon City area 2010-2030 Cilegon City Spatial Plan

4.2 REGULATIONS RELATED TO SOCIAL AND CULTURAL ISSUES

In addition to the AMDAL regulations, which include in their scope the social, cultural and economic impacts of a project, there are a number of Indonesian laws and regulations regarding social matters that would be applicable for the Project, as set out in the following table.

Table 4-2 Regulation Social and Cultural Issues

No	Topic	Regulation
1.	Land acquisition	Law No. 2 Year 2012 concerning the procurement of land for public interest may be used, and its implementing regulation including: • Presidential Regulation (PR) No. 71 Year 2012 on facilitating land acquisition for public project purposes, including some of its amendment i.e. PR 4/2016 and PR 148/2015 • PR No. 56 Year 2017, on the management of social impact in the procurement of land for national strategic projects • PR No. 62 Year 2018 regarding the management of social impact in the procurement of land for national development (both national and non-national strategic project)
2.	Corporate Social Responsibility	Law No. 40 Year 2007 Concerning Limited Company Article 74 (1)
3.	Human Rights	Law No 39 Year 1999 concerning Human Rights
4.	Indigenous People-related regulations	The Government of the Republic of Indonesia through Ministry of Social Affairs has its own definition related to Indigenous People as stated in Presidential Decree Number 111 of 1999 about Remote Indigenous Communities.
5.	Cultural heritage	Law Number 11 Year 2010 Concerning Cultural Heritage

4.3 LABOR MANAGEMENT AND OCCUPATIONAL HEALTH AND SAFETY (OHS)

Main Indonesian laws and regulations on labour management and OHS applicable to the Project among others are as follow.

Table 4-3 Regulation related Labor Management

No	Topic	Regulation
1.	Labour Management	Indonesian Law No. 13 Year 2003 Concerning Employment, while conditions for outsourcing part of work execution to other companies regulated under the Ministry of Manpower and Transmigrations Regulation No. 19 Year 2012. In addition, specific to child labour management, it is regulated under Law No. 13 Year 2003.
2.	Occupational health and safety	Law No. 1 Year 1970 regarding OHS management, while specific to construction regulated under the Ministry of Manpower and Transmigrations Regulation No 1 Year 1980
3.	National Social and Healthcare Security for the Workforce	Law No. 3 of 1992 (the "Jamsostek Law") and/or with the Social Security Organizer Agency (Badan Penyelenggara Jaminan Sosial or "BPJS") under Law No. 40 of 2004

4.4 INTERNATIONAL STANDARD AND GUIDELINE

4.4.1 IFC PERFORMANCE STANDARDS AND RELEVANT GUIDELINES

The IFC requirements are driven by its policy on environmental and social management of projects as published in January 2012. The policy is articulated through the definition of a series of eight performance standards, covering various aspects of project development. Those standards are:

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

- Performance Standard 8 Cultural Heritage

IFC PS 1 is the cornerstone and key link of all eight IFC performance standards. It requires a project proponent to conduct an environmental and social assessment, and to establish and maintain an Environmental and Social Management System (ESMS) appropriate to the nature and scale of the project and commensurate with the level of its environmental and social risks and impacts'.

The framework under which an IFC ESIA is undertaken cascades down from the performance standards to a set of World Bank Group (WBG) EHS guidelines there is a general EHS Guideline and a series of industry specific EHS guidelines.

The following guidelines need to be adhered to in addition to the Performance Standards.

- Equator Principles III June 2013;
- WBG General EHS Guidelines, April 2007;
- WBG EHS Guidelines for Waste Management Facilities, May 2007;
- WBG EHS Guidelines for Electric Power Transmission and Distribution, April 2007;
- WBG EHS Guidelines for Thermal Power Plants, December 2008;
- WBG EHS Guidelines for Ports, Harbours, and Terminals, February 2017;
- WBG EHS Guidelines for Shipping, April 2007;
- IFC Introduction to Health Impact Assessment 2009;
- IFC Guidance Note 5 on Involuntary Resettlement, 2012;
- IFC "Measure and Improve your Labour Standards";
- IFC Good Practice Handbook on Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets; and
- IFC Good Practice Guide for Stakeholder Engagement May 2007

4.4.2 EQUATOR PRINCIPLES

The Equator Principles (Equator Principles, 2013) are guidelines for financial institutions on managing environmental and social risk in project financing. The Principles apply to new project financing globally where the total project capital cost exceeds US$10m, and to project finance advisory activities. Project financiers who have adopted the Equator Principles require projects to meet the requirements of the principles and the IFC Performance Standards.

The ten requirements of the Equator Principle Financial Institutions (EPFIs) correspond to the following parameters:

- Principle 1 (Review and Categorization)
- Principle 2 (Environmental and Social Assessment)
- Principle 3 (Applicable Environmental and Social Standards)
- Principle 4 (Environmental and Social Management System and Equator Principles Action Plan)
- Principle 5 (Stakeholder Engagement)
- Principle 6 (Grievance Mechanism)
- Principle 7 (Independent Review)
- Principle 8 (Covenants)
- Principle 9 (Independent Monitoring and Reporting)
- Principle 10 (Reporting and Transparency)

4.4.3 OECD COMMON APPROACHES

The Organisation for Economic Co-operation and Development (OECD) Working Party on Export Credits and Credit Guarantees (ECG) has established a common approach in addressing environmental and social issues in their financing in a Recommendation of the Council on Common Approaches for Officially Supported Export Credits and Environmental and Social Due Diligence (the Common Approaches), dated 7 April 2016.

The document defines general principles for project financing, includes:

1. Scope of application of the common approach recommendation applied to all types of officially supported export credits for exports of capital goods and/or services;
2. Objectives of the recommendation to promote coherence between adherents' policies, provide common procedures relating to environmental and social review, promote good practice and consistent review, enhance efficiency of official support procedures, and promote a global level playing field for officially supported export credits;
3. Screening process applied to all applicants;
4. Project classification, based on the degree of potential positive and adverse environmental and social impacts relating to the applications – there are three categories for clarification (Category A, B, C);
5. Principles in undertaking an environmental and social review:
   - For category A project, adherents should require an ESIA to be undertaken;

- Benchmark for review against the relevant aspects of World Bank Safeguard Policies or IFC Performance Standards;
- Benchmark projects against relevant aspects of the EHS guidelines which are referenced in World Bank Safeguard Policy OP 4.01 and IFC PS2;
- Project should in all cases comply with host country standards, and therefore should seek assurance that the Project complies with local legislation and other relevant host country regulations; and
- In an exceptional case in which an adherent could not meet the relevant aspects of the international standards, the reasons for the failure, related justification, and any related monitoring procedures must be reported to the ECG in accordance with the reporting and monitoring principles of the recommendation.

6. Evaluation, decision, and monitoring – for Category A projects, adherents should require regular ex post reports and related information to be provided during their involvement in the Project. In the case of non-compliance, adherents should take actions that they deem appropriate in order to restore compliance, in accordance with terms of contract for official support;

7. Exchange and disclosure of information including to other financial institutions involved in the project – for Category A projects it is expected to disclose publicly project description, details information and the project ESIA; and

8. Reporting and monitoring requirements including a minimum of semi-annually report for Category A projects.

4.4.4 KEXIM SAFEGUARD POLICY

The Export-Import Bank of Korea (Korea Exim; KEXIM Bank) has prepared a safeguard policy in 2016 in respond to its commitment in environmental and social sustainability of the economic development cooperation fund (EDCF). The EDCF Safeguard policy provides guidance on project financing requirements, taking into account host country context, project scale and impacts complexities, associated benefits, and project performance.

Objectives of the safeguard policy include avoidance of adverse impacts on the environmental and affected people, minimize, mitigate, and/ or compensate for adverse impacts when avoidance is not possible, and strengthen the project's safeguard system while develop its capacity in managing the environmental and social risks.

The policy observed the following as part of project financing process:

- Screening of project categorization (A, B, and C) in accordance with the type, location, sensitivity, scale, and potential impacts;
- ESIA for Category A projects and an initial environmental and social examination (IESE) for category B projects, with ESMP attached to any documents;
- Environmental and social review;
- Monitoring of ESMP implementation periodically;
- Information disclosure including results of project categorization, ESIA or IESE draft, also resettlement plan or indigenous people plan if applicable;
- Consultation and participation, early in the project preparation, also throughout the project cycle;
- Grievance redress mechanism; and
- Accountability, including provision of assistance to help project in finding solutions on complaints from the affected people.

In addition, the EDCF Safeguard Policy also defines several principles focus on sustainable development, scientific investigation for mitigation measures, information disclosure and consultation, and establishment of grievance redress mechanism.

5. IDENTIFICATION OF RISKS AND IMPACTS

This section details the procedures and actions to be undertaken as a result of the identification of risks and impacts occurring during the development of the Project that were not formerly identified or foreseen during the ESIA process.

5.1 ASSESSMENT OF RISKS

The AMDAL Addendum by IRT was finalised in December 2018, while ESIA and ESMP was finalised in August 2019. Both of these documents identified and assessed the predicted risks and impacts of the Project in relation to a variety of environmental and social aspects. Impacts were identified based on the 'current' understanding of the Project and using baseline information from readily available data sources and data gathered on site. Due to a number of factors including change of environmental baseline status and limitations of the baseline studies, other impacts and risks not identified in the AMDAL, ESIA and ESMP process may arise during the construction and operation of the Project.

To appropriately manage the Project an understanding of the potential risks and impacts that may affect the environmental, social, health and safety aspects is required. The potential impacts and associated mitigation measures and management procedures presented in this ESMS are based on the baseline information and assessments provided in:

The AMDAL documents that are prepared are:

- AMDAL for Development of Power Plant and supporting Facilities, dated January 12, 2017 in behalf of PT Indonesia Power
- AMDAL for Reclamation and Land Preparation for Jetty Construction of PLTU Unit 9-10, dated January 17, 2018 in behalf of PT Indonesia Power
- Addendum AMDAL for Land Preparation and Construction of PLTU Jawa 9-10 on behalf of PT Indo Raya Tenaga
- Jawa 9 & 10 CFPP, 2 x 1000 MW, Volume 1: ESIA Report (August 2019)
- Jawa 9 & 10 CFPP, 2 x 1000 MW; Volume 2: ESMP Framework (August 2019)

During construction and operation of the Project there will be ongoing monitoring of environmental, social and health and safety aspects, reviews of compliance with the ESMS and an evaluation of the effectiveness of the ESMS. These monitoring events and reviews provide opportunities to review the environmental and social aspects of the project, determine whether the appropriate controls are working or need to be improved. In addition, they will help to identify any new aspects.

5.2 RISKS/ASPECTS REGISTER

IRT has been developed "Hazard Identification Risk Assessment & Risk Control (Rev.A) IRT-EHS-HIRA-001". This is a live document which will be reviewed as part of the ESMS review process or if there is a change to the design or operating procedure, which means a new aspect is added to the program or an existing aspects rating is modified.

All relevant Project environmental and social aspects will be captured in the Risks/Aspect Registers. Any new aspects that are identified can then be assessed and rated in accordance with the risk rating systems and added to the Aspect Registers.

Designs, construction and operation shall be included in the hazard identification and risk assessment. Changes made to the original design, construction, fabrication or operation shall be addressed by applying management of change and communicating it to relevant employees. Site Instructions shall use the risk register as the reference to ensure there is adequate environmental and safety risk control in conducting a process or a task.

Environmental Aspect Identification and Impact Assessment

In order to apply best practices in environmental management, IRT shall identify environmental aspects and impacts within its business process. IRT shall follow criteria set out ISO14001 to determine significant environmental aspects and impacts. Based on significant aspects and impacts, IRT shall develop its management plan. The control of significant aspects shall be based on hierarchy of control: elimination, substitution, engineering control and administrative control. Reduce, Reuse and Recycle (3R) shall be considered during selection of controls. IRT shall

document and keep the environmental aspects and impacts up to date and communicate its significant environmental aspects and impacts among the various levels and functions.

OHS Management Hazard Identification and Risk Assessment

IRT's OHS management shall be based on risks assessment and management. IRT shall conduct hazard identification and risk assessment to produce an OHS Risk Register that will feed into the overall ESMS Aspects Register. This register shall be reviewed once a year at the minimum for maintaining adequacy and up-to-date suitability. The methodology for hazard identification and risk assessment shall:

- Provide for the identification, assessment and documentation of risks and its control.
- Apply the hierarchy of risk control: elimination, substitution, engineering control, administrative control and personal protective equipment (PPE)
- Changes in process shall be identified and risk register shall be updated accordingly.

6. OVERACHING ENVIRONMENT AND SOCIAL MANAGEMENT SYSTEM

During the land preparation phase of Jawa 9-10 CFSPP, AMDAL documents had been prepared and approved in accordance with the Government requirements. The preparation of the documents has considered all potential impacts and risks of the project on physical, biological, socioeconomic and physical cultural resources in an integrated way. Impacts and risks will be analysed in the context of the project's area of influence. Environmental impacts and risks will also be analysed for all relevant stages of the project cycle, including pre-construction, construction, and post construction (operations and maintenance) activities.

Besides, as a part of financing project, the ESIA document is being finalized (in 2019) to fulfil the International Standard includes IFC Standard and OECD Requirement. Both two documents (AMDAL and ESIA) indicates differ of environment and social significant aspect and impact. Thus, the separate mitigation and commitment to be implemented by each project stage will be describes in the subsection

6.1 IMPLEMENTATION OF MITIGATION AND MONITORING MEASURES

The following mitigation measures and action plan will be applied by the Project to prevent and mitigate the potential negative impacts and to effectively manage the Project for environmental protection, for the pre-construction, construction and operation stages of the Project. Where necessary, mitigation measures have been proposed to meet the requirements of the Equator Principles, IFC Performance Standards and Indonesian laws and regulations. IFC guidelines require that a sequencing strategy is applied that gives priority to avoiding impacts, then a focus on the reduction or minimisation of impacts that cannot be avoided, and finally where impacts are unavoidable people affected by the Project must receive compensation.

Management of environmental and social risks and impacts during construction will primarily be the responsibility of the EPC Contractor through the EPC Contract. During the construction phase, IRT will review and monitor EPC Contractor's performance in accordance with their Health and Safety and Environment (HSE) Plans/Management Systems and related management plans/procedures to ensure alignment with the Overarching ESMS.

6.2 MITIGATION MEASURES AND MONITORING ACTION PLANS

There are a range of potential environmental and social impacts associated with the construction phase of the Project (Refer to ESIA Volume 2: ESMP and EIA/AMDAL of IRT). During construction of the coal fired power plant, transmission line and access roads, the mitigation measures and monitoring are proposed in **Appendix A** based on ESIA and **Appendix B** based on EIA/AMDAL.

6.3 MANAGEMENT PLANS/PROCEDURES

Some procedures are identified to support as program to support the ESMS. Procedures may include existing documents developed by Company or be developed by external parties.

6.3.1 CONSTRUCTION ENVIRONMENT & SOCIAL MANAGEMENT PLAN (CESMP)

Prior to the construction activities commencing, the Project and EPC contractor will develop the additional management plans, continue engaging with its key stakeholders around the Project, its impacts and mitigation measures whilst addressing grievances submitted. The Project will also undertake monitoring activities during the construction phase and oversee the implementation of the Project's environmental and social commitments. These procedures presented in Table 6-1 are covered the mitigation measures and monitoring action plan in ESIA and EIA/AMDAL.

Table 6-1 Construction Environment and Social Management Plan/Procedure

Document	Responsibility	Remarks
Environment Social Management System	IRT	Document may be reviewed and updated from time to time.
Stakeholder Management Plan (Community Grievance)	IRT	
EHS Guideline	IRT	
Contractor Management	IRT	
General HR Manual	IRT	
Workers Code of Conduct	IRT	
Worker's Grievance Mechanism	IRT	
Recruitment and Training Procedure	IRT	Document is being prepared during preconstruction and will be implemented
Emergency Preparedness Plan	IRT	
Biodiversity Action Plan	IRT	
Livelihood Restoration Plan	IRT	

Document	Responsibility	Remarks
Construction Occupational Health and Safety Management Plan (CHSMP)	EPC Contractor	throughout construction phase.
Construction Environment and Social Management Plan (CESMP)	EPC Contractor	
Construction General HR Manual	EPC Contractor	
Construction Community Health & Safety Plan	EPC Contractor	
Construction Emergency Preparedness and Response	EPC Contractor	
Construction Air Quality Management	EPC Contractor	
Construction Seawater Quality Management	EPC Contractor	
Construction Groundwater Management	EPC Contractor	
Construction Noise and Vibration Management	EPC Contractor	
Construction Marine Vessel/ Barge Management and Spill	EPC Contractor	
Construction Waste Management	EPC Contractor	
Construction Hazardous Substance Management	EPC Contractor	
Construction Erosion and Sediment Control	EPC Contractor	
Construction Stakeholder Engagement (Power Plant)	EPC Contractor	
Construction Grievance Mechanism (Community & workers)	EPC Contractor	
Construction Workers Accommodation Plan	EPC Contractor	
Construction Security Management	EPC Contractor	
Construction Water Supply and Wastewater Discharge	EPC Contractor	
Construction Traffic Management	EPC Contractor	
Construction Recruitment and Training Procedure	EPC Contractor	
Construction Workers' Code of Conduct	EPC Contractor	

6.3.2 OPERATION ENVIRONMENT & SOCIAL MANAGEMENT PLAN (OESMP)

The ESMS will provide a structure and procedures as to how the mitigation and monitoring measures as set out in the ESMP will be implemented. Procedures may include existing documents developed by the IRT, or be developed by external parties. These procedures will be developed prior to procedure will be developed prior to commissioning of the power plant.

Table 6-2: Documents List for Operation Phase

Document	Responsibility
Operational Environment and Social Management Plan (OESMP)	O&M Company
Operation Occupational Health and Safety Management Plan (OHSMP)	
Operation Emergency Preparedness Plan	
Operation Air Quality Management	
Operation Spill Emergency Procedure	
Operation Seawater Quality Management	

Document	Responsibility
Operation Groundwater Management	
Operation Noise and Vibration Management	
Operation Marine Vessel/ Barge Management and Spill	
Operation Non-Hazardous Waste Management	
Operation Hazardous Waste Management	
Operation Hazardous Substance Management	
Operation Erosion and Sediment Control	
Operation General HR Manual (HR Team)	
Operation Recruitment and Training Procedure (HR Team)	
Operation Workers' Code of Conduc: (HR Team)	
Operation Workers' Grievance Mechanism	
Operation Worker Health Education Program (includes Sexually Transmitted Disease Efficient Monitoring Procedure)	
Operation Supply Chain Monitoring Plan	
Operation Internal Security Management	

7. MONITORING, AUDITING, AND REVIEW

7.1 OVERVIEW AND OBJECTIVES

The following process should be reviewed in order to determine what how, when and for what reason monitoring, measurement and analysis evaluation should take place for the ESMS and project. A number of the monitoring and measurement requirements are derived from the ESIA, AMDAL, and the various management plans, but also to monitor and respond to any unanticipated environmental, social and health issues and impacts which arise during construction and/or operation. The programme aims to:

- routinely monitor, audit and review compliance with the ESMS;
- ensure adequate and appropriate interventions to address any occurrences of non-compliance;
- provide a mechanism for the follow-up and resolution of complaints by members of the public and/or contractors and/or workers on site;
- ensure appropriate and adequate record keeping related to compliance;
- determine the effectiveness of the specifications and recommend necessary changes and updates based on audit outcomes, in order to enhance the effectiveness of environmental and social management on site; and
- aid communication and feedback to authorities and stakeholders.

Results shall be adequately documented and held on the appropriate file. Where required a monitoring template shall be adopted using the approved ESMS templates.

7.2 MONITORING OF ENVIRONMENTAL, SOCIAL AND HEALTH AND SAFETY ASPECTS

The following process should be reviewed in order to determine what, how, when and for what reason monitoring, measurement and analysis evaluation should take place for the ESMS and project. A number of the monitoring and measurement requirements are derived from the ESIA and Schedule of Environmental Permit:

- What needs to be monitored and measured.
- For accurate results, what methods for monitoring, measurement and analysis should take place.
- The criteria for evaluating the environmental or social performance, including appropriate indicators.
- When the monitoring and measurement shall take place.
- When the results shall be analysis and evaluated
- Where and to whom results should be communicated.

7.3 ESMS MONITORING PROGRAM

Reviews of the ESMS will be conducted throughout construction and operation of the Project and where necessary changes should be made to the documentation to ensure that it remains relevant. For instance, once construction has been completed, the construction related environmental and social aspects will no longer be relevant. An effective monitoring programme in terms of this ESMS will be achieved through:

- six monthly inspections and monitoring of all site activities by IRT;
- maintenance of a monitoring schedule of all site activities in accordance with the suite of management plans as defined in the ESIA;
- routine review of all environmental, social and health and safety documents produced;
- compilation of progress reports that track progress and indicate the effectiveness of the ESMS in addressing and implementing environmental and social requirements; and
- monitoring of the implementation of any preventative action identified as a result of any incident, complaint or non-conformance to ensure the effectiveness of any changed procedures.
- Monitoring of Environmental and Social Key Performance Indicators (KPIs);
- Monitoring of legal compliance and compliance obligations, including the specific monitoring and reporting requirements stated in the Scheduled to the Environmental Permit;
- Monitoring of the progress against the objectives and targets shall take place as per the process;

- Monitoring of the requirements to provide ongoing certification in accordance with ISO 14001 and IFC standards as well as the ongoing implementation of the ESMS. This includes a regular internal auditing to assess acherence to the requirements of the ESMS;
- Environmental, Social, Health and Safety Performance (based on monitoring results) – including both positive and negative results in line with the risks and opportunities outlined in the Aspect Register;
- Monitoring of Contractors, their work and any contractual obligations by the relevant team

The monitoring programme will be supported by:

- the process for lodging grievances or complaints (i.e. IRT's Worker's or Community Grievance Mechanism); and
- the process for corrective action (i.e. Worker's or Community Grievance Mechanism) to be followed if a complaint is made, an incident occurs or a non-conformance is identified;
- internal and external audits to be conducted to evaluate compliance with relevant environmental legislation and the ESMS.

The results of all monitoring undertaken in terms of this ESMS (including audits) will be analysed by IRT to facilitate improvements in work practices or site activities in order to progressively improve environmental and social performance in terms of the ESMS

7.4 CONTRACTOR MONITORING AND AUDITING

IRT will be responsible for monitoring and auditing the EPC contractors and subcontractor to ensure that their environmental, social and health and safety performance is compliant with the following:

- IRT management plans and procedures;
- FSMP;
- RKL/RPL Documentation;
- Indonesian Regulations;
- IFC Performance Standards; and
- WBG EHS Guidelines

7.5 ESMS AUDITING

To meet the project's compliance commitments, the project's regulatory compliance status shall be subject to routine audit. Routine auditing will be carried out to determine the level of compliance with the ESMS and evaluate the effectiveness of the ESMS. A procedure will be developed along with an auditing programme to define:

- Timing;
- Scope;

- Audit criteria.
- Reporting of audit findings and
- Process for implementing corrective actions.

7.5.1 INTERNAL AUDIT

In addition to regular monitoring, periodic internal system audits (i.e. semi-annual) will be conducted to ensure that the ESMS is properly implemented and maintained, that work is being performed in accordance with planned arrangements and that the management plans and controls are effective. Audits are classified into internal and external audits.

An audit schedule will be developed by IRT. The schedule will be reviewed annually and amended, as necessary, to ensure that it provides for the effective review of the ESMS. The internal audits will be undertaken by IRT semi-annually and will ensure that audit findings (including both non-compliance and also positive audit results) are documented in an Audit Report. The audit report would be structured to check the progress and compliance of the various ESMS components (i.e. having content similar to this ESMS report with individual components being audited). A summary of the key findings from the ESMS Audit Report will also be included in the Semi-Annual Report to the Lenders.

7.5.2 EXTERNAL AUDIT

External audits and inspections by regulating authorities and project lenders shall also be undertaken throughout the lifetime of the project. An independent body (a third-party auditor) is likely to undertake an audit of the overall Project activities and may include, but is not limited to, the following organisations:

- International finance institutions or their representative/consultants (i.e. Lender's Technical Advisor)
- An ESMS auditor / certifying body; and
- Any other external audits committed to in the various management plans.

In all instances a member of the ESMS team shall be present on the audit and accompany the external audit. It is recognized that external audits or inspections may also take place which cannot be planned. In this instance a member of the ESMS or IRT Management Team shall be made available for the audit in the event that an ESMS team member cannot be available.

Other audits for the effective management of the project and ESMS include but are not limited to:

- Contractor/ Supplier audit;
- Health and Safety Audits and Inspections;
- Social Audits and Inspections.

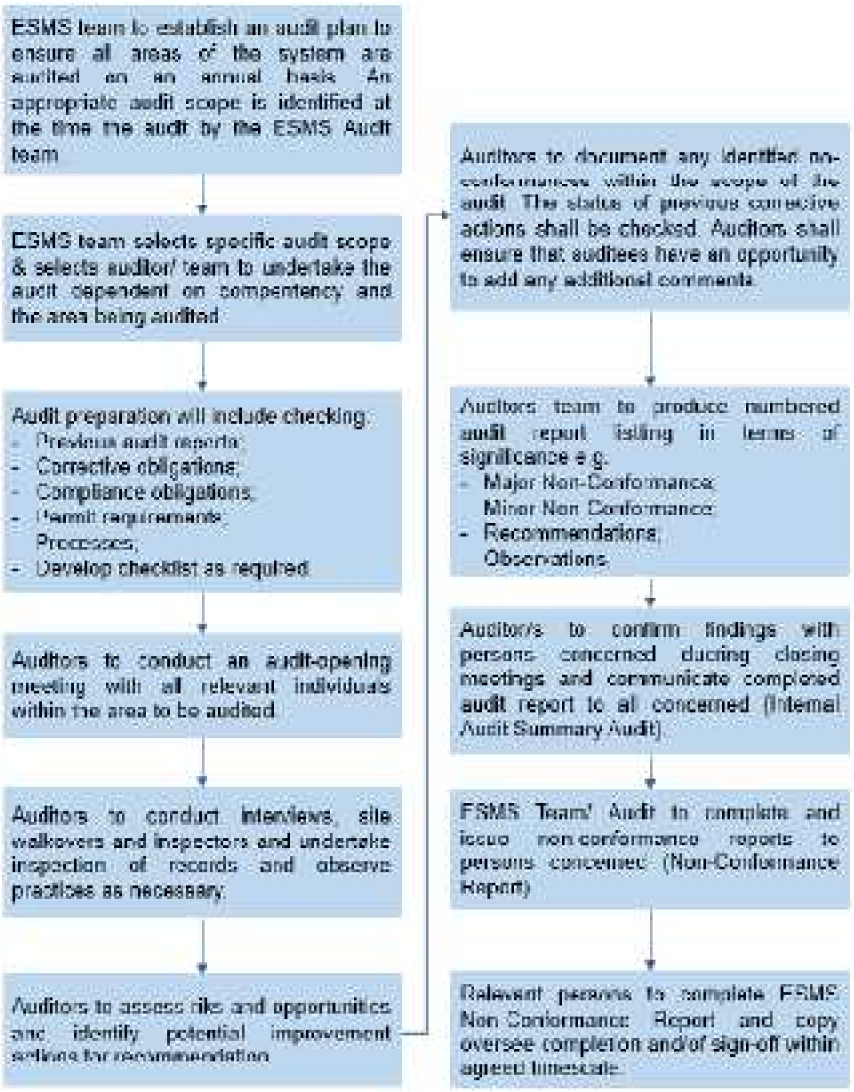

Figure 7-1. Audit Process

7.5.3 MANAGEMENT REVIEW

An annual Management Review of the ESMS shall be undertaken by the senior management of the project and IRT Head Office, with support from the ESMS team.

The management review shall include consideration of:

- The status of actions from previous management reviews, where applicable;
- Changes in:
    - External and internal issues that are relevant to the ESMS;

- The needs and expectations of interested parties, including compliance obligations;
- The Project's significant environmental and social aspects;
- Risks and Opportunities.

- The extent to which environmental and social objectives have been achieved
- Information about the project's environmental and social performance, including trends in:
  - Non-conformities and corrective actions;
  - Monitoring and measurement results;
  - Fulfilment of its compliance obligations;
  - Audit results.
- Adequacy of resources;
- Relevant communication from interested parties, including complaints;
- Opportunities for continual improvement.

The outputs of the management review shall include:

- Conclusions on the continuing suitability, adequacy and effectiveness of the ESMS;
- Decisions related to continual improvement opportunities;
- Decisions related to any need for changes to the ESMS, including resources;
- Actions, if needed, when environmental and social objectives have not been achieved;
- Opportunities to improve integration of the ESMS with other business processes, if needed.

Any implications for the direction of the project or ESMS following the management review shall be reviewed as part of the management review and communicated to relevant persons.

7.5.4 IMPROVEMENT OF PROJECT PERFORMANCE

Continual improvement is the goal of the ESMS in addition to enhance environmental and social performance, through the implementation of the objectives and targets relevant to the significant environmental social aspects.

NON-CONFORMITY AND CORRECTIVE ACTION

Non-Conformities shall be raised on the ESMS during an audit or otherwise where an occurrence arises which contravenes the requirements of the ESMS. Any breaches and/or non-compliance the ESMS should be reported to the responsible department manager, with details of the incident/observation clearly documented. A copy of each incident/observation record should be

held on file by IRT's HSE Manager, to be supported by the reply copy when it is received. Depencing on the nature of the non-compliance (minor or major incident), the Construction Manager and Owner's Engineer would be notified as required. Upon generation of such record, a timeline should be established by IRT's HSE Manager, along with the manager/supervisor responsible for the area for:

- Planning and submission of a corrective action plan;
- Planned implementation and inspection/verification of the corrective action
- Final close-out the corrective action plan;
- The responsible manager/supervisor is to implement the corrective action by the targeted dates.

All non-compliances must then be investigated and a report identifying reasons for occurrence, measures required to prevent future incidents and any other recommendations including development of new procedures (if required), are to be produced within a reasonable timeframe of the incident occurring.

CONTINUOUS IMPROVEMENT

Continuous Improvement shall be assessed through a range of measures as outlined in this ESMS. Audits shall assess the continued effectiveness of the ESMS in controlling and enhancing the environmental and social aspects and impacts associated with the project as well as adherence to the goals set out in the environmental and social policy. Risks and opportunities shall be assessed to determine if continual improvement of environmental performance is taking place.

7.6 REPORTING FOR SPECIFIC OR SIGNIFICANT EVENTS

Incident and Non-Compliance Investigation and Reporting Incident investigation shall be carried out for all environmental incidents (including near misses that could lead to major incident). Root causes of incident shall be identified, and corrective actions implemented to prevent recurrence. The investigation team is formed based on the magnitude and severity of the incident. For major incidents, Corporate function representatives will be part of the investigation team. Team members shall have adequate competency to conduct investigation. Environmental incidents and non-compliances must be reported to the IRT site manager. Major ones are also to be reported to IRT's corporate functions and if there are notifiable event of environmental incident, IRT shall report to local environmental agency.

The following types of events shall be reported to the Project / Plant Manager by the ESMS coordinator, ESMS team and the Senior Management Team of IRT immediately:

- Incidents with significant risks or potential of significant risk to people or the environment (this shall be handled in accordance with the Emergency Preparedness and Response Plan;
- Notification of audits or inspections by authorities;
- Notification of contravention of the environmental permit or other regulatory infringements.

8. STAKEHOLDER ENGAGEMENT

The purpose of stakeholder engagement is primarily for transparency to the community, to inform them of the Project and associated construction activites and the impacts it has on them and the environment. This provides an avenue for stakeholders to understand the Project impacts, how the impacts are being managed. A key aim of the stakeholder engagement is to provide stakeholder the opportunity for comment. Their comments/views will be considered by IRT. he Stakeholder Management Plan may refer to Doc IRT-EHS-SMP-0001.This addresses the requirements described in the following sections.

8.1 STAKEHOLDER ANALYSIS AND PLANNING

In order to conduct effective engagement some analysis is required of the type of stakeholders and the best means of communication with them with regards to the project and its potential impacts. The identification of these stakeholders involved consideration of persons or groups:

- who are directly and/or indirectly affected by the Project, due to environmental, social or economic changes.
- have interest in the Project and Project outcomes; and
- have potential to influence the Project and Project outcomes

Furthermore, the stakeholders consulted included key stakeholder representatives and vulnerable stakeholder groups. A comprehensive list of stakeholders and key interest groups affected by the Project has been consulted with and have been included in the SMP.

The list of identified stakeholders has been assessed to the stakeholder's level of interest in the Project and influance accorcing to the following categories, shown in **Figure 8-1**. Refer to SMP for the list of stakeholders consulted on the Project to date

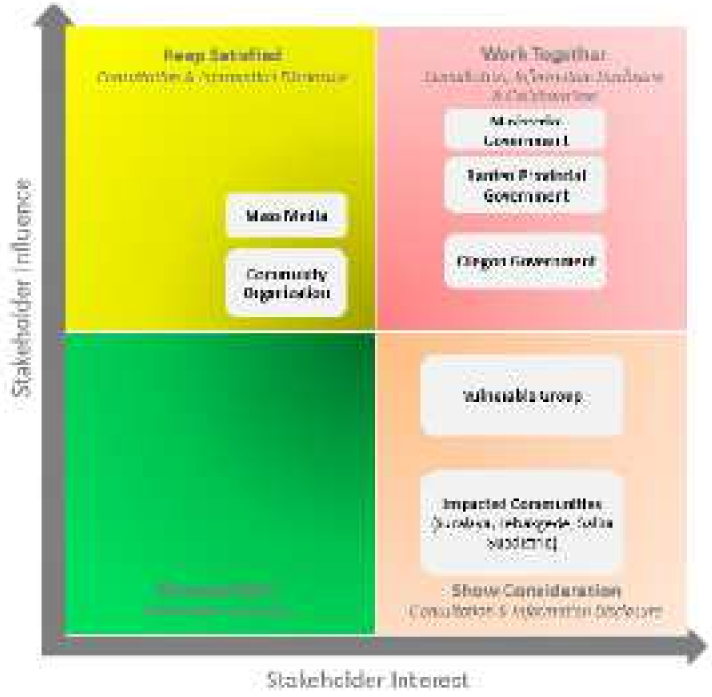

Figure 8.1.1: Mapping of Stakeholder Interest and Influence

Levels of engagement ranged from closer management for high interest/high influence stakeholders to monitoring for lower interest/low influence parties. It is important to keep in mind that the interest or influence of a stakeholder is fluid and may change as the Project progresses. Therefore, it is important that IRT continuously reassess and identify new stakeholders and the level of stakeholder engagement at different stages of the Project as outlined in the SMP. As a result, the SMP will need to be updated on a regular basis.

8.2 DISCLOSURE AND DISSEMINATION OF INFORMATION

The following project aspects, issues and activities are the information that is required to being disclosed to relevant stakeholders and affected communities:

- Project activities, timing, progress/milestones and employment opportunities;
- Dissemination of Grievance Redress Mechanism to project affected communities;
- Project operation;
- Community Health and Safety;
- Environmental and social responsibility programs
- Major Emergency situation.

  In addition, IRT will need to prepare and maintain a procedure for external communications that includes methods to:

- receive and register external communications from the public;
- screen and assess the issues raised and determine how to address them;
- provide, track, and document responses, if any; and
- adjust the management program, as appropriate.

8.3 CONSULTATION AND PARTICIPATION

Consultation with potentially affected communities and individual stakeholders as discussed further in the SMP and Livelihood Restoration Plan included opportunities to provide input on the Project, its potential impacts, possible alternatives and the proposed mitigation and monitoring measures. The extent and nature of engagement activities depends upon the nature of degree of impacts. The SMP prepared for the Project outlines key timing, participants and methods of consultation across the lifetime of the project. During construction and operation IRT will be responsible for consultation to keep stakeholders informed of the ongoing changes in Project activities, manage issues and grievances as they arise and monitor the effectiveness of mitigation and compensation.

8.4 GRIEVANCE MECHANISM

A grievance mechanism has been established in the SMP and shared with local communities to enable potentially affected communities to air their concerns and grievances about the IRTs environmental and social performance. The grievance mechanism has been scaled to the risks and adverse impacts of the Project seeks to resolve concerns promptly, using an understandable and transparent consultative process that is readily accessible, and at no cost to such affected communities. The Company Grievance Redress Mechanism is a step by step approach for receiving, acknowledging and registering, reviewing, investigating and resolving complaints and grievances from all stakeholders who consider themselves adversely Affected by the company's operations. Establishing and implementing a Grievance Mechanism is an important requirement in meeting both lenders requirements as well as ensuring that affected community grievances are managed in a fair and timely manner.

8.5 REPORTING TO AFFECTED COMMUNITIES

IRT through the External Relation Manager will provide periodic reports to the affected communities describing progress in implementation of project actions that involve or may impact on them as well as addressing issues that the communities have raised. The mechanism of this reporting is refer to Emergency Preparedness Plan Procedure (IRT-EHS-PRC-002) and Form EHS 2-13 IRT Unplanned Events Involving Local Community.

8.6 COMMUNICATION

A process has been established within the ESMS which enables the user to establish the following principles: what is to be communicated, when to communicate and how to communicate with internal and external stakeholders. The following table sets out the types of communication that are to be undertaken.

Table 8-1: Communication Types

Communication	
Internal Communication	**External Communication**
• Project Meetings: Construction Phase • Project Meetings: Operational Phase • Reporting for Specific or Significant effects	• Labour & working condition policy • Livelihood restoration plan • Labour Grievance process • External communication (stakeholder) • External grievance process • Communication with government bodies • Communication with contractors

8.6.1 INTERNAL COMMUNICATION

Detailed below are the various types of internal communication that shall take place within the ESMS through the various stages of the project.

Table 8-2: Communication Plan

Communication	To Whom	How Often	When
Compliance Obligations	To include the IRT Senior Management, relevant employees, contractors (where applicable)	6 monthly or ad hoc as and when changes take place	6 monthly or ad hoc as and when changes take place. Six-monthly reviews are suggested to take place in April and Oct
Updates to processes or other requirements in this ESMS	Relevant employees and contractors (where applicable) ESMS Team ESMS Audit Team	As and when required	As and when required
Audit Findings	Relevant employees and contractors (where applicable) ESMS Team ESMS Audit team and others to be determined by audit results	As and when required following each audit but annually as a minimum	As and when required following each audit but annually as a minimum
Nonconformities (when required)	Relevant employees and contractors (where applicable) ESMS Team	As and when required following each audit but annually as a minimum	As and when required following each audit but annually as a minimum

Communication	To Whom	How Often	When
	ESMS Audit Team and others to be determined by audit results		
Management review outcomes	To be determined by audit results	As and when required following each management review	As and when required following each management review
Progress against objectives and targets	Relevant employees and contractors (where applicable) ESMS team Audit team and others to be determined	As and when required following each audit but annually as a minimum	As and when required following each audit but annually as a minimum
Emergency Situations or Occurrences	Potentially all employees and contractors. Defined by event	As and when required ad-hoc, with annual summary	As and when required ad-hoc, with annual summary

8.6.2 EXTERNAL COMMUNICATION

COMMUNICATION WITH STAKEHOLDERS

The SMP sets out and defines a framework of standardized measures to be undertaken for proactively engaging and communicating with external project stakeholders and to guide the strategies to engages with them according to their respective needs and interests. It is designed to demonstrate that IRT will undertake consultation and participation that is meaningful, consistent, comprehensive, coordinated and culturally appropriate in line with all the relevant legal and regulatory commitments including international good practice, national standards and the requirements including international good practice, national standards and the requirements of this ESMS.

For the purpose of this ESMS, stakeholders are split out into the following two groups:

- Statutory or interested (party) Stakeholder: - Statutory or interested Stakeholders may constitute public and government bodies, companies (medium or large or multinationals) or other interested parties that the project may have an impact on or that may have a material or non-material interest in the project.
- Community Stakeholder: - A community stakeholder can be a member of the public or member of a local organization or other interested party that the project is having an impact upon (positive or negative); including small companies or one-man bands. Local communities and workers would fall within this category of stakeholder.

COMMUNICATION WITH GOVERNMENT BODIES

Detailed below are various types of communication with government bodies that shall take place with n the ESMS th rough the various stages of the project.

Table 8-1. Communication with Government Bodies

Communication	To	How Often
Environment Monitoring and Mitigation Report	Ministry of Environment and Forestry Banten Provincial Environment Agency Cilegon City Environment Agency	Bi-Annually
Recruitment and Employment	Ministry of Manpower and Transmigration	Every recruitment process

9. TRAINING AND COMPETENCY

9.1 COMPETENCE & AWARENESS

The project will assess, stipulate and control the competence of all employees and contractors working on behalf of the project according to their appropriate education, training or experience. Each role shall have specific requirements and a level of competence that employees and contractors must meet. Training needs shall be determined through the use of the process below, inc ud ng how to measure and evaluate the effectiveness of this training.

All persons responsible for undertaking work during the life of the project must be trained on the contents of the ESMS. Training shall include, but is not limited to:

- definition of the environment.
- need for environmental protection and conservation.
- impacts of construction activities on the environment.
- adequate mitigation measures against such impacts.
- emergency preparedness and response plan.
- social responsibility during construction e.g. being considerate to local residents;
- Project ESMS policy and objectives.
- the Project ESMP.
- Health and Safety Management System; and
- current applicable laws and regulations.

The above requirements shall be delivered through the most appropriate induction (and refresher) training. To ensure contractor understanding on each responsibility, socialization regarding ESMS will be conducted to related personnel of EPC Contractor. Construction subplans will be included in induction program for the Subcontractor which conducted by the EPC Contractor. Training requirements shall be assessed within the Training Matrix.

Table 9-1. ESMS Related Training

No.	Training / Course	HSE	Environment	CD/CSR	Security
1	PPPA certification/*Penanggung Jawab Pencemaran Air*		x		
2	PPPU certification/ *Penanggung Jawab Pencemaran Udara*		x		
3	AMDAL Certification		x		
4	Laboratory sampling and analysis		x		
5	Waste Management (Hazardous Waste and Non-Hazardous)		x		
6	ISO 14001 Environment Management System		x		
7	ISO 14064 GHG Emission		x		
8	ISO 45001 Occupational Health and Safety	x	x		
9	First Aid	x			
10	Construction EHS Certification	x			
11	OHS Electrical Expert	x			
12	Occupational Illness & Hygiene Industry	X			
13	ISO 31000 Risk Assessment	x	x		
14	Security Management Training (include human right training)				x
15	ISO 26000 Social Responsibility			x	
16	International standard and guideline understanding and application on social requirements (IFC PS 2, IFC PS 4, IFC PS 5, IFC PS8)			x	x
17	International standard and guideline understanding and application on environment requirements (IFC PS 3 and IFC PS 6)		x		
18.	Communication, public relation, and networking skill			x	
19	Biodiversity and conservation strategies (coral reef rehabilitation)		x		

A Training Procedure will be developed that includes:

- Inductions (identifying different types that may be required);
- training needs identification;
- training schedule;
- assessment of competency;
- recognition of prior learning;

- evaluation of training and records.

All training information, records and certificates should be properly documented and filed. An audit of the ESMS is likely to seek verification that all project personnel have been given the appropriate training. This will require a comprehensive training/induction register.

The following process should be adhered to in order to assess competence and training needs.

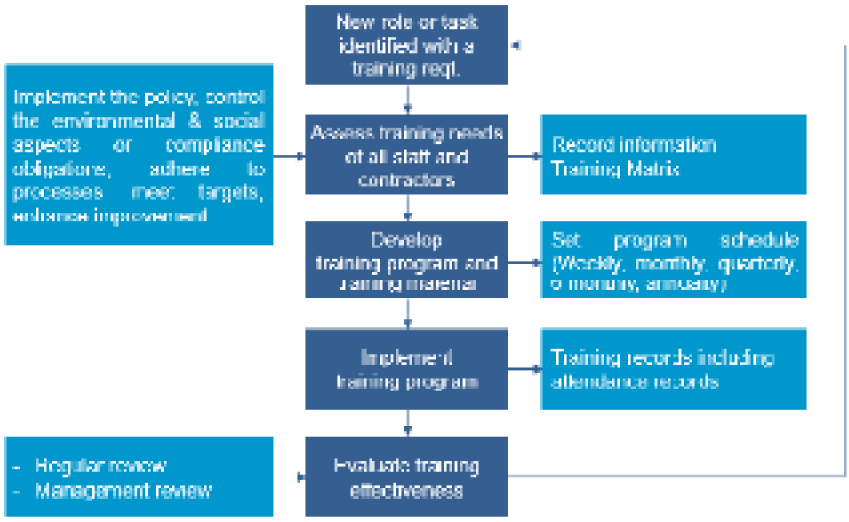

Figure 9-1. Competence Process

9.2 QUALIFICATIONS AND TEAM MAKE UP

The competence of the ESMS Coordinator, company/project personnel, consultants and EPC Contractors shall be managed by the process as set out in section 9.1 Training and Competence. The roles and responsibilities of specific parties are set out in the table below.

Table 9-2 Roles and Responsibilities related to ESMS

Party	Responsibilities
IRT	• Adopting the ESMS. This document will be used as a guide in the development of subsequent ESMS plans for all project phases. This ESMS must be adopted and International IFC Standards met for the duration the project. IRT shall appoint an Owner's Engineer whose responsibilities shall include review and oversight of the EPC Contractor's environmental, health and safety plans and systems conformance with the preliminary ESMP and the ESMS.
IRT Management and Leadership	• The Senior Management IRT shall have ultimate responsibility for the ESMS and shall demonstrate leadership and commitment with respect to the environmental and social management system. The management team shall demonstrate leadership by setting the ESMS Policy, roles responsibility and authority as well as appointing a suitably qualified individual to lead the ESMS team and ensuring that adequate resources are made available for the ESMS operation. The management team shall lead and undertake the management review at least on an annual basis. They also hold responsibility for approval of ESMS plans and procedures prepared by the EPC Contractors.
ESMS Coordinator	• The ESMS Coordinator shall be responsible for the ESMS implementation and further development, including liaison with the Senior Management Team of IRT. This person must be suitably qualified and will also lead the ESMS team (s)
EPC Contractors	• The Contractors' role at each stage of the project shall adhere to the ESMS Policy, ESMS Objectives, compliance obligations and any other requirements set out in this ESMS or in their contract. The Contractors will appoint an ESMS team to develop and implement detailed Environmental, Health and Social Management Plans for specific management aspects of the construction phase of the project. These will be approved by IRT.
ESMS Team for the construction phase	The ESMS Team for the construction phase shall be made up of representatives of IRT reflective of the company's early stages of development, as well representatives of the main EPC contractor which reflect a wide range of job functions including operatives. The construction phase ESMS team will be responsible for: • Drafting the detailed ESMPs for specific aspects of the construction phase, which will include all of the aspects covered in this ESMS and preliminary ESMP. • The implementation and enforcement of actions required by the detailed management plans, including any monitoring requirements and reporting • The training of workers in the performance of tasks required by the detailed management plans • The provision of all required materials and resources, including safety equipment and emergency response equipment required by the management plans • Management of waste contractors and other external contractors and consultants used in the construction/ decommissioning phases of the project

Party	Responsibilities
	• Updating the management plans with any required changes as the project progresses
Construction Site Manager	• The Construction Manager will lead regular project meetings during the construction phase and shall include Environmental and Social (as well as Health and Safety) Management as a standing item on the agenda
Waste Contractors	• The waste contractor shall be responsible for the collection and disposal of wastes to appropriate disposal facilities. The Contractors must abide by the standards specified within this ESMS and within the detailed management plans
Plant Owner/ Operator	• The Owner shall appoint an ESMS team to develop and implement Environmental, Health and Social Management Plans for the operational phase
Plant Manager	• The Plant Manager will lead regular meetings during the operational phase and shall include Environmental and Social (as well as Health and Safety) Management as a standing on the agenda.
ESMS team for the Operational phase	The ESMS team shall be made up of representatives of IRT from a wide range of job functions including operatives. The ESMS team will be responsible for: • Drafting the detailed ESMS or equivalent documents, which shall include all of the operational aspects required in the ESMS. • The implementation and enforcement of actions required by the detailed management plans and specified in the ESMS • The provision of all required materials and resources including safety equipment and emergency response equipment required by the management plans • Management of waste contractors and other external contractors and consultants used in the operational phase of the project • Updating the management plans with any required changes as the project progresses
ESMS Audit Team	• The ESMS Audit team shall be made up of representatives of EPL who are independent of the ESMS team and may include external consultants. • The ESMS Audit team shall provide independence for auditing purposes. They are required to establish and maintain an audit plan and enact this plan at the required intervals. The Audit Team shall also arrange and organize the inputs into the management review. This team shall be responsible for communicating the results of audits to the project.
External Consultants	• External Consultants shall be used to undertake monitoring works and reporting in both the construction and operational phase. The consultants must abide by the standards specified within this ESMS and within the detailed management plans drafted by the relevant ESMS teams and within the detailed management plans drafted by the relevant ESMS teams and be competent in line with the requirements Competence. External consultants may also be required to undertake audits

Party	Responsibilities
Regulations Body/Government	• Ensure that monitoring and reporting requirements (as required by the EMSP and detailed management plans in accordance with EPA standards and guidelines) are fully discharged. • Enforce any actions that shall be required to ensure environmental quality standards are not breached and permit requirements are maintained.
International Financing Institution	• The International Finance Institution shall develop its own Environmental and Social Action Plan (ESAP) that will include conditions to be met. The ESAP shall include the requirement to comply with, among other plans, the ESMS.

10. ADMINISTRATION

10.1 HUMAN RESOURCES

IRT shall develop human resources (HR) policies and procedures which are documented in a HR manual and give guidance consistent with the requirements of IFC Performance Standard 2 and Government of Indonesia labour laws. The HR policy and manual will provide standard compliance with local labour laws, a description of functions/positions and requirements, general benefits, and give guidance on employee's selection, hiring and promoting procedures.

All employees will receive a copy of this manual at their first day at work. The HR manual will include Labour and Working Conditions Policy.

The project will develop a labour and working Conditions Policy which demonstrates IRT Commitment to comply with the laws of Indonesia. This will have objectives to promote equal opportunities and fair treatment of workers. The policy shall remain in place throughout the life of the project.

As appropriate, policies and procedures for management of specific aspects of labour and working conditions will be adopted and implemented. One of these will be a grievance resolution mechanism for employees, known as the Labour Grievance Process. The process will be used to ensure that any problem, complaint or cause for dissatisfaction arising between the employee and another employee or the company is resolved as quickly as possible.

In addition to the employee's grievance, the development of the labour and working conditions Policy will include preparation of a Code of Conduct.

CONTENT OF LABOUR AND WORKING CONDITION POLICY

A Labour and Working Conditions Policy shall be developed for the project. Personnel shall be trained regarding the contents of the policy at the time of hire.

The policy will include commitments to:

- Promote the fair treatment, non-discrimination and equal opportunity of workers as well as the behaviour of staff towards the community and local cultures (in-line with Code of Conduct);
- Establish, maintain and improve the worker management relationship;
- Promote compliance with national employment and labour laws;
- Protect workers, including vulnerable categories of workers such as children, migrant workers, workers engaged by third parties, and workers in the client's supply chain;
- Promote safe and healthy working conditions and the health of workers;
- Avoid the use of forced labour.

To meet the objectives, the project shall:

- Adopt and implement human resources, policies and procedures appropriate to its size and workforce that set out its approach to managing workers consistent with the requirements of this Performance Standard 2 (PS2) from IFC standard and National Law;
- Provide workers with documented information that is clear and understandable, regarding their rights under national labour and employment law;
- Identify migrant workers and ensure that they are engaged on substantially equivalent terms and conditions to non-migrant workers;
- Implement the IFC for Reconstruction and Development temporary workers policies on the quality and management of the accommodation offered to workers, if applicable;
- Comply with national law regarding workers' rights to join organizations for workers of their choosing and to allow workers to elect representatives;
- Make employment decisions related to inherent job characteristic and not based on personal characteristics;
- Comply with national law on non-discrimination and employ requirements of IFC PS2 without contravening national law.
- Ensure that all workers receive notice of dismissal and timely severance payments mandated by law and any outstanding back pay and social security benefits and pension contributions;
- Carry out an alternative to retrenchment prior to implementing any dismissals;
- Provide a grievance mechanism for workers to raise workplace concerns;
- Child labor is prohibited and illegal since it can interfere with the child's education, or to be harmful to the child's health or physical, mental spiritual, moral, or social development.

- Ensure there is no forced labor, this includes not withholding the passports/ identification cards of migrant workers during the term of their contract
- Provide a safe and healthy working environment considering inherent risks. This includes the identification of potential hazards and provision of preventative and protective measures and appropriate training for employees
- Establish procedures for managing and monitoring the performance of such third-party employers;
- Ensure Contractors and Sub-contractor have access to a labour grievance mechanism.

10.2 DOCUMENT CONTROL

Document control will be carried out in accordance with a Document Control Procedure, which will address the following:

- controlled documents;
- controlled document preparation;
- document reference notation (document numbering);
- review of documents;
- approval of documents; and
- document recording and removal.

A document register will be prepared to capture all relevant ESMS documents, spreadsheets, registers and maps.

CONTROLLED DOCUMENTS

A 'controlled document' is a standard document produced by IRT in which the format, content and distribution are controlled. A 'controlled format document' in which the format is controlled but not the content once the document has been completed. This refers to pre-printed forms including incident reporting, training records and audit checklists. Upon completion of this type of document, a copy is retained (filed) as a record. Records shall be appropriately stored at the IRT office. Records generated as output from the implementation of the ESMS Manual and its supporting plans and procedures shall also be filed here under the direction and management of the ESMS Coordinator.

Only current issues of documents should be live and held on hard or soft copies (apart from in archive folders). Old issues should be placed in archive folders with an "archived" watermark displayed across the document. Documents of external origin which are held by the project should be identified as such and their distribution controlled.

Records shall be kept in appropriate storage for the following minimum retention periods (whichever is greatest):

- As required by law;
- As specified in this Manual or associated procedures and records;
- As specified in the Master List of Records;
- Otherwise, three years.

Electronic records shall be stored on a server that is backed up on a regular basis. Once the retention period has expired the responsible personnel may decide whether relevant records can be deleted. In this instance a record should be kept of who has deleted the record and when this was undertaken.

DOCUMENT APPROVAL AND ISSUE

The issue of controllec documents will be under cover note (memorandum) to all persons identified in the distribution list. The responsible person will maintain and update a Master List Records, which specifies the type/ name of records, the form number (if applicable), the party responsible for keeping the record, and the retention time.

The requirements for record creation, issue and updating are outlined below:

- All records shall be legible;
- All records shall have an owner;
- All records shall have a number record;
- To indicate the status of each document, and to prevent the use of obsolete or outdated documents, the following information shall be stated for procedures and management plans:
  - Title (subject);
  - Document number;
  - Revision number
  - Date;
- All records should provide details of the changes which have taken place upon re-issue;
- All records should be reviewed and approved by the owner prior to re-issue;
- No records should be issued without the agreement and approval of the document owner.

DOCUMENT CHANGES/MODIFICATIONS

All documents are to be reviewed and approved by the General Manager. The authorisation of changes will be denoted by a memorandum which will be added at the front of each controlled document. The

cover note identifies changes to controlled documents. In each document making up the ESMS, there is a revision log which shall be used to record the date and revision number of each section which is issued as a revision. It is the responsibility of the manual owner to update the revision log on receipt of new or revised sections. They are also responsibility for notifying affected parties that a new version is in use.

10.3 ESMS REVIEW AND AUDITING

As described in Section 7.5, there will be periodic reviews and audits of the ESMS. Any changes to ESMS documentation that result from these shall be made in accordance with the Document Control Procedure outlined above.

END

Appendix 1 . Construction and Operation Mitigation and Monitorirg based on ESMP and RKL-RPL/AMDAL

Appendix 1 A. Construction and Operation Mitigation and Monitoring based on ESMP

Activity/ Aspec	Receptor	Potential Impact	Mitigation	Monitoring	Responsibility
General Construction	Air Quality	Deterioration of air quaity (cust & particulate emissions)	■ Develop and Implement a Dust Manegement Plan (DMP). The DMP will contair the measures outlinet in th s documen and a plan for implenentation; ■ Watering will be used to suppress windand physical disturbance dus generation; ■ Ensure an adequate water supply on site 'or effective dust suppression and miligation; ■ The site layout will be planned so ths dust causing activities are locatec away from recepors as far as is possible; ■ Screens or barriers will be erected around dusty activities or the site boundary that are at least the height of any stockpile on site; ■ All stockpiles wil be covered or fenced off to prevent wind whipping; ■ Only cutting, grinding, or sawing equipment fitted with suitable dust suppression techniques such as water sprays will be used; ■ All chutes, conveyors and skips will be covered at all times; ■ Drop heights from conveyors, loading shovels and hoppers will be minimised. ■ No waste will be burned on site; ■ Regular site inspections will be performed to monitor compliance with the DMP. All inspection results will be recorded and corrective actions taken where miligation and management measures are	■ Site visit inspecton checklists; and ■ Air monitoring at site and sensitive receptors.	EPC Contractor

Activity/ Aspect	Receptor	Potential Impact	Mitigation	Monitoring	Responsibility
			not being implemented effectively (i.e., to reduce dust emissions); ■ Daily onsite and offsite inspections will be undertaken to visually assess the dust emissions from earthwork and construction activities, and from vehicles exiting the construction sites. Results from the inspection will be recorded and appropriate measures such as those presented in this table will be taken to reduce emissions where necessary; ■ The frequency of site inspections will be increased when activities with a high potential to produce dust are being carried out and during prolonged dry and windy conditions; ■ All dust and air quality complaints will be recorded, the cause identified and appropriate measures such as those presented in this table will be implemented to reduce dust emissions in a timely manner.		
Construction	Air Quality	Deterioration of air quality (dust)	■ Sand and other aggregates will be stored in bunded areas and will not be allowed to dry out unless this is required for a particular process, in which case additional control measures such as those discussed in 'General Construction' will be applied; ■ Site inspections refer to 'General Construction'.	■ Wind breaks in place; and Sand and aggregates in bunded areas.	EPC Contractor
Vehicle track out	Air Quality	Deterioration of air quality (dust)	■ Ensure that all vehicles entering and leaving the site are covered to avoid fugitive emissions during transport; ■ Implement a wheel washing system. ■ Regularly dampen/clean the site access and local roads to remove any materials tracked out of the site;	■ Vehicle inspection; and ■ Site security.	EPC Contractor

Activity/ Aspect	Receptor	Potential Impact	Mitigation	Monitoring	Responsibility
			■ All site access gates will be located at least 10m away from air sensitive receptors where possible; ■ Inspect on-site haul roads for integrity and instigate the necessary repairs to the surfaces as soon as reasonable practicable; and ■ Record all inspections of haul roues and any subsequent action in a site log book.		
Operation of Vehicles/ Machinery	Air Quality	Deterioration of air quality (emissions)	■ The site layout will be planned so that machinery is located away from receptors as far as is possible; ■ All vehicles will switch off engines when stationary; ■ A regular vehicle and machinery maintenance and repair program will be implemented; ■ Mains electricity or battery powered equipment will be used instead of diesel/petro generators where practicable; ■ Vehicle/Machinery inspection; and Fue use monitoring.	■ Site inspection; ■ Fuel use records; and ■ Equipment maintenance record.	EPC Contractor
Greenhouse Gas (GHG) contributing activities: ■ Mobile combustion – fuel consumption in mobile construction equipment and light vehicles; ■ Stationary combustion – fuel consumption in stationary	GHG	Increased GHG Emissions at National and Global Levels	■ Revegetation: actual land clearing/disturbance to be minimised to the extent possible. Net GHG emissions could also be reduced by revegetation in many areas that will be cleared only for temporary activities such as laydown areas and temporary camps for construction; ■ Combustion efficiency optimisation – good design and maintenance of the combustion system so that initially designed efficiency performance can be maintained; ■ Optimisation of construction schedule and placement of laydown areas/temporary camp sites to reduce overall traffic movements/distance	■ Develop a program to monitor, audit and report on GHG emissions from all relevant activities and the results of emissions mitigation programs.	■ IRT; and ■ EPC Contractor

Activity/ Aspect	Receptor	Potential Impact	Mitigation	Monitoring	Responsibility
equipment; and ■ Vegetation clearing.			travelled, thus reducing GHG emissions from transport; and ■ Procurement to consider the energy efficiency of all new mobile and fixed equipment.		
Construction traffic & pile driving	Nearby communities: Noise	Intrusive disturbance and amenity issues	■ Construction work methodology and sequence will be developed with consideration of potential environmental air-borne noise impacts and optimised to reduce emissions where feasible, reasonable and practical to do so. Once developed it will be strictly adhered to; ■ Appropriate plant, equipment and/or machinery will be selected for each task and efficient work practices adopted to minimise the totalconstruction period and the number of noise sources working concurrently on the site. The quietestitem of plant available will be selected where options that suit the design permit; ■ Significant noise generating activities including but not limited to the pile driving) will be undertaken during the daytime hours (i.e., 7 AM to 10 PM)only and will be suitably managed with a goal of achieving daynight compliant levels at all potentially affected sensitive receptors; ■ Any work that must occur outside the daytime hours (i.e., during the night-time period, 10 PM to 7 AM) will be suitably managed with a goal of achieving levels compliant with the most stringent night-time's International Finance Corporation IFC) Noise criteria (i.e., 45 dBA); ■ During any night works, any activity that has the potential to generate impulsive noise will be completely avoided;	■ Regular monitoring of construction noise levels (including piling) will be conducted and an evaluation of compliance provided for; ■ If the measured project levels are above the predicted noise levels and/or criteria presented in this report, further mitigation and/or management measures will be considered and implemented, where feasible, reasonable and practical to do so; ■ The noise monitoring program will be designed and conducted by trained specialists. Where this occurs the acoustician shall scope / plan for the monitoring program directly or approve the proposed program prior to it occurring; ■ Typical monitoring periods will be sufficient for statistical analysis and may last 48 hours with the use of noise monitors that are capable of logging data continuously over this time period, or hourly, or more frequently, as appropriate (or else cover differing time periods within several days, including weekday and	EPC Contractor

Activity/ Aspect	Receptor	Potential Impact	Mitigation	Monitoring	Responsibility
			■ If the applicable impact thresholds presented in this ESIA, at all potentially affected sensitive receptors. Where this is not possible it may be necessary to undertake the night works with agreement from nearby and potentially affected neighbours; ■ Where works and activities are planned to occur in close proximity to receptors, and are anticipated to generate elevated noise levels of >70 dBA, potential respite periods (e.g., three (3) hours of work, followed by one hour of respite) will be implemented. In some circumstances respite may extend the duration of works and inadvertently increase noise impacts, hence due care will be taken when considering this management measure ■ Construction road traffic associated with the power plant works will be limited to the IFC daytime hours (i.e., 7 AM to 10 PM). Any traffic that is required outside these hours (i.e., during the night time period, 10 PM to 7AM) will be suitably managed to 45 dBA; ■ Unnecessary noise due to idling diesel engines and fast engine speeds will be avoided when lower speeds are sufficient; ■ During the works, drivers will be instructed to travel directly to the site and avoid any extended periods of engine idling at or near residential areas; ■ During the works, ensure all machines used on the site are in good condition, with particular emphasis on exhaust silencers, covers on engines and transmissions and squeaking or rattling components. Excessively noisy machines will be repaired or removed from the site;	weekend workdays); ■ Unattended monitoring will occur continuously for 48 hours and samples recorded during periods of poor weather (wind or rain should be excluded where they have reduced the reliability of the data; ■ Highly intrusive noises, such as noise from aircraft flyovers and passing trains, should be excluded as part of this process ■ Attended noise compliance monitoring will be considered as it regularly presents a more practical approach to compliance; ■ As a minimum, any monitoring campaign will be planned to capture Leq and L90 noise levels. Where possible Lmax, Lmin, L1, L10 and L90 statistical parameters will also be recorded; ■ Monitors will be located approximately 1.5 metres above the ground and no closer than three (3) metres to any reflecting surface (e.g., wall). In addition, monitoring will not occur within the area of influence of any localised emission source e.g. a generator, a pool pump, an aerator, that does not represent the broader noise environment; ■ All site noise levels will be measured	

Activity/ Aspect	Receptor	Potential Impact	Mitigation	Monitoring	Responsibility
			■ During the works, ensure that all plant, equipment and vehicles movements are optimised in a forward direction to avoid triggering motion alarms that are typically required when these items are used in reverse; ■ During pile driving, noise reducing mitigation and management measures will be considered and implemented. Such examples include, using a partially augured or fully augured pile installation technique instead of vibratory or impact piling, using a "slow start up approach" to minimise potential impulsive noise events and even considering pile caps and cushions that in some circumstances e.g., concrete piles being hammered, can assist to reduce the overall emission but also minimise its potentially annoying and impulsive characteristic. The pile driving will be undertaken during the daytime hours i.e., 7 AM to 10 PM) only and will be suitably managed with a goal of achieving levels compliant with 55 dBA, at all potentially affected sensitive receptors; ■ Further noise modelling and impact assessment to be conducted when sufficient engineering data is made available.	in the absence of any influential sources not associated with the Project. If the measured Project levels are above the predicted noise levels and/or criteria presented in this report, further mitigation and/or management measures will be considered; ■ Typical monitoring periods will may last 48 hours with the use of noise monitors that are capable of logging data continuously over the time period; ■ Further mitigation and/or management measures will be considered and implemented, should the measured noise levels to be above the applicable noise levels/criteria; ■ The noise monitoring program to be designed and conducted by trained specialists; and ■ Implementation of a community grievance mechanism and community consultation will occur	
Land clearance and construction activities of Gas Fired Steam Power Plant and associated infrastructure	Terrestrial Biodiversity	Permanent loss of habitat and degradation of habitat	■ Clearing will be undertaken in the presence of suitably qualified fauna spotter catcher and in accordance with a Clearing Protocol to include: - Marking clearing limits; - Marking high risk areas (e.g., hollow bearing trees, burrows); - Employing appropriate sediment and	■ Weekly inspections to be conducted during the construction phase to ensure: - Clearing protocol is active; - Clearing is restricted to approved areas; - Sediment and erosion	EPC Contractor

Activity/ Aspect	Receptor	Potential Impact	Mitigation	Monitoring	Responsibility
			erosion controls; - Dispersing and removing fauna before and during clearing process; - Where possible, salvaging cleared material and transferring it to nearby suitable habitat; - Clearing vegetation outside of designated areas will be prohibited, with penalties levied, including fines and dismissal, and prosecution under the relevant laws for clearing vegetation; and - The Project owner shall provide training to staff and workers on all rules, regulations and information concerning restrictions related to unauthorised clearing of vegetation, as well as the punishment that can expected if any staff or worker or other person associated with the Project violates rules and regulations; ■ Use of the access road should be restricted to construction vehicles only. Checkpoints should be used to manage access and inspect vehicles for vegetation (including firewood) taken from the Project Area; ■ Where vegetation rehabilitation occurs, ensure suitable native species are used; and ■ Actively implement weed management measures, which prevent introduction and dispersal of weeds to the Project Area and the surrounding areas.	control measures are active; and - Weed management is active. ■ Records are to be kept and regularly reviewed (quarterly) for implementation of the workforce training program for fauna/flora awareness; ■ Records are to be kept and regularly reviewed (quarterly) of all personnel entering and exiting the Project Area through checkpoints, including results of all random inspections undertaken for poached flora/fauna; ■ Monitoring of vegetation rehabilitation actions. Monitoring is to consist of regular inspections (quarterly) to determine plant establishment. Where plant establishment is determined to have failed, further actions are required; and ■ A regular social engagement (annually) survey is to occur to gauge the socialisation of conservation measures, including the coastal revegetation program.	
Use and movement of heavy machinery and vehicles ie. light/noise/vibrator and erection of	Terrestrial Biodiversity	Disturbance and displacement of fauna and flora	■ Implement noise and vibration mitigation measures; ■ Where possible, lighting should not be active during the night or will be positioned, angled and shielded appropriately so as to reduce light pollution outside	■ Weekly inspections to be conducted during the construction phase to ensure noise, vibration and lighting mitigation measures are	EPC Contractor

Activity/ Aspect	Receptor	Potential Impact	Mitigation	Monitoring	Responsibility
transmission towers during construction phase of the Project			the area to be illuminated; and ■ Where lighting is required, it should not be directed towards areas likely to contain native fauna (e.g., scrub, dry agriculture areas).	implemented; and ■ Monthly inspections to be conducted during the operational phase to ensure noise, vibration and lighting mitigation measures are implemented.	
Excavation, construction, land clearing, spoil disposal, movement of vehicles, drilling, refueling, hazardous materials storage and maintenance.	Terrestrial Biodiversity	Temporary degradation of habitat due to the dust emissions, runoff, release of potential contaminants and increase in invasive species	■ Measures specified in the Sediment and Erosion Control Plan to be implemented; ■ All disturbed soil surfaces are to be rehabilitated and native flora species are to be planted within areas under the Projects control: - Planted species must be suitable native species, which provide habitat for conservation significan. species. ■ Measures specified in the Invasive Species Management Plan to be implemented,including: - Fill material brought onto the site is to be checked for invasive species including seeds; and Vehicle wash down procedures are to be used to reduce the transmission of invasive species into and from the Project area(s).	■ Records applicable to the Sediment And Erosion Control Plan are to be kept and regularly reviewed (quarterly) during the construction phase; ■ Records applicable to the Invasive Species Management Plan are to be kept and regularly reviewed (quarterly) during the construction phase; and ■ Monitoring is to include inspections of the Project Area on a monthly basis during construction in order to identify and eradicate any invasive species.	EPC Contractor
Accidental strikes from vehicle machinery strikes or from falling debris during clearing activites and poaching from the workforce and local residents	Terrestrial Biodiversity	Direct mortality to fauna and flora	■ Hunting and poaching will be prohibited for Project staff, workers, all contractors and personnel engaged in or associated with the Project, with penalties levied, including fines and dismissal, and prosecution under the relevant laws; ■ The Project owner shall provide training to staff and workers on all rules, regulations and information concerning restrictions related to hunting and poaching, as well as the punishment that can	All vehicle strikes and incidents of hunting and poaching at the Project Area to be recorded and implemented in annual reporting.	EPC Contractor

Activity/ Aspect	Receptor	Potential Impact	Mitigation	Monitoring	Responsibility
			expected if any staff or worker or other person associated with the Project violates rules and regulations: ■ All vehicles are to maintain a speed of a maximum of 40 km/hr within work sites to reduce the risk of fauna strike; and ■ Ensure appropriate clearing protocol is applied during clearing events.		
Generation, storage, collection transportation, 3R treatment and disposal of construction waste	Waste management	Improper and insufficient waste management and potential impacts on human health or environmental contamination	■ Project will develop a waste inventory which consist a detail of all waste type, frequency the waste generated and its source. It also will be used to determine the scale of services needed to manage the waste from the Project including type of waste container, collection frequency and storage time; ■ The waste inventory will be aligned with the waste disposal site in the area which licensed to accept the construction phase types of waste, by prioritising the 3R principle (Reduce, Reuse, Recycle); ■ Implementation of a system for documenting the waste movement. A waste transfer record system will be used to document all type of waste that leaving the Project area, their haulier, source, and proposed disposal site. The waste record system must be generated for a full audit trail; ■ Develop and implement Policy and Standard Operating Procedure (SOP) for waste management including requirements for segregation, storage and packaging for each type of waste; ■ Implement proper storage of the construction materials and wastes to minimise the potential	■ A waste facility audit program will assess waste transport credentials, processing facilities and disposal sites. A site audit should be conducted by the Project Proponent or its contractor before using the site / transporter for waste disposal, to determine whether the site / transporter operates within the bound of its license, the laws and standards acceptable to the Project; and ■ The Project will carry out an audit of the landfill site to determine whether the facility can receive wastes from the Project activities. This audit will be documented in a Waste Management Plan. When the landfill is not feasible to receive wastes from the project activities, alternative arrangements will be sought by the Project.	EPC Contractor

Activity/ Aspec	Receptor	Potential Impact	Mitigation	Monitoring	Responsibility
			damage or contamination of the materials; ■ Implement construction material inventory management system to minimise the excess supply of construction materials, which may lead to disposal of surplus materials at the end of the construction period; ■ Segregating hazardous and non-hazardous wastes and providing suitable containers for types of waste (e.g., enclosed bins for putrescible materials to avoid attracting pests and vermin and to minimise odour disturbances); ■ Keep the waste in a closed container away from direct sunlight, wind and rain, and to allow inspection between containers to monitor leaks or spills; ■ Ensure the waste storage areas have impermeable floors and containment, of capacity to accommodate 110% of the volume of the largest waste container; ■ All hazardous and non-hazardous waste will be managed and disposed by authorised and licensed third party contractor; ■ Inert waste will be stored in the laydown area and will be reused if possible; ■ Any bitumen waste will be stored separately in a lined area to be disposed of by licensed contractors; ■ Providing training to all workers on the waste management system of the Project; ■ Provide proper PPE and restrictions to the hazardous waste management area; and		

Activity/ Aspect	Receptor	Potential Impact	Mitigation	Monitoring	Responsibility
			■ Provide sufficient periodical medical check up to the workers involve in hazardous waste management.		
Discharge of wastewater during construction from onshore activities and vessel discharges (grey and black water)	Seawater	Degradation of Seawater Quality	■ Discharge of wastewater during construction will be managed to meet the applicable discharge standards; ■ Portable or permanent sanitation facilities serving all workers will be provided at all construction sites and be sufficient for the size of theconstruction workforce. Suitably sized septic tanks shall be provided to treat the sanitary discharge. Septic tank effluents will be serviced by pump trucks to avoid discharge to the sea; ■ For vessels, the Project will adhere to vessel-specific compliant waste management measures that include: - Segregation of wastes in appropriate, labelled containers; - Storage of hazardous waste in sealed containers in a designated area until it can be disposed of at a licensed onshore facility; - Organic kitchen waste will be macerated and discharged to sea; - All discharges will occur at least 22 kilometres from the shore; - Use of marine sanitation devices on survey vessels to allow for proper treatment of sewage effluent; and ■ An oil content meter will continuously monitor and sample the oil content within the drain line of oily machinery spaces.	■ Parameters to be analysed for monitoring for sewage, grey/black water discharges are as follows: - Vessel monitoring (as per MARPOL 73/78); Thermotolerant coliforms; Total Suspended Solids (TSS); Biochemical Oxygen Demand (BOD); Chemical Oxygen Demand (COD); and pH. ■ The Project will conduct monitoring of the effluent and seawater quality during construction and operations. Should exceedances be detected, corrective mitigation will be required. ■ Monitoring will be conducted every 3 months at plant (prior to discharge) and of the receiving environment. Performance will be reported as part of the AMDAL commitments in the RKL/RPL implementation report issued to the Environment and Forestry Agency of Banten Province every 6 months.	■ IRT; and ■ EPC Contractor
Discharge of ballast water or	Marine Biodiversity	Introduction of invasive species	■ Any vessels coming from outside of Java territorial	■ Records are to be kept and regularly	■ IRT; and ■ EPC

Activity/ Aspect	Receptor	Potential Impact	Mitigation	Monitoring	Responsibility
from fleets and vessels hull fouling		from vessels (ballast waters/hull fouling)	waters will have vessel hull and niches confirmed to be free of Invasive Marine Species (IMS) prior to mobilization to the local waters of the Project area; ■ All contracted vessels will maintain a current anti-fouling coating, as evidenced by a current Anti-fouling System Certificate under Annex 1 of the International Convention on the Control of Harmful Anti-Fouling Systems on Ships or other equivalent records; ■ All contracted vessels will meet the requirements of the International Convention for the Control and Management of Ships' Ballast Water and Sediments (2004) including that ballast water shall be managed in accordance with the provisions set out in the Convention; and ■ A ballast water record book will be implemented and maintained on board. Any vessels coming from outside of Java waters will have vessel hull and niches confirmed to be free of IMS prior to mobilisation to the local waters of the Project area.	reviewed (quarterly) for the completed Ballast Water Record Book	Contractor
Coastal and jetty construction	■ Marine Water Quality ■ Marine Biodiversity	■ Deterioration of water quality; and ■ Degradation of marine benthos (corals, seagrass)	■ Installation of nets/screen/shield sediment along the jetty construction area to catch floating objects that are likely scattered at the time the activities are carried out, as well as reduce the spread of turbidity resulting dispersion; ■ Stockpiles to be separated into topsoil and sub-soil and be located at least 50 m from the sea; ■ Implement erosion control measures such as limitation of gradients on earthworks, installation of sediment traps along water drainages including silt fences, and vegetation traps, sediment barriers and geotextile curtains to reduce entry of soil into	Water quality sampling and analysis	■ IRT ■ EPC Contractor

Activity/ Aspec	Receptor	Potential Impact	Mitigation	Monitoring	Responsibility
			marine waters; and ■ Prompt temporary or permanent stabilization and reinstatement of earthwork areas will be conducted to reduce the amount of exposure timeand manage potential for wind/water erosion impacts leading to loss of sediment and potential entry into water courses.		
Dredging	Seawater Quality	■ Direct loss of marine biodiversity; ■ Deterioration of water quality; and ■ Degradation of marine benthos (corals, seagrass)	■ Develop a dredging and disposal riskassessment, in accordance with International Maritime Organization (IMO) and the Convention for the Protection of the marine Environment of the North-East Atlantic (OSPAR) guidelines, including: - The dredging footprint of the Project to be reduced as far as practicable in order to reduce the direct disturbance to the seabedand indirect effects from turbidity plumes; Dredging vessels will be equipped with the appropriate Global Positioning System (GPS) equipment or other navigational aids to ensure dredging will occur at the specified dredge footprint and disposal at the designated soil disposal site; - EPCs' dredgers will maintain adequate clearance between vessel hull andthe seabed at all states of the tide and reduce vessel speed to ensure that excessive turbidity is not generated by turbulence from vessel movement or propeller wash; - Installation of nets/screensshield sedimentalong the jetty construction area to catch floating objects that are likely scattered at the time the activities are carried out, as well as reduce the spread of turbidity resulting dispersion; and	Records are to be kept and regularly reviewed (weekly) for impementation of the Dredging Management Plan. Direct measurement of the Total Suspended Solids (TSS) periodically at baseline sampling station to monitor actual levels at sensitive receptors (coral, seagrass).	EPC Contractor

Activity/ Aspec	Receptor	Potential Impact	Mitigation	Monitoring	Responsibility
			- Dredging disposal location to be in deep-water in accordance with Indonesian regulations and assessed through dredge dispersion modelling. - Avoid conducting maintenance dredging during coral spawning (March-April) and (August-September)		
Vessel activity Marine piling	Marine Biodiversity	Disturbance and displacement of marine fauna from underwater noise	■ Vessel and generator maintenance to beperformed as adequate maintenance, including lubrication and repair of winches, generators, propulsion components and other potential sources is an effective measure for noise reduction; ■ Where piling/activity is initiated during times of poor visibility (including night-time conditions, the activity will only be permitted if there have been no sightings of marine mammals within two (2) hours prior to low visibility/darkness. Activities then to be kept continuous as much as is possible. Other standard mitigation is also required (with the exception of observation period); and ■ Consider usage of Bubble curtain or CoTerdam to reduce noise impacts as Low as Reasonable Possible (ALARP).	■ Records shall be maintained of all marine species sightings in the area, including date and time, weather conditions, species identification and behavioural observations; and ■ When marine species are observed in the mitigation zone and time spent in the mitigation zone will be recorded.	■ EPC Contractor
Movement of vessels during the construction phase, including those associated with the mobilisation and construction of the jetty, and general supply vessels	Marine Biodiversity	Direct disturbance or mortality or injury of marine fauna from vessel movements	■ Vessel and generator maintenance to beperformed as adequate maintenance, including lubrication and repair of winches, generators, propulsion components and other potential sources is an effective measure for noise reduction; ■ Vessels will operate in accordance with standard maritime practices, whereby vessel speeds will be adjusted depending on environmental conditions (e.g., visibility, met ocean condition) as required by the captain of the vessel and to avoid any	■ Records are to be kept and regularly reviewed (quarterly) for the mortality or injury of any marine fauna from vessel movements.	EPC Contractor

Activity/ Aspect	Receptor	Potential Impact	Mitigation	Monitoring	Responsibility
			encountered hazards: ■ Support vessels will not travel greater than six (6) knots within 300 m of a whale or 150 m from a dolphin, if sighted, (i.e., will maintain a caution zone of those distances). In addition, vessels will approach no closer than 100 m from a whale or 50 m from a dolphin, if sighted. (Note this standard does not apply to support vessels engaged in limited/constrained manoeuvrability activities where vessel speed will already be low); ■ Vessels will not directly approach a marine mammal from in front or behind their path of travel; ■ Vessels will not exceed a speed limit of six (6) knots within designated boating channels around the jetty; ■ Vessel bridge crew to maintain visual watch of any hazards (including marine mammals).		
Underwater noise during construction (piling and vessel activities)	Marine Biodiversity	Disturbance and displacement of marine fauna	■ Timing and duration – Avoid conducting piling activities during times when marine mammals are likely to be breeding, calving, feeding, or resting in biologically important habitats located within the potential noise impact footprint. Where possible, also avoid conducting piling activities in areas adjacent migratory corridors or important feeding areas during migration season; ■ Piling method to use low noise piling methods, such as vibro-driving, instead of impact piling methods where possible. Vibro-driving methods produce lower noise levels and are non-impulsive in character. This reduces the likelihood of hearing injury to occur within marine mammals. The piling method should be optimized taking into account time on-site and likely noise levels;	■ Records shall be maintained of all marine species sightings in the area, including date and time, weather conditions, species identification, approximate distance from the pile, direction and heading in relation to the pile driving, and behavioural observations; and ■ When marine species are observed in the mitigation zone, additional information and corrective actions taken such as a shutdown of the pile driver, duration of the shutdown, behaviour of the animal, and time spent in the mitigation zone will be recorded.	EPC Contractor

Activity/ Aspect	Receptor	Potential Impact	Mitigation	Monitoring	Responsibility
			■ Acoustic decoupling (i.e., repositioning or placement on rubber fittings) of loud equipment during piling should be implemented; ■ Pile driving management measures consistent with Joint Nature Conservation Committee (JNCC) (2017) standard pile driving protocol: - Trained and dedicated Marine Mammal Observers (MMOs) and Passive Acoustic Monitoring (PAM) operatives during pile driving; - Mitigation zone (the JNCC recommended a minimum mitigation zone of 500 m, to be determined on a case-by-case basis. The zone may be determined using numerical modelling of the pile driving characteristics proposed for the project, but in the absence of modelling, a conservative one (1) km mitigation zone will be implemented); - 30-minute pre-start observations; - Delay-start procedure (if marine mammal sighted within the mitigation zone); - Soft-start procedure (minimum 20 minutes); and - Shut-down procedures if marine mammal sighted within the mitigation zone during pile driving. ■ Delay-start and shut-down procedures will also be implemented if a sea turtle is sighted within 500 m of the pile driving activity; ■ It is understood that marine piling work is based on 24-hour activity with a continuous operation until final penetration depth of the pile to avoid set-up,		

Activity/ Aspec	Receptor	Potential Impact	Mitigation	Monitoring	Responsibility
			therefore night-time work may be required. In this case the following applies: ■ Where piling/activity continues into a period of poor visibility/ night-time there is no need for additional mitigation; ■ Where piling/activity is initiated during times of poor visibility (including night-time conditions), the activity will only be permitted if there have been no sightings of marine mammals within two (2) hours prior to low visibility/darkness. Activities then to be kept continuous as much as is possible. Other standard mitigation is also required (with the exception of observation period); and ■ Consider usage of Bubble curtain or CofferDam to reduce noise impacts as Low as Reasonable Possible (ALARP).		

SOCIAL MITIGATION AND MONITORING

Activity/ Aspect	Receptor	Potential Impact	Mitigation	Monitoring	Responsibility
Workers recruitment and procurement of goods and services	Potential labour force in Cilegon City and Serang Regency in general and particularly those residing within the social boundary of the Project, include local businesses such as local contractors, catering/ food providers and mini markets	Managing community expectations	■ To have a clear agreement with the EPC (and its sub-contractors) to prioritise qualified local labour, optimise unskilled local labour and supplier in accordance with the needs of the Project; ■ To monitor the number of local workers hired to support meeting local content targets from Department of Manpower and Transmigration of Cilegon; ■ To provide local level training to improve employment and procurement; ■ To provide and communicate clear and factual information about the Project's needs related to employment, and business opportunities and to ensure the community understand the opportunities, duration and contract type to prioritise locals where feasible; ■ To ensure the EPC liaises closely with the local village leaders and local government authorities to agree on the appropriate procedures and set out a fair and transparent process for recruitment and hiring (avoiding the use of agents); ■ To have clear stipulations in the contracts/ working agreement between the Project and the worker including job responsibilities and timeframe of the job. This should be socialised prior to commencing work and to be updated prior to end of contract; ■ To clearly follow Indonesian regulations related to the labour recruitment with attention given to appropriate contracting and the establishment of clear terms and conditions to address issues related to child and forced labour as well as human trafficking, and ■ To widely socialise the grievance mechanism as set out in	■ EPC contracts local recruitment policy (including commitment of local employment), procedure and evidence of implementation; ■ Number of local employees; ■ Number of training programs and participants at local level; ■ Evidence and records of consultation activities related to local employment and procurement; ■ Records of contract/ working agreement between the Project and workers; and Number of related grievances submitted and status of investigation.	■ IRT; and ■ EPC Contractor

			the Stakeholder Management Plan (SMP) in Annex K to track and monitor concerns associated with Project employment/workforce recruitment. The Project must be committed to undertake an immediate investigation should complaints be received to close the matter out fairly.		
Construction of the jetty	Fisherman communities in Suralaya sub-district, Lebak Gede sub- district, and Salira Village	Disturbance to fishing activities and fishermen's loss of income	■ To develop and implement guidelines that set out the process for compensation for damage or removal of fishing nets/equipment. Any compensation agreed will be on a case by case basis through discussion with all parties involved; ■ To map and monitor the fishing activities and patterns around the jetty area to understand fishing behaviours of the community and to allow the Project develop construction schedule with minimal impact to the fishing activities; ■ To develop a targeted social program that will support their income if they are impacted following investigation of grievances, their vulnerability will be carefully monitored; ■ To conduct regular socialisation and consultation activities with the relevant stakeholders in an open, timely and transparent manner; and ■ To socialise the Project's grievance mechanism within the fishing community. Where complaints are submitted the Project will undertake an immediate investigation to address in a fair and timely manner	■ Project policy and procedure for compensation for damage or removal of fishing nets/ equipment; ■ Records cases related to disturbance to fishing activities and status of settlement; ■ Records of consultations undertaken with the fishermen communities ■ CSR programs targeting fisherfolks; and ■ Number of submitted grievances and status of investigation.	■ IRT; and ■ EPC Contractor.
Construction of the jetty	Fisherman communities in Suralaya sub-district, Lebak Gede sub- district, and Salira Village	Impact of the construction of the jetty to fishermen's safety	■ To have a clear policy and procedure on health and safety; this is to include incidents at sea and a mechanism to compensate any damage caused by the Project activities, as well as a full investigation; ■ To continue consultation with the fishermen on upcoming Project activities and inform them of any specific activities that may have health and safety risks, communicate and	■ Project H&S policy and procedure, and implementation report; ■ Evidence of safety signage; ■ Records and evidence of consultations related to H&S and grievance	■ IRT; and ■ EPC Contractor.

			promote safe fishing practices (e.g., lighting at night so small vessels are visible); ■ To post safety signs around the jetty construction activities such as floating buoys; and ■ To socialise the grievance mechanism to ensure the community groups understand its functionality and where complaints on accidents or near misses are submitted work closely with the complainant and EPC to close the issues out in a fair and timely manner.	mechanism; and ■ Number of submitted related grievances and status of investigation.	
Land vehicles movements during the construction	The community residing around the power plant. Those residing along the Project's transportation route and other users of the public road used by the Project	Community health and safety as a result of increased land traffic	■ All vehicles used by the Project must be inspected to ensure they pass the safety standards and emission standards; ■ The Project will coordinate and socialise traffic movements to relevant stakeholders including authorities in the Project area such as Local Police and Local Government of Cilegon City and Serang Regency and also local community; ■ Vehicles will adhere to strict speed limits and driving practices as well as driver check in and out logs for each journey and allocated fuelling stations to reduce disturbance to public users and the community; ■ Safety signage will be erected in known local traffic danger zones/speeding areas in coordination with relevant local authorities; flag men will be assigned around access areas to the Project area, such as at the gate of the Suralaya settlement in front of the existing power plant units, given it is crossed by children/ students from the nearby schools; ■ Traffic operating during the night and early morning hours will avoid using any alarms or loud noise emissions that may disrupt sleeping patterns; ■ Health campaign on the use of dust mask and provision of proper mask to the impacted community when deemed	■ Evidence of consultation/ socialisation of the traffic management plan ■ Evidence of traffic safety signage; ■ Safety awareness training materials; ■ Records of driver training sessions; ■ Journey plan records; ■ Number of submitted related grievances and status of investigation; and ■ Number of incidents related to Project's vehicle movements and status of investigation.	■ IRT; and ■ EPC Contractor.

			necessary; and ■ The grievance mechanism will be widely socialized along the transportation routes to educate the community groups in understanding its functionality and where complaints related to accidents or near misses are submitted. The Project will work closely with the complainant and EPC to close the issues out in a fair and timely manner		
General construction activities within the power plant area	The local community residing around the Power Plant	Impact to community health and safety resulted from the construction activities	■ Regular consultation with the surrounding communities of the power plant on Project activities with specific health and safety risks; ■ Regular safety campaign at local schools (from primary to secondary schools) to improve local community safety awareness in the future particularly those residing surrounding the proposed Project footprint; ■ Regular monitoring on noise, air quality, waste, and wastewater. Where identified significant changes that may impact the community, the Project will investigate and implement the safety measure when needed; ■ Inclusion of emergency measures if any safety incidents involving community (as part of the Project Emergency Response Plan); ■ Scheduled regular checking on the construction area to identify potential areas for mosquito breeding grounds. In case these are identified, mosquito spraying will be conducted; ■ Health campaign on the use of dust mask and provision of proper mask to the impacted community when deemed necessary; ■ Safety signage will be posted around the entrance gates to inform the community members of the risks of unauthorised access; and ■ To socialise and implement grievance mechanism to report	■ Record of consultation and socialisation related to health and safety to the community surrounding the power plant; ■ Evidence of posted signage around the power plant; and ■ Number of submitted related grievance mechanism and status of investigation.	■ IFI; and ■ EPC Contractor.

			any concerns associated with health and safety. The Project will work closely with the complainant and EPC to close the issues out in a fair and timely manner		
Recruitment of non-local workers	General community within the social boundaries of the Project, specifically those residing near the workers camp	Social and health impact associated with the presence of non-local Workers	■ Maximise the recruitment of local wokers where feasible and provide training to increase the capacity of the local people. ■ Clearly establish workforce requirements and local content. This will be consulted with local government and disseminated widely with the aim of discouraging influx and managing community expectations; ■ Compulsory medical examination for all workers and subcontractors to ensure they are fit for working and to monitor the prevalence of communicable diseases; ■ To provide an onsite health clinic with qualified doctor responsible for the treatment of workers and sub-contractors; ■ To develop and socialise a Project policy on worker behaviours to the workforce and the local authorities (sub-district and village leaders) involving community organisation as such youth organisation/ Karang Taruna and women organisation (such as PKK and pergajian groups); ■ Training for all workers on the expected workforce behaviours, sexually transmitted diseases and cultural awareness. Refresher trainings must be conducted regularly; ■ Establishment and enforcement of a zero tolerance approach should workers conduct any activities that are against Project policy; and ■ To socialise and implement the Project's grievance mechanism so to ensure the community groups understand its functionality and where complaints related to the Project	■ Number of local workers employed. ■ Number of trainings for local community and participant involved; ■ EPC contractor local recruitment policy (including commitment of local employment), procedure and evidence of implementation; ■ Evidence and records of consultation activities; ■ Evidence of workers medical records; ■ Workforce training and induction logs; ■ Induction training materials; ■ Evidence of worker acknowledgement of code of conduct; ■ Onsite health clinic; and ■ Number of related grievances submitted and status of investigation.	■ IRT; and ■ EPC Contractor.

			workers are submitted, an immediate investigation must be done and followed up to close out the issue in a fair and timely manner.		
Recruitment of non-local workers	Non-local workforce	Impacts associated with poor condition of the working and workers accommodation	■ All workers will have a contract in place that adheres to Indonesian/ International Labour Organisation (ILO) requirements that cites fair working terms and conditions, salary conditions, contract duration and worker rights; ■ All accommodation identified for use by construction workers will comply with Indonesian, the IFC and ILO standards i.e., safe structures, clean, and sanitary conditions, and easy access with separate arrangements for females and males; ■ Where large number of workers are involved, transportation to and from the site is provided to manage congestion impacts; ■ All workers have access to clean water for consumption and washing; ■ Appropriate health and safety measures are in place such as access to a first aid kit, fire extinguishers and alarms and security; and ■ All workers have access to a grievance mechanism and the EPC and its subcontractors are committed to process all submitted grievances in accordance with the procedure.	■ Worker contract records; ■ Worker accommodation inspections; and ■ Worker grievance records and status of investigation.	■ IRT; and ■ EPC Contractor.
Project employment	General community within the social boundaries of the Project	Community impact due to migration influx	■ Maximise the recruitment of local wokers where feasible and provide training to increase the capacity of the local people; ■ To liaise with the local police and healthcare providers to understand whether additional pressures have been placed on them due to the labour induced influx. If such condition is observed, immediate actions to solve the issue must be taken in close coordination with the relevant authorities; and	■ EPC's local recruitment policy (including commitment of local employment), procedure and evidence of implementation; ■ Number of local workforce employed by the Project; ■ Number of related	■ IRT ■ EPC Contractor.

			■ To socalise and implement the Project's grievance mechanism so to ensure the community groups understand its functionality and where complaints related to the Project workers are submitted, an immediate investigation must be done and followed up to close out the issue in a fair and timely manner.	grievances submitted and status of investigation; and ■ Records of police and healthcare providers consultations.	
Construction demobilisation	The demobilised local construction workers, particularly people from the surrounding Project area	Community disorder, due to construction demobilisation	■ The construction workforce demobilisation is to be carried out in accordance with regulations from the Department of Manpower and Transmigration of Cilegon City; ■ Carefully communicate the construction demobilisation in a timely manner ensuring the workers understand when their contract will end and communications around operational employment levels to be widely disclosed to manage the workers expectations; ■ Provision of basic financial management programs for local construction workers to assist the demobilised workers to be better- prepared in sustaining their livelihood incomes post construction activities; ■ To inform the community and workers about employment opportunities prior to operations to allow them to be in a position to better- respond for such opportunities; ■ To prioritise demobilised local workforce and the impacted communities to participate in the Project's CSR/ social investment programs; ■ To provide training for local community to increase opportunities of employment and procurement for operational phase. This will consider collaboration with Vocational School/ *Balai Latihan Kerja*; and ■ To ensure the grievance mechanism is accessible for all communities to report concerns associated with Project employment / workforce recruitment. Where complaints are submitted, the Project will undertake an immediate	■ Project retrenchment policy, procedure and evidence of socialisation; ■ Records of financial management programs/ trainings for local construction workers; ■ Recruitment policy and procedure for operation and evidence of socialisation; ■ Project's CSR programs; ■ Records of coordination with local authorities regarding of vocational training for local community; and ■ Number of related grievances submitted and status of investigation.	■ IFC; and ■ EPC Contractor.

nvestigation and close monitoring until the issue is closed
out.

UNPLANNED AND NON-ROUTINE EVENTS MITIGATION MEASURES AND MONITORING

Activity/ Aspect	Receptor	Potential Impact	Mitigation	Monitoring	Responsibility
Fire and explosion loss of containment (major)	Soil and groundwater	■ Human health risk; ■ Deterioration of ground water quality; and ■ Impact to seawater and associated marine biodiversity and benthic communities as well as risk to community of worker safety.	■ Conduct Fire and Explosion Risk Assessment to evaluate the risk; ■ Conduct Explosive Area Mapping as per Explosive Atmosphere Procedure, Doc. No. IRT-EHS-PRC-0012, to identify further mitigation measure required to reduce the potential introduction of ignition source in areas that fall under explosive area category ■ Mitigation in Coal Handling Area: - Spraying the coal regularly to maintain coal temperature; - Provision of safety sign (Fire Hazard Potential Area); - Prohibition of smoking activities; - Hot work limitation; - Provision of proper ventilation in the conveyor area; and - Use of spark proof tools and equipment. ■ Emergency Response Plan (ERP); ■ Mitigation in Demineralisation Process: - Elimination of ignition source; - Provision of fire extinguisher and hydrant near the area; - ERP ■ Mitigation in Boiler - Process control (pressure and temperature); - ERP. - Mitigation in Turbine and Generator: - Immediately stop work in case of any system failure; - Isolation from ignition sources; - Hot work limitation in Hydrogen Tank Area;	■ Regular maintenance and inspection to the equipment of Boiler, Turbine & Generator, Switchgears (MV, LV) and Switchyard; ■ Regular maintenance of the Demineralisation Processes Pump; ■ Monitoring all system work, especially the cooling system; and ■ Continuous monitoring of the coal yard.	■ Operating company; ■ IRT; and ■ EPC Contractor.

Spillage of Hazardous Material – loss of containment (localised)	Soil and Groundwater	■ Human health risk; and ■ Deterioration of groundwater quality.	- Fire protection system provision; and - ERP. ■ Mitigation in Switchgear (MV, LV) and Switchyard: - Lock Out Tag Out (LOTO) System during operation or maintenance; and ■ Fire protection system provision. ■ Fuels for construction plant shall be stored in bunded tanks. The bunds should be sealed and be at least 110% capacity of the tank volume. Filling points and drain valves position shall be within the bund so in the event of a valve failure, the spill would be retained in the bund; ■ Oil tanks are placed in retention dike, the capacity of which shall be the same as the biggest tank at a minimum and 50% of the total tank storage capacity; ■ Disposal equipment, such as drums to contain waste materials and residuals, both open containers for solids and closed drums for liquids shall be made available; ■ Implement Spill Emergency Procedure (Doc. No. IRT-EHS-PRC-0027); and ■ External response service shall be called upon when internal resources is not sufficient to respond to a spill incident.	N/A	■ Operating company; ■ IRT; and ■ EPC Contractor.
Vessel collisions and capsizes - loss of containment (major)	Seawater	■ Impact to water quality and associated marine biodiversity and benthic communities as well as risk to community of worker safety	■ Safety of Life at Sea (SOLAS)/MMC Standard; ■ All vessel to be equipped with working monitoring system, e.g., GPS, sounder, etc.; ■ Emergency equipment and procedure available on board, understood by the crew; ■ The use of marker buoys to detail the marine safety exclusion zone and use of support vessels to intercept other sea users; ■ Undertake stakeholder engagement with the local marine environment users including the fishing community and other users. This include inform bation of exclusion zones and better organisation of general vessel movements; and ■ Prepare a Vessel Collision Risk Management Plan. ■ Ensure all employees complete training prior to driving any Project vehicle. The content of the training should be	Regular inspection and maintenance with the implementation being well recorded.	Third-party contractor/ suppliers

			tailored to the employee's role; and ■ Develop, communicate and implement Journey Management Plans for heavy equipment, construction and transport vehicles and worker buses.		
Traffic Collision/ Accident – loss of inventory (localised)	Soil and groundwater	■ Human health risk; ■ Deterioration of groundwater quality.	■ Provision of traffic signs, safety mirrors in certain turning points and warning light; ■ Traffic escort by the local police department for heavy equipment mobilisation; ■ Local community socialisation; ■ Conducting traffic management and applying road diversion in coordination with the local police department;	■ N/A	■ Operating company; ■ IRT; ■ EPC Contractor; ■ Third-party contractor/ suppliers.
Natural Hazard – loss of inventory (major)	Soil, groundwater and marine biodiversity	■ Human health risk; ■ Deterioration of groundwater quality; and ■ Potential adverse impact to the seabed, benthic communities, other marine life and users of the marine environment.	■ Emergency Response Plan for natural disaster; ■ Fire detection system; ■ Fire suppression system; ■ The construction planning has incorporated slope stability study to reduce the risk of landslides; and ■ Keep critical equipment at high-elevated area within the premises to avoid any damage associated with water logging.	■ N/A	■ Operating company; ■ IRT; ■ EPC Contractor; ■ Third-party contractor/ suppliers.
Flooding/ inundation of low lying/flat areas located on-site	Flood	Standing water likely to disrupt site operations for a few hours and cause damage to any vital installations	■ Construct storm water drainages across the Project area including the low-lying areas to evacuate the storm water effectively; ■ Vital installations such as switch yard, coal dome etc. may not be constructed in areas which are not reclaimed. The FSL's must be provided with a gentle slope to help evacuate runoff towards the Sea; ■ Project may be required to provide storm water sumps and pumping infrastructure to evacuate storm water from low lying areas; and ■ Construction of flood walls along the up gradient boundaries.	■ N/A	■ Operating company; ■ IRT; ■ EPC Contractor.

Flooding in off-site areas due to the Project development	Flood	Increased Waterlogging to sensitive receptors such as settlements, which may cause distress and unrest within local communities	■ Construct storm water drainages in the off- sites areas along the Project area boundaries and roads, privately or in partnership with relevant authorities to drain storm water effectively; and ■ Undertake rehabilitation and reconstruction activities in selected and sensitive settlements, if any, which are prone to chronic flooding.	■ Monitor the situations(waterlogging) in the nearby communities, especially during the potentially flood prone periods.	■ Operating company; ■ IRT; ■ EPC Contractor; ■ Third-party contractor/ suppliers.

Appendix 2A. Environment Management/Mitigation based on EIA

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Monitoring / Period / Location	Responsibility
A.	**AMDAL PLTU Jawa 9-10 Power Plant Development Activities (2017)**				
A.1 Important Hypothetic Impact (Construction Phase)					
1.	Road Traffic Disruption	• Mobilization of equipment and materials • Land preparation	No congestion around access to the project site during working hours	• Visual: documentation of the level of traffic access to the Project site • Tabulation of frequency the number of vehicles crossing the road, the number of delays / queues of vehicles **Period:** Every 6 months **Location:** Suralaya Roads	EPC Contractor
2.	The decline in Air Quality	• Mobilization of equipment and materials • Land preparation activities • Power Plant construction	• Concentration does not exceed the ambient air quality standard PP 41 of 1999 • The parameter of the odor does not exceed the quality standards MOE Decree 50 of 1996: NH3 and H2S • No complaints from the public about the project • No distribution of dust around the project	• Visual: dust distribution documentation of the project site • Sampling of air quality • The results of the analyses compared to the quality standard MOE Decree No. 41/1999 and No. 50/1996 **Period:** During construction activities the frequency of monitoring six months. For the dust fall, the frequency is every month **Location:** Location of project site	EPC Contractor
3.	Increasing of Noise	• Mobilization of equipment and materials • Land preparation activities • Power Plant construction	• The noise level does not exceed the quality standards MOE Decree No. 48 of 1996 • No complaints from the public about the project	• Noise level monitoring and measurement • The results of the analyses compared to the quality standard MOE Decree No. 48 of 1996 **Period:**	EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Monitoring / Period / Location	Responsibility
				During construction activities are underway with the frequency of monitoring every 3 months. Reporting every 6 months. **Location:** Project site and residential area adjacent to the project	
4.	Landslide Occurrence	Land preparation activities	There is no mass movement soil / rock (landslides) due to changes in slope geometry for land degradation.	Methods of data collection and analysis is conducted by monitoring the cut and fill activity in order to in accordance with the planning and design of a safe slope (stable) against potential landslides. **Period:** During construction activities take place with a frequency of 6 months of monitoring, reporting every 6 months. **Location:** In the entire area of the location of the power plant relate to cut and fill activities.	EPC Contractor
5.	Increased of erosion rates	Land preparation activities	There is no increasing of erosion rate from land clearing.	Methods of data collection and analysis is conducted through observation at land revegetation **Period:** During construction activities take place with a frequency of 6 months of monitoring, reporting every 6 months **Location:** Across the open land of the power plant site area	EPC Contractor
6.	Employment opportunities	Mobilization and demobilization of construction worker	The level of absorption / employment compared to the number of job seekers	• Interviews with village officials, community leaders, people around the location of activities. • Inspection personnel data on contractors and subcontractors (HR) • Interviews with construction workers. • Quantitative and qualitative data analysis-descriptive.	RT and EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Monitoring / Period / Location	Responsibility
				Period: During construction activities take place with a frequency of 6 months of monitoring, reporting every 6 months **Location:** • Village of Suralaya • Village of Lebakgede • Village of Salira	
7.	Business Opportunity	Mobilization and demobilization of construction worker	• Growth of new business relating to recruitment activities around the location of activities, including the development of economic infrastructure such as grocery stalls, food stalls, and others economic activity • Increased business opportunities > 2unit of from initial conditions	• Interviews with affected communities • Direct observation of the number and types of businesses that arise because of the activities of recruitment • Quantitative and qualitative data analysis-descriptive **Period:** During construction activities take place with a frequency of 6 months of monitoring, reporting every 6 months **Location:** • Village of Suralaya • Village of Lebakgede • Village of Salira	RT and EPC Contractor
8.	Public Health Disturbance	• Mobilization of equipment and materials • Land preparation • Power Plant construction	Number of sicknesses based on environment impact (mainly from air media)	**Data Collection Methods** • Conducting interviews with people who have been affected by the activity. • Field observation, is by observing the object taken as supporting evidence of the interview. The results of observations wil be documented as evidence. • To collect data from health centers and clinics in the activities of the Company. **Data analysis method** The monitoring results are presented in a report containing data in the form of cross-tabulation of data and percentages, tables	RT and EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Monitoring / Period / Location	Responsibility
				or graphics, equipped with descriptive terms. The formula used by epidemiological methods both qualitatively and quantitatively: • In qualitative data can be either descriptive calculations with prevalence and incidence rate • (1) Quantitatively cross tabulation, (2) correlation test, (3) regression and (4) Analysis of track **Period:** During construction activities take place. Fecuency of 1 year. Reporting every 6 months **Location:** • Village of Suralaya • Village of Lebakgede • Village of Salira	
9.	Public Perception	• Mobilization and demobilization phase of construction workers • Mobilization of Equipment and Materials • Power Plant construction	Pusilive community views and pusilive support towarce the project activity.	• Monitoring is implemented by observing the behavior and public opinion around the site. • Suggestion/Opinion collection can be implemented by distributing questionnaires, face to face, and interviews or informal observations • Field observation • Quantitative and qualitative data analysis-descriptive form of a description of the public response. **Period:** During construction activities take place with a frequency of 6 months of monitoring, reporting every 6 months **Location:** • Village of Suralaya	RT and EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Monitoring / Period / Location	Responsibility
				• Village of Lebakgede • Village of Salira	
A.2 Other Imparts to be Managed (Pre-Construction Phase)					
10.	Public Perception	Land acquisition	Positive public perceptions towards company.	• Monitoring is implemented by observing the behavior and public opinion around the location. • Opinion collection can be implemented by distributing questionnaires, face to face, and interviews or informal observations • Formal legal appraisal of the land acquisition • Quantitative and qualitative data analysis-descriptive form of a description of the public response. **Period:** • Monitoring carried out during the pre-construction phase of land acquisition takes place with a frequency of 1 month • Reporting every 6 months **Location:** Village project site and Suralaya	RT
A3. Other Imparts to be Managed (Construction Phase)					
11.	Decrease of Marine Water Quality	Mobilization and demobilization of labor	The quality of sea water according MOE Decree No. 51 of 2004 Annex I for Water Port	• Sampling of sea water quality • The results of the analysis compared to the quality standard MOE Decree No. 51/2004 Annex I **Period:** • During the construction of the power plant, monitoring is conducted every 6 months • Reporting every 6 months **Location:**	EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Monitoring / Period / Location	Responsibility
				Power plant project site	
12.	Terrestrial Biota Disturbance	Land preparation activities	Visual and documentation of the existence of terrestrial biota	Visual and documentation of the existence of terrestrial biota **Period:** • During the construction of the power plant, monitoring is conducted every 6 months • Reporting every 6 months **Location:** Laydown area	RT and EPC Contractor
13.	Decreasing of Environmental Sanitation	Power Plant construction	• Water quality in accordance with Ministry of Health 32/2017 Water Quality Standards • There is no increasing number of environmentally based disease morbidity two (2) times or more than the previous period.	**Data Collection Methods** • Conducting interviews with people who have been affected by the activity. • Field observation, ie by observing the object taken as supporting evidence of the interview. The result of observations will be documented as evidence • To collect data from health centers and clinics in the activities of the Company. **Data analysis method** The next monitoring results are presented in a report containing data in the form of cross-tabulation of data and percentages, tables or graphics, presented with descriptive terms. **Period:** During construction activities take place. Frequency of 1 year. Reporting every 6 months **Location:** Project Site Location	RT and EPC Contractor
B.	**AMDAL of Land Reclamation Plan and Jetty Development of PLTU Jawa 9 - 10 in Suralaya (2018)**				

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Monitoring / Period / Location	Responsibility
B.1 Significant impacts to be Managed (Stage Construction)					
1.	Air Quality	The source of the impact comes from the arrangement of land (reclamation)	Ambient air quality does not exceed the environmental quality standards based on Government Regulation No 41 of 1999 on Air Pollution Control.	• Measurements of air quality in the field with the appropriate equipment • On-site sampling parameters to be recorded: Wind direction and speed, air temperature and Date, Time, Weather. **Location:** Project Site and residential area adjacent to the project **Period:** During the reclamation activities	Reclamation: IRT Jetty construction: EPC Contractor
2.	Noise	The source of the impact comes from the arrangement of land (reclamation)	The noise level does not exceed the quality standards appropriate MOE Decree No. 48 of 1996 on Noise Level Materials and Labor Ministerial Decree No. 51 of 1999 on the level of noise in the workplace	Measurements of noise in the field by using a sound level meter **Location:** Project site and residential area adjacent to the project **Period:** During the reclamation activities	Reclamation: IRT Jetty construction: EPC Contractor
3.	Disturbance sea water quality Coastal Ecosystems and Aquatic biota	The source of the impact comes from the arrangement of land (reclamation)	TSS concentration meet environmental quality standards refer to the Minister of Environment Decree No. 51 of 2004 on Sea Water Quality Standard, with parameters: coral TSS 20 mg / l, TSS mangrove 80 mg / l, TSS seagrass 20 mg / l.	Sea water quality data collection is conducted through sea water quality testing both in the field and in the laboratory. Data analysis is implemented by comparing the results of laboratory testing of the quality standard based MOE Decree No. 51 of 2004. **Data analysis** In this study of water quality analysis data will be used analysis methods and Nemerow Sumitomo (1970), University of Texas USA in accordance with the MOE Decree no. 115 of 2003 on Guidelines for Determination of Water Quality Status • Inventory of coral reefs by coral reef monitoring activities so that the condition of coral reefs in the study area is known. In this activity, method of LIT (Line	Reclamation: IRT Jetty construction: EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Monitoring / Period / Location	Responsibility
				intercept Transect) is used to estimate the coverage. • Determination of seagrass observation station preceded by a visual survey. Enumeration was conducted using transect quadrant. • Analysis of the data by comparing the measurement results of seagrass closing conditions in the quality standard seagrass damage by MOE Decree No. 200 of 2004 with the criteria of <29.9% classified as poor, 58.9% 30- categorized less wealthy and> 60% categorized as rich. • The collection of data types and abundance of plankton is implemented by taking a sample of plankton (phytoplankton and zooplankton) are taken with the aid of a plankton net no. 25 is equipped with a flow meter. • Data were analyzed for known plankton diversity index and uniformity • Sampling of benthos was implemented by using Eckman benthos dredge, then the sample substrate is preserved with 4% formalin solution in order to avoid damage to the sample, and then do the calculations and research on the species diversity in the laboratory • The study of nekton is carried out by means of inventory, interviews, types of fish around the location **Location:** Reclamation area **Period:** During the reclamation activities	
4.	Fishermen Activities	The source of the impact comes from the arrangement of land (reclamation)	• The absence of a significant decline of fish catches by their fishing activity reclaimed land arrangement	The data collection activities of fishers estimated to be affected can be reached through the activities of collecting primary data and secondary data. Secondary data	Reclamation: IRT Jetty construction: EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Monitoring / Period / Location	Responsibility
			• The absence of a significant decline in their fishing income due to reclamation activities. • The absence of protest, conflict and social unrest related to their fishing reclamation activities in waters.	collection can be implemented to determine the type and the catches of fishermen in series of daily, weekly, monthly and yearly from the Department of Fisheries and Marine Resources Banten province as well as from places fish auction located in the vicinity of the location of activities with fish thought to have come from water **Location:** Territorial waters as well as the project site and the fishing village fishing locations that are in the waters to be reclaimed **Period:** During the reclamation activities	
5.	Public perception and Social conflict	The source of the impact comes from the arrangement of land (reclamation)	The number of people who have a negative perception turned positive towards the activity	Monitoring data collection impacts public perception of the activities conducted through open interviews of community groups in villages and study areas or with b) questionnaires that had been prepared. The data collection can be implemented through conducting interviews with people who are in the study area to know whether or not the protest, conflict or unrest. It also conducted a data collection through monitoring directly or through media reports. **Location:** Project site and residential area adjacent to the project **Period:** During the reclamation activities	Reclamation: IRT Jetty construction: EPC Contractor
6.	Public health	The source of the impact comes from the arrangement of land (reclamation)	The closest public health is not disturbed by the activity plan of activities	Interviews with people who are in the study area appear to know whether the disruption to public health. It also conducted a data collection through monitoring directly or through media reports. **Location:**	Reclamation: IRT Jetty construction: EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Monitoring / Period / Location	Responsibility
				Project site and residential area adjacent to the project **Period:** During the reclamation activities	
8.	Waste and Contamination	The source of the impact comes from the arrangement of land (reclamation)	Waste is managed in accordance with Act No. 18 of 2008 No exceedance of the standards of e MOE Decree No. ' 12 of 2003 on Waste Water Quality Standards from Domestic Activity	• Observation field • Calculation mathematical • Analysis description **Location:** Location management at the domestic waste storage, base camp, septic tank effluent. **Period:** During the reclamation activities	Reclamation: IRT Jetty construction: EPC Contractor
9.	Hazardous waste	The source of the impact comes from the arrangement of land (reclamation)	Government Regulation No. 101 of 2014 on the management of hazardous and toxic waste.	• Observation field • Calculation mathematical • Analysis description **Period:** During the reclamation activities **Location:** Hazardous waste temporary storage	Reclamation: IRT Jetty construction: EPC Contractor
10	Road Traffic	The source of the impact comes from the arrangement of land (reclamation)	The degree of saturation of traffic (DS) ≤0.8	• Primary and secondary data collection ground transportation activities that are expected to be affected by the mobilization of heavy equipment and material. • Collection Secondary data was conducted to determine the level of traffic from local agencies (Transportation Agency, traffic police, the media coverage, etc.). • Collection of primary data s implemented by direct transportation surveys in the field (the tally survey) on roads around the site plan of activities **Data analysis**	Reclamation: IRT Jetty construction: EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Monitoring / Period / Location	Responsibility
				Based on primary and secondary data records can be analyzed on a regular basis, whether from time to time the condition of traffic flow, a queue, or a jam occurs **Period:** During the reclamation activities **Location:** Transportation line of equipment and materials mobilization	
-	Shipping Traffic	The source of the impact comes from the arrangement of land (reclamation)	No traffic disruptions such as ship accidents.	**Data collection** • Collection of primary data and secondary data on marine transportation activities that are expected to be affected by reclamation activities. • Secondary data collection taken to determine the trend of an increase / decrease in shipping traffic, number of sea transportation accidents caused directly or indirectly by the reclamation activity. Such data can be obtained from Banten Provincial Transport Department, ocal KSOP. • Primary data collection can be implemented by interviewing with marine transportation service personnel who dock at the port in connection with the presence or absence of disruption to sea transportation activites. To find out whether or not complaints protests, conflicts or unrest can be discovered through direct monitoring or through mass media reports. **Data analysis** Data analysis was performed through the tabulation and descriptive qualitative. **Period:** During the reclamation activities **Location:**	Reclamation: IRT Jetty construction: EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Monitoring / Period / Location	Responsibility
				Shipping lanes in the Bay of Banten	
C.	**AMDAL Addendum, RKL and RPL of Land Preparation and Development of PLTU Jawa I-10 (2018)**				
Important Hypothetic Impacts (Construction Phase) **C.1 Components of Construction Recruitment Activities**					
1.	Increasing of population	Construction manpower recruitment	Number of non-local communities who worked on the project site	**Method of collecting data:** • Survey with in-depth interviews. • Study documentation includes data on the number of employees working on the project site **Data analysis method:** Descriptive qualitative and quantitative **Period:** 6 (six) months during the construction **Location:** Subdistrict Pulomerak; with prioritize Suralaya and Lebak Gede village.	RT and EPC Contractor
2.	Increased employment and business opportunities	Construction recruitment	Increasing employment and business opportunity around the activity location	**Method of collecting data:** Survey with in-depth interviews. The study includes documentation of new businesses that created by affected people, the partnership with the local economy agencies **Data analysis method:** Descriptive qualitative and quantitative **Period:** 6 (six) months during the construction **Location:** Subdistrict Pulomerak; with prioritize Suralaya and Lebak Gede village.	RT and EPC Contractor
3.	Changes in people's income	Construction recruitment	The increase in pubic revenue as a result of activities	**Method of collecting data:** Survey by using a structured questionnaire and interview for local workers in the power plant and the people who are not working in the plant. **Data analysis method:**	RT and EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Monitoring / Period / Location	Responsibility
				Descriptive qualitative and quantitative **Period:** 6 (six) months during construction **Location:** Subdistrict Pulomerak; with prioritize Suralaya and Lebak Gede village.	
4.	Changes in society perception	Construction recruitment	Public perception of the plan of activities, especially related to recruitment	**Method of collecting data:** Sucy documentation includes records of complaints on recruitment activity during construction phase **Data analysis method:** Descriptive qualitative and quantitative **Period:** 6 (six) months during the construction **Location:** Subdistrict Pulomerak; with prioritize Suralaya and Lebak Gede village	RT and EPC Contractor
5.	Social conflicts	Construction recruitment	The lack of complaints, protests, conflicts of society are not accommodated due to people's desire to be able to work on the project	**Method of collecting data:** Sucy documentation includes records of complaints on the recruitment activity during construction phase **Data analysis method:** Descriptive qualitative and quantitative **Period:** 6 (six) months during the construction **Location:** Subdistrict Pulomerak; with prioritize Suralaya and Lebak Gede village;	RT and EPC Contractor
C.2 Component of Equipments and Materials Mobilization					
6.	Land traffic disturbance	Mobilization of equipment and materials	• Smooth traffic ground transportation in study area; • The lack of disturbance / land traffic accidents caused by activities • The lack of complaints, protests, conflicts of perpetrators of ground	**Method of collecting data:** • Primary and secondary data collection of ground transportation activities that are expected to be affected by the operation of heavy equipment and material mobilization conducted.	EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Monitoring / Period / Location	Responsibility
			transportation services to the proponent or by the public.	• Secondary data collection was conducted to determine the level of traffic from Transportation agency, traffic police, the media coverage, etc. • Primary data were collected by direct transportation survey (the tally survey) on roads around the site plan of activities **Data analysis method:** Based on primary and secondary data records can be analyzed on a regular basis, whether from time to time the condition of smooth traffic flow, choked condition occurs, a queue, or a jam occurs. The condition is analyzed by the equation C = Co × FCSP FCW × × × FCSF FFVCS DS = QTOT / C Where: C = Capacity (smp / hour) C1 = basic capacity (smp / hour) FCW – street width adjustment factor FCSP = adjustment factor separation direction (only for undivided roads) FCSF = adjustment factor aside barriers and road shoulder / kerab barrier FCCS = speed adjustment factor for the size of town QTOT = The total current (smp / hour) C = Capacity **Period:** 6 (six) months during the construction **Location:** Subdistrict Pucomerak; with prioritize Surabaya and Lebak Gede village. The path of a transport vehicle tools, building materials	
7.	The decline in air qurity	Mobilization of equipment and materials	Ambient air quality does not exceed the standards ie. Government Regulation	**Method of collecting data:**	EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Monitoring / Period / Location	Responsibility
			No. 41 of 1999 on Ambient Air Pollution Control.	Measurements of air quality in the field with the appropriate equipment. Air quality measurement will be performed for 24 hours. On-site sampling parameters to be recorded: Wind direction and speed, air temperature and Date, Time. Weather and Location Sampling. **Data analysis method:** The results of the measurement and analysis of air quality compared to the corresponding Air Quality Standards Appendix PPRI No. 41/1999 **Period:** Monitoring is carried out during the construction phase with the period 3 months and reporting of environmental monitoring every six months. **Location:**	
8.	Increasing of noise	Mobilization of equipment and materials	The noise level does not exceed the quality standards for residential noise at 55 dBA and 70 dBA for the industry by the Minister of Environment Decree No. 48 of 1996 on Noise Level	Community lived along the path of transportation of equipment and materials **Method of collecting data:** Measurements of noise in the field by using a sound level meter **Data analysis method:** The results of measurements of noise compared with the noise quality standards that apply are: Ministry of Labor No. 51 / 1999 on noise level in the workplace and the Environment Decree No 48 / MENLH / 1996 for noise in the residential neighborhood. **Period:** Monitoring is carried out during the construction phase with a period of 3 months and reporting of environmental monitoring every six months. **Location:** Community lived along the path of transportation of equipment and materials.	EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Monitoring / Period / Location	Responsibility
9.	Public health nuisance	Mobilization of equipment and materials	Minimize / eliminate the public health problems that come from the mobilization of equipment and materials	**Method of collecting data** The data collection is implemented through interviews with people who are in the study area to know whether the disruption to public health occurred. It also conducted a data collection through monitoring directly or through media reports. **Data analysis method** Data analysis was performed through the tabulation and qualitative descriptive **Period:** Monitoring is carried out during the construction phase with a period of 3 months and reporting of environmental monitoring every six months. **Location:** Along the path of transportation of equipment and materials	EPC Contractor
C3. Components of Power Plant Supporting Facilities Development					
10.	The decline in air quality	Power Plant Supporting Facilities Construction	Ambient air quality does not exceed the BML ie Government Regulation No. 41 of 1999 on Ambient Air Pollution Control	**Method of collecting data** Measurements of air quality in the field with the appropriate equipment. Air quality measurement will be performed for 24 hours. On-site sampling parameters to be recorded: Wind direction and speed, air temperature and Date, Time, Weather and Location Sampling. **Data analysis method** The results of the measurement and analysis of air quality compared to the corresponding Air Quality Standards Appendix PPRI No. 41/ 999. **Period:** Project site and residential area adjacent to the project **Location:**	EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Monitoring / Period / Location	Responsibility
				Monitoring is carried out during the construction phase with a period of 3 months and reporting of environmental monitoring every six months	
11.	ncreased noise	Power Plant Supporting Facilities Construction	The noise leve that does not exceed the quality standards in accordance MOE Decree No. KEP-48 /1996 on Standards of Noise Level and Minister of Manpower Decree No. 51 of 1999 the evel of noise in the workplace	**Method of collecting data** Measurements of noise in the field by using a sound level meter **Data analysis method** The results of measurements of noise compared with the noise quality standards that apply are: Minister of Manpower Decree 51/1999 on standard noise in the workplace and the Environment Decree No. 48/1996 for noise in the residential neighborhood **Period:** Monitoring is carried out during the construction phase with a period of 3 months and reporting of environmental monitoring every six months. **Location:** Project site and residential area adjacent to the project	EPC Contractor
12.	ncreased runoff	Power Plant Supporting Facilities Construction	The amount of surface water f ow	**Method of collecting data:** Field observations of the activities of Land clearing and preparation of the work area Measure the depth of water in the settling pond. **Data analysis method** Data analysis was performed through the tabulation and qualitative descriptive **Period:** Monitoring is carried out during the construction phase with a period of 3 months and reporting of environmental monitoring every six months. **Location:** • Land clearing location	EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Monitoring / Period / Location	Responsibility
				• Sellling pond	
13.	Pubic health nuisance	Power Plant Supporting Facilities Construction	Minimize / eliminate the public health problems that come from the mobilization of equipment and materials	**Method of collecting data** The data collection implemented through conducting interviews with people who are in the study area to know whether the disruption to public health occurred. It also conducted a data collection through monitoring directly or through media reports. **Data analysis method** Data analysis was performed through the tabulation and qualitative descriptive **Period:** Monitoring is carried out during the construction phase with a period of 3 months and reporting of environmental monitoring every six months. **Location:** Community settlements along the path of transportation of equipment and materials	EPC Contractor
Insignificant Hypothetical Impacts (Construction Phase) **C.4 Power Plan's Supporting Facilities Development**					
14.	noreasing of Vibraton	Power Plant Supporting Facilities Construction	Vibration levels do not exceed the quality standards appropriate limits KepmenMOE Decree No. LH No 49 of 1996 on Quality Standards vibration level	**Data collection:** The measurement technique is implemented by placing the vibration measuring device above the ground with the closest distance of 50 m up to 150 m at intervals of 25 m. **Data Analysis Methods:** The results of the field measurements are then compared with the corresponding quality standard vibration level MOE Decree No. 49 /1996. **Period:** Monitoring is carried out during the construction phase with a period of 3 months and reporting of environmental monitoring every 6 months	EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Monitoring / Period / Location	Responsibility
				Location: The residential location in the area around the project site	
15.	Decrease Marine Water Quality	Power Plant Supporting Facilities Construction	Environmental quality standard refers to the Minister of Environment Decree No. 51 of 2004 on Sea Water Quality Standards Annex I	**Data collection** Sea water quality data collection is implemented through sea water quality testing both in the field and in the laboratory. Data analysis is implemented by comparing the results of laboratory testing of the quality standard based MOE Decree No. 51 of 2004 **Data analysis** In this study of water quality analysis data will be used analysis methods and Nakarow Sumitomo (1970), University of Texas USA in accordance with the MOE Decree no. 115 of 2003 on the Status of Water Quality Guidelines for Determining quality standard based on Government Regulation No. 82 2001 Class IV. **Period:** Monitoring is carried out during the construction phase with a period of 3 months and reporing of environmental monitoring every 6 months **Location:** Waters around the jetty construction site	EPC Contractor
16.	increased waste load and pollution	Power Plant Supporting Facilities Construction	• Waste is managed in accordance with the Law OF No. 18 of 2008 on Waste Management • No exceedance of the quality standards appropriate Minister of Environment Decree No. 112 of 2003 on Waste Water Quality Standards of Business / Activity Domestic and Government Regulation No. 82 of	**Data collection** • Field observations • Mathematical calculations **Data analysis** Descriptive qualitative and quantitative **Period:** Monitoring is carried out during the construction phase with a period of 3 months and reporing of environmental monitoring every 6 months	EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Monitoring / Period / Location	Responsibility
			2001 on the Management of Water Quality and Water Pollution Control	**Location:** • Domestic waste storage • Septic tank effluent basecamp	
17.	Aquatic biota disturbance	Power Plant Supporting Facilities Construction	• Uniformity index, the index of the bio-diversity	• The collection of data types and abundance of plankton is implemented by taking a sample of plankton (phytoplankton and zooplankton) are taken with the aid of a plankton net no. 25 is equipped with a flow meter. • Data were analyzed for known plankton diversity index and uniformity • Sampling is implemented by pulling the net out of the sea by boat for about 10 minutes each sampling point. After 10 minutes of withdrawal, plankton net is lifted, noting whirlpoo are included in the net at the flow meter. Air filter was transferred into the bottle sample, first added 4% formalin as much as 4 drops as a preservative. • Benthos sampling was performed with a dredge Eckman, then the sample substrate is preserved with 4% formalin solution in order to avoid damage to the sample, and then do the calculations and research in the laboratory species diversity. • The method of data analysis is the same for benthos analysis method on plankton. The analytical method has been described in the description of this impact monitoring. • The study of nekton is carried out by means of inventory, interviews, types of fish around the location. **Period:** Monitoring is carried out during the construction phase with a period of 3	EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Monitoring / Period / Location	Responsibility
				months and reporting of environmental monitoring every 6 months **Location:** The territorial waters of project site	

Appendix 2B. Environment Mitigation in EIA

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Management/ Period / Location	Responsibility
A.	**AMDAL FLTU Jawa 9-10 Power Plant Development Activities (2017)**				
A.1 Important Impact of hypothetical (Construction Phase)					
1.	Road Traffic Disruption	• Mobilization of equipment and materials • land preparation	No congestion around access to the project site during working hours	• Installation of traffic sign (coordinate with relevant agencies); • Vehicles circulation arrangement; • Construction material and equipment mobilization conducted at night time 22.00-05.00 WIB;; • Providing traffic contrd officers at the project entrance gate; • Using of appropriate and proper vehicles; • Road improvement when damage occurred because of project mobilization; • Using of the suitable vehicle type that will be used according to GR 55 of 2012. Project will coordinate with related Agency to check the vehicle load when it is empty load and in ful load according to the type of materia used. • Provide tire car washing for vehicle coming out of the project site in order not to contaminate the road; **Period:** During construction phase **Location:** Suralaya Roads	EPC Contractor
2.	The decline in Air Quality	• Mobilization of equipment and materials • Land preparation activities • Power Plant construction	• Concentration does not exceed the ambient air quality standard PP 41 of 1999 • The parameters of the odor does not exceed the quality standards LH Decree 30 of 1996: NH3 and H2S	• Watering project site regularly to prevent dust spread to the wind; • The trucks that bring material for construction must be covered; • Limitation of vehicle speed; • Using the maintain/proper machinery and any construction equipment; • Conduct emissions test or vehicle; **Period:**	EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Management / Period / Location	Responsibility
			• No complaints from the public about the project • No distribution of dust around the project	During construction phase **Location:** Project site	
3.	Increasing of Noise	• Mobilization of equipment and materials • Land preparation activities • Power Plant construction	• The noise level does not exceed the quality standards LH Decree No. 48 of 1996 • No complaints from the public about the project	• Speed limitation for vehicle mobilization • Mobilization is conducted at night time (10 p.m. to 5:00 pm) • Using the maintain/proper machinery and any construction equipment. **Period:** During construction phase **Location:** Project site	EPC Contractor
4.	Landslide Occurrence	Land preparation activities	No mass movement soil / rock (landslides) due to changes in slope geometry for stripping and land degradation.	• Geological investigation/exploration of detailed engineering at the site of the activities to identify the characteristics of lithology; • Conduct slope stability study in order to obtain the planning and design of a safe slope geometry of the potential for landslides; • Conducting cut and fill that based on the results of the planning and design of a safe slope to prevent of the potential for landslides; **Period:** During land preparation **Location:** Project site	IRT and EPC Contractor
5.	Increased of erosion rates	Land preparation activities	There is no increasing of erosion rate from land clearing.	• Revegetation on the open land to prevent the increasing of erosion rate. • Replanting for ground cover or grass coverage to reduce the destructive force of rainfall and runoff. **Period:** During construction phase **Location:** Project site open area	IRT and EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Management / Period / Location	Responsibility
6.	Employment opportunities	Mobilization and demobilization of construction worker	The level of absorption / employment compared to the number of job seekers	**Social Approach** • Giving priority of local labor to surrounding community in accordance with appropriate qualifications required. • Inform available employment in appropriate with required qualificator through Suralaya, Lebakgede, and Salira village offices or places that are easily seen and read by public. • Recruitment process in a transparent manner with a clear acceptance criteria. • Openly inform the selection results **Institutional Approach;** • Labor recruitment coordination with the local village and related agencies • The provision of the minimum wage as agreed between the workers and the initiator • The company will send writing report whenever there will be vacancies to the Department of Labor Cilegon in accordance with the Decree of the President of the Republic of Indonesia No. 4 Men / 1950 **Period:** During construction phase **Location:** Suralaya, Lebakgede, and Salira village	EPC Contractor
7.	Business Opportunity	Mobilization and demobilization of construction worker	• Growth of new business relating to recruitment activities around the location of activities, including the development of economic infrastructure such as grocery stalls, food stalls, and others economic activity	**Social Approach:** • Providing business opportunities for the surrounding community to serve the needs of the project workers. • Providing the needs of construction logistics and the needs of the construction worker from the stores in Suralaya, Lebakgede, and Salira village • Provide opportunities to local contractors became the main contractor appointed partner in power plant construction activity **Institutional Approach:**	EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Management / Period / Location	Responsibility
			• Increased business opportunities > 2unit of from initial conditions	To coordinate with the village and the local district, the Department of Industry, Trade Agency Cilegon. **Period:** During construction phase **Location:** Sunilaya, Lebakgede, and Salira village	
8.	Public Health Disturbance	• Mobilization of equipment and materials • Land preparation • Power Plant construction	Number of sicknesses based on environment impact (mainly from air media)	**Social approach** • Socialization of using masks to the local communities to anticipate the entry of excessive dust particulates. • Empowering communities to plant leafy trees to keep dust / particulate excessive in residential areas. • Perform regular road watering, especially during the dry season to minimize dispersion of dust that may interfere with the comfort and health of people who live along the route of the road transport vehicle equipment and materials. • Provide tire carwash for vehicles coming out of the project site so as not to contaminate the road • Covering truck with a tarp for material and equipment transportation **Institutional approach** In cooperation with the local Health Department both health centers and community health clinic for the dissemination of PHBs *(Pola Hidup Bersih Sehat)* in the surrounding communities. **Period:** During construction phase **Location:** Sunilaya, Lebakgede, and Salira village	IRT and EPC Contractor
9.	Public Perception	• Mobilization and demobilization phase of construction workers	Positive community views and positive support towards the project activity	<u>Social Approach:</u> • Proactive approach and build good relationships with community leaders, village officials, and residents around the location of activities	IRT and EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Management / Period / Location	Responsibility
		• Mobilization of Equipment and Materials • Power Plant construction		• Giving priority for local labor from the community in accordance with appropriate qualifications required. • Selecting reception in a transparent manner with a clear acceptance criteria • Openly inform the hiringselection results. • Participate help in socia activities that exist in the Suralaya, Lebakgede, and Salira village **Institutional Approach:** • Wages are given in accordance with the applicable regulations. • To coordinate with the Cilegon Manpower recruitment process surrounding communities will be recruited into labor • Preparing recruited labo from community mentally • Manage all impacts arising from the power plant construction activities **Social Approach:** • Conducting socialization regarding road routes that will be passed by vehicle transporting equipment and construction materials • Covering truck with tarp • Repairing the damaged roads due to transportation of equipment and material • Providing traffic control officers at each road intersection that is passed by vehicle transporting equipment and materials to minimize traffic accident • Regularly watering roads, especially during the dry season, to minimize the dispersion of dust which can disturb the comfort and health of the community • Provide tire carwash forvehicles coming out of the project site so as not to contaminate the road • Socialization to the surrounding community regarding the planned PLTU construction activities • Limit the working hours of the PLTU construction activities	

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Management / Period / Location	Responsibility
				• Managing all negative impacts arising from the power plant construction activities • Not to carry out construction activities that cause high noise when the community rests or in worship time • Installation of security fences around the site of the PLTU construction site • Providing access for fishermen to the sea to find fish by making a boat base **Period:** During construction phase **Location:** Suralaya, Lebakgede, and Salira village	
A.2 Other Impacts to be Managed (Pre-Construction Phase)					
10.	Changes Public Perception	Land acquisition	Positive public perceptions towards company.	**Social Approach:** • Install Banner or billboard in the area of land to be acquired • Conducting meetings with landowners, local government officials to disseminate information related to the land acquisition plan • Fostering good relations with community leaders, the authority having jurisdiction in the vicinity of the location of activities • Do an inventory of activities • Thoroughly the ownership of land to be acquired • An official report was the result of an inventory of communal land ownership • Do documentation / photo personalized inform landowners and also the position of the location of the land • Made an agreement on the compensation value of land belonging to the community as well as the schedule of implementation of the settlement after the agreement of all parties **Institutional Approach:**	IRT

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Management / Period / Location	Responsibility
				• Coordinate with the National Land Agency (ATR / BPN) Cilegon • Coordinate with Sualaya Village, District Pulomerak	
A3. Other Impacts to be Managed (Construction Phase)					
11.	Decrease Marine Water Quality	Mobilization and demobilization of labor	The quality of sea water according L I Decree No. 51 of 2004 Annex I for Water Port	**Techno ogy approach** • Domestic waste water s drained into a portable toilet • Conducting periodic suctioning portable to let **Period:** During construction phase **Location:** Project site	EPC Contractor
12.	Terrestria Biota Impaired	Land preparation activities	Crop diversity in location	• Relocation of greenery in the area of Bukit Kahal to Laydown area located in front of the unit 1-7 • Planting vegetation in accordance with ecological functions **Period:** During construction phase **Location:** Project site	IRT
13.	Decreasing of Environmental Sanitation	Power Plant construction	• Water quality in accordance with Ministry of Health 32/2017 Water Quality Standards • There is no increasing number of environmentally based disease morbidity two (2) times or more than the previous period	• Make ditch / culvert that can accommodate runoff water discharge • Making the area of infiltration in anticipation of floodwaters **Period:** During construction phase **Location:** Project site	EPC Contractor
B.	**AMDAL of Land Reclamation Plan and Jetty Development of PLTU Jawa 9 - 10 in Suralaya (2018)**				

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Management / Period / Location	Responsibility
B.1 Significant mpacts to be Managed (Stage Construct on)					
1.	Increasing Employmsnt Opportunities	Manpower Recruitment	Local labor absorption and labor costs are not less than the minimum wage of Banten Province.	**Techno ogy approach** • Labor recruitment is conducted openly in accordance with classification required and prioritize local workers around the subdistrict of Pulomerak • Conducting recruitment selection, informing the public about employment vacancies following necessary criteria, then receive nominations of candicates who pass the workforce and announced the results of the recruitment recruited by the construction company. **Socio-Cultural Approach** • Society should get a part in the process of construction, in other words, workers with the appropriate skills in society, must come from the surrounding communities. • Allocate space for people to open a business in the location of activities. **Institutional approach** • Coordinate with village officials and local district associated with labor recruitment. • Following the employment rules on the rights of employees and workes, both permanent and contract labor workers and involve all employees in a labor accident i surance. **Period:** During the pre-construction	EPC Contractor
2.	Air Quality	The source of the impact comes from the arrangement of land (redarration)	Ambient air quality does not exceed the environmental quality standards based on Government Regulation No. 41 of 1999 on Air Pollution Control.	• Cover on trucks. • Watering the project site regularly to prevent the spread of dust or watering when dusty conditions. • Limiting the speed o the material transport vehicles to reduce the spread of dust and noise of the vehicle engine project.	EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Management / Period / Location	Responsibility
				• Purge of wheeled vehicles that come out of the project site • Building a barrier that serves as a buffer zone that limits residential neighborhood with community activities. **Location:** Project site and surrounding residential **Period:** During the reclamation activities	
3.	Noise	The source of the impact comes from the arrangement of land (reclamation)	The noise level does not exceed the quality standards appropriate LH decree No. 48 of 1996 on Noise Level Materials and Labor Ministerial Decree No. 51 of 1999 on the level of noise in the workplace	• Provides safety equipment including alarms, PPE (masks, helmets, safety shoes, and gloves) and first aid facilities. • Operation of proper vehicles. • Reforest with plants that can absorb noise. **Location:** Project site and surrounding residential **Period:** During the reclamation activities	Reclamation: IRT Jetty construction: EPC Contractor
4.	Disturbance sea water quality Coastal Ecosystems and Aquatic biota	The source of the impact comes from the arrangement of land (reclamation)	TSS concentration meet environmental quality standards refer to the Minister of Environment Decree No. 51 of 2004 on Sea Water Quality Standard, with parameters: coral TSS 20 mg / l, TSS mangrove 80 mg / l, TSS seagrass 20 mg / l.	• The filling of sand into the reclamation area is carried out after the embankment surrounding the land has been completed. • Construction of overflows on embankments with sediment traps. • Reclamation techniques with a pipe system and hydraulic fill so that the distribution of material is limited. • Install nets / screen / sediment shield along the reclamation area • Compile special studies related to inventory, ecological functions, and economic ecosystems that will be damaged (mangrove ecosystems, coral reefs and seagrasses). • Replace the damaged ecosystems due to and clearing and reclamation activities.	Reclamation: IRT Jetty construction: EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Management / Period / Location	Responsibility
				• Carry out improvements to the management of construction activities • Land Arrangement if unexpected impacts arise and cause problems for the environment. • Avoiding a decrease in water quality, especially by suspended solids entering the water body due to land management and construction activities to operational activities. **Location:** Location sea area reclamation activities **Period:** During the reclamation activities	
5.	Fishermen Activities	The source of the impact comes from the arrangement of land (reclamation)	• The absence of a significant decline of fish catches by their fishing activity reclaimed land arrangement • The absence of a significant decline in their fishing income reclamation activities. • The absence of protest, conflict and social unrest related to their fishing reclamation activities in waters.	• Delivering information and communication on planned activities and the impact on fishermen in the study area • Conduct an inventory and verification of facilities and infrastructure for fishing to be released involving the relevant government and owners of fishing gear. This release is carried out on facilities and infrastructure in the reclamation area. • Conduct community empowerment programs for fishing communities in the community development scheme in collaboration with the local government. The emphasized approach is bottom-up so that programs are prepared in accordance with the needs of the community, especially the fishing community. • Accommodating protests and complaints that arise from fishing communities around the location of the activity to be followed up through both technical approaches and social approaches through providing compensation for losses suffered by fishermen in the event of damage to fishing gear. **Location:**	Reclamation: IRT Jetty construction: EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Management / Period / Location	Responsibility
				Territorial waters near to the project site, fishing village, waters to be reclaimed **Period:** During the reclamation activities	
6.	Public perception and Social conflict	The source of the impact comes from the arrangement of land (reclamation)	The number of people who have a negative perception turned positive towards the activity	• Establish Pubic Relations Team that becomes a facilitator between the company and the community. The public relations team was formed consisting of components from the company itself, representatives of the community and related agencies. • Provide complaints service facilities to receive input and complaints from surrounding communities related to the impacts caused by the activities • Perform community development in the villages that are located around the location of the activity. • Maintain good communication with the surrounding community so the expectation will able to be fulfilled by the company. • Dealing with issues related to the community in consultation and avoidance of treatment through violence. **Location:** Project site and surrounding residence **Period:** During the reclamation activities	IRT and EPC Contractor
7.	Public health	The source of the impact comes from the arrangement of land (reclamation)	The closest public health is not disturbed by the activity plan of activities	Restricting the spread of dust by managing air quality **Location:** Project site area and residence surrounding the location of the activity **Period:** During the reclamation activities	Reclamation: IRT Jetty construction: EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Management / Period / Location	Responsibility
B.2 Other Environmental Impact to be Managed (Construction Phase)					
8.	Waste and Contamination	The source of the impact comes from the arrangement of land (reclamation)	Waste is managed in accordance with Act No. 18 of 2008 No exceedance of the standards of e MOE Decree No. 112 of 2003 on Waste Water Quality Standards from Domestic Activity	• Provide domestic waste storage buildings to separate wet and dry waste • Provide Cleaners/Officers who are always available at the place during operations so there is no accumulation of garbage and scattering. • Provision of proper sanitation facilities (MCK facilities that are closed and equipped with septic tanks). • Suctioning septic tank banks as required in regularly. **Location:** Domestic waste storage, base camp, septic tank effluent. **Period:** During the reclamation activities	Reclamation: IRT Jetty construction: EPC Contractor
9.	Hazardous waste	The source of the impact comes from the arrangement of land (reclamation)	Government Regulation No. 101 of 2014 on the management of hazardous and toxic waste.	• Provision of hazardous waste storage which its provisions refer to the technical provisions contained in the relevant regulations are Government Regulation No. 101 of 2014 on the management of hazardous and toxic waste. • Coordinate closely with third parties who have permission hazardous waste management. **Period:** During the reclamation activities **Location:** Hazardous waste storage	Reclamation: IRT Jetty construction: EPC Contractor
10.	Road Traffic	The source of the impact comes from the arrangement of land (reclamation)	The degree of saturation of traffic (DS) <0.8	• Installation of signs corresponding to Ministry of Transportation No. 13 of 2014 concerning Traffic Signs, with implementation coordinated with the Department of Communication and Information	Reclamation: IRT Jetty construction: EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Management / Period / Location	Responsibility
				• In order to avoid traffic on the roads around the area, Officers should be provided to help arranging vehicles entering or exitgate of the Projec. **Period:** During the reclamation activities **Location:** The mobilization of equipment and materials	
11.	Shipping Traffic	The source of the impact comes from the arrangement of land (reclamation)	No traffic disruptions such as ship accidents	Coordination with the Department of Transportation and KSOP related to shipping lines and hours of operation. **Period:** During the reclamation activities **Location:** Shipping lanes in the Bay of Banten	Reclamation: IRT Jetty construction: EPC Contractor
C.	**AMDAL Addendum, RKL and RPL of Land Preparation and Development of PLTU Jawa 9-10 (2018)**				
Important Hypothetic Impacts (Construction Phase) **C.1 Components of Construction Recruitment Activities**					
1.	Increasing of population	Construction manpower recruitment	Number of non-local communities who worked on the project site	Requiring contractors / sub-contractors to report vacancies to the relevant agencies, such as the local Department of Labor in accordance with the Decree of the Minister of Manpower and Transmigration No. 4 of 1985 on Job VacancyReport **Period:** During Construction phase **Location:** Pulomerak District by prioritizing the Suralaya and Lebak Gede Villages	EPC Contractor
2.	Increasec employment and business opportunities	Construction recruitment	Increasing employment and business opportunity around the activity ocation	• Workforce recruitment s carried out openly and the workforce needed is in accordance with a predetermined classification and prioritizes local workers around the Pulomerak Subdistrict area • Selection of labor recruitment informing the public about employment vacancies along with the required criteria, then accepting the registration of prospective workers who pass the selection and	EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Management / Period / Location	Responsibility
				announcing the results of the recruitment of workers recruited by the development executor • The community must get a part in the process of construction, in other words, workers with expertise that is in accordance with the community, must come from the surrounding community. • Labor recruitment refers to Law No. 1 Year 1970 on safety • Labor recruitment refers to Law No. 13 2003 Manpower • Requiring contractors / sub-contractors to report vacancies to the relevant agencies, namely the local Department of Labor in accordance with the Decree of the Minister of Manpower and Transmigration No. 4 of 1985 **Period:** During Construction phase **Location:** Pulomerak District by prioritizing the Suralaya and Lebak Gede Villages	
3.	Changes in people's income	Construction recruitment	The increase in public revenue as a result of activities	• Provide decent wages in accordance with applicable laws and regulations through a transparent mechanism • Give training to the communities affected by the PLTU Jawa 9 and 10, either directly or indirectly impact in order to improve the independence and skills so as to increase incomes • Prioritizing local residents to be accepted as labor. • Workforce recruitment is carried out openly in accordance with the predetermined classification and to absorb local workers around the location of the activity **Period:** During Construction phase **Location:**	IRT and EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Management / Period / Location	Responsibility
				Pulomerak District; by prioritizing the Suralaya and Lebak Gede Villages	
4.	Changes in society perception	Construction recruitment	Public perception of the plan of activities, especially related to recruitment	• Proponent dissemination plan of activities, procedures and processes recruitment construction phase, by utilizing the available communication media, especially through meetings between the proponent and stakeholders • Giving priority to people around the project site in the affected area can be labo for construction in accordance with the required qualifications Period: During Construction phase Location: • Pulomerak District; by prioritizing the Suralaya and Lebak Gede Villages	• EPC Contractor
5.	Social conflicts	Construction recruitment	The lack of complaints, protests, conflicts of society are not accommodated due to people's desire to be able to work on the project	Establish a public relations team consisting of companies, community representatives and related agencies to bridge communication between the company and the community Period: During Construction phase Location: Pulomerak District; by prioritizing the Suralaya and Lebak Gede Villages	IRT and EPC Contractor
C.2 Component of Equipments and Materia s Mobilization					
6.	Land traffic disturbance	Mobilization of equipment and materials	• Smooth traffic ground transportation in study area; • The lack of disturbance / land traffic accidents caused by activities • The lack of complaints, protests, conflicts of perpetrators of ground transportation services to	• Installation Warning light and provide officers to set the vehicle in / out of the construction site. • Put up signs warning information of the project activity to provide information to road users • Operated vehicles must meet the technical requirements and road worthy (pass *KIR test*) • Trucks and heavy equipment using specialized vehicles adapted to the weight of the equipment being transported so that the vehicle axle load up to 8 tonnes	EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Management / Period / Location	Responsibility
			the proponent or by the public.	• Road improvement when there is damage to roads caused during the process of development. • Adjusting the transportation time • Inform the community related mobilization action plan materials by road transportation • Coordination with Transport Agency and Information Banten • Follow the Technical Guidelines published by certain Government include: a. Law No. 22 Year 2009 regarding Traffic and Road Transportation, Law No. 38 of 2004 on the road and Governmen. Regulation No. 34 of 2006 on the road b. Government Regulation No. 32 of 2011 on Engineering Management, Impact Analysis, as well as Traffic Management Needs c. Trucks and heavy equipment must be in accordance with he Director General SK DGLT No. SK. 7267 AJ 307 / Dr.ID / 2004 on Technical Guidelines for the Implementation of Road Transport Equipment. Period: During Construction phase Location: Along the transportation lines of equipment and materials	
7.	The decine in air quality	Mobilization of equipment and materials	Ambient air quality does not exceed the standards is Government Regulation No. 41 of 1999 on Ambient Air Pollution Control.	• Provice safety equipment including alarms, PPE (masks, helmets, safety shoes, and gloves) and first aid facilities • Operation of the appropiate vehicle • Operation of vehicles that pass the emission test • Project will ensure al vehicles used in the mobilization of equipment and materials and meet emission quality standards and meet the quality standards of emissions according to the Regulation of the Minister of Environment and Forestry P.20 / MENLHK / Secretariat / KUM.1 / 3/2017 about Standart Motor Vehicle Exhaust	EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Management / Period / Location	Responsibility
				Emissions New Type Category M, N and O category • Closure of vehicle tanks with a tarp to prevent scattered of material being transported • In coordination with the Department of Environment and Foresty Banten • Coordination with Transport Agency and Information Banten Period: During Construction phase Location: Along the transportation lines of equipment and materials	
8.	Increasing of noise	Mobilization of equipment and materials	The noise level does not exceed the quality standards for residential noise at 55 dBA and 70 dBA for the incustry by the Minister of Environment Decree No. 48 of 1996 on Noise Level.	• Restrictions on vehicle speed at the time through the village road • The use of the eligible vehicle operation so as not to cause unreasonable noise with the vehicle's engine maintenance ona regular basis. • In coordination with the Department of Environment and Foresry Banten • Coordination with Transport Agency and Information Banten Period: During Construction phase Location: Along the transportation lines of equipment and materials	EPC Contractor
9.	Public health nuisance	Mobilization of equipment and materials	Minimize / eliminate the public health problems that come from the mobilization of equipmen and materials	Restrictions spread of dus with the following steps: • Covering the trucks • Limiting the speed of the material transport vehicles to reduce the spread of dust and noise of the vehicle engine project. • Operation of appropriate vehicle s by conducting periodic emissions testing	EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Management / Period / Location	Responsibility
				• Building a barrier that serves as a buffer zone that limits residential neighborhood with community activities, • Launched a program of health service as part of CSR Period: During Construction phase Location: Community settlements along equipment and material transport lines	(Related to CSR Program: IRT and EPC Contractor)
C3. Components of Power Plant s Supporting Facilities Development					
10.	The decline in air quality	Power Plant Supporting Facilities Construction	Ambient air quality does not exceed the standards ie Government Regulation No. 41 of 1999 on Ambient Air Pollution Control	• Provides Safety equipment including alarms, PPE (masks, helmets, safety shoes, and gloves) and first aid facilities • Operation of the vehicle roadworthy vehicles that qualify for use of the emission test • Project will ensure that all vehicles used in the mobilization of tools and materials roadworthy and meet the quality standards of emissions according to the Regulation of the Minister of Environment and Forestry P.20 / MENLHK / Secretariat / KLM.1 / 3/2017 about Standad Motor Vehicle Exhaust Emissions New Type Category M, N and O category • Building a barrier that serves as a buffer zone that limits residential neighbourhood with community activities. **Period:** During Construction phase **Location:** Project site area and settlement surrounding the location of the activity	EPC Contractor
11.	Increase noise	Power Plant Supporting	The noise level that does not exceed the quality	• Perform periodic inspection of supporting machines to ensure the condition of the engine	EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Management / Period / Location	Responsibility
		Facilities Construction	standards in accordance MOE Decree No. KEP-48 /1996 on Standards of Noise Level and Minister of Manpower Decree No. 51 of 1999 the level of noise in the workplace	used in a decent state and does not cause a high noise. • Perform regular watering in construction site • Installation the cover fence project adjacent to residential areas. **Period:** During Construction phase **Location:** Project site area and settlement surrounding the location of the activity	
12.	Increase of runoff	Power Plant Supporting Facilities Construction	The amount of surface water flow	• Prepare a drainage channel sufficient to accommodate / drain water runoff. • Dredging of sediments in the area drainage built regularly in order to expedite the flow of runoff • Making green areas around the drainage area to reduce runoff from entering the drainage **Period:** During Construction phase **Location:** Project site area	EPC Contractor
13.	Public health nuisance	Power Plant Supporting Facilities Construction	Minimize / eliminate the public health problems that come from the mobilization of equipment and materials	Restrictions spread of dust with the following steps: • Limiting the speed of the material transport vehicles to reduce the spread of dust and noise of the vehicle engine project. • Operation of appropriate vehicle by conducting periodic emissions testing • Building a barrier that serves as a buffer zone that limits residential neighborhood with community activities. • Launched a program of health service as part of CSR **Period:** During Construction phase	EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Management / Period / Location	Responsibility
				Location: Project site area	
Insignificant Hypothetical Impacts (Construction Phase) **C.4 Power Plant's Supporting Facilities Development**					
14.	Increasing of Vibration	Power Plant Supporting Facilities Construction	Vibration levels do not exceed the quality standards appropriate limits KepmenMOE Decree No. LH No 18 of 1996 on Quality Standards vibration level	• Provide safety equipment including alarms, PPE (masks, helmets, safety shoes, and gloves) and first aid facilities • Make a trench around the work area, especially in the direction of settlement • In case of physical and material losses caused by the activities of the processes and mechanisms of the settlement will be made through the available communications media, especially through meetings between the proponent and the relevant stakeholders **Period:** During Construction phase **Location:** Settlements surround the project site area	EPC Contractor
15.	Decrease Marine Water Quality	Power Plant Supporting Facilities Construction	Environmental quality standard refers to the Minister of Environment Decree No. 51 of 2004 on Sea Water Quality Standards Annex I	Installing nets / screen / shield sediment along the jetty construction area to catch floating objects that are likely scattered at the time of the activities carried out as well as reduce the spread of turbidity resulting dispersion. **Period:** During Construction phase **Location:** Territorial waters around the jetty construction site	EPC Contractor
16.	Increased waste load and pollution	Power Plant Supporting Facilities Construction	• Waste is managed in accordance with the Law OF No. 18 of 2008 on Waste Management • No exceedance of the quality standards appropriate Minister of Environment Decree No.	• Handling of domestic waste will be carried out using a system of on-site waste treatment. The treated water will be channeled in the effluent tank and disposed toward men water. Sludge will be sent to the sludge thickener and transported to a local carrier licensed. • Provide waste storage to accommodate and process domestic solid waste generated • Promoting 3R (recycle, reduce and reuse)	EPC Contractor

No.	Environmental Impact	Source of Impact	Indicator / Parameter	Environment Management / Period / Location	Responsibility
			112 of 2003 on Waste Water Quality Standards of Business / Activity Domestic and Government Regulation No. 82 of 2001 on the Management of Water Quality and Water Pollution Control	• Solid waste treatment refers to Law No. 18 of 2008 on Waste Management **Period:** During Construction phase **Location:** Domestic waste storage basecamp, septic tank effluent	
17	Aquatic biota disturbance	Power Plant Supporting Facilities Construction	• Uniformity index, the index of the bio-diversity	Installing nets / screen / shield sediment along the jetty construction area to catch floating objects that are likely scattered at the time of the activities carried out as well as reduce the spread of turbidity resulting disparsion **Period:** During Construction phase **Location:** Territorial waters around the jetty construction site	EPC Contractor