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PT SARANA MULTI INFRASTRUKTUR (PERSERO)

PT GEO DIPA ENERGI (PERSERO)

GEOTHERMAL ENERGY UPSTREAM DEVELOPMENT PROJECT

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

INCORPORATING:

RESETTLEMENT POLICY FRAMEWORK

INDIGENOUS PEOPLES PLANNING FRAMEWORK

Final V4

November 2022

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LIST OF ABBREVIATIONS

AOI	Area of Influence
AM	Assistant Manager
AMDAL	*Analisis Mengenai Dampak Lingkungan* (Environmental Impact Assessment)
BG	*Badan Geologi* (Geological Agency)
BPN	*Badan Pertanahan* Nasional (National Land Bureau)
CAP	Corrective Action Plan
CESMP	Contractor's Environmental and Social Management Plan
CTF	Climate Technology Fund
DG	Directorate General
DG EBTKE	*Direktorat Jenderal Energi Baru Terbarukan dan Konservasi Energi (*Renewabl Energy and Energy Conservation)
DELJ	*Divisi Evaluasi Lingkungan Sosial dan Jasa Konsultasi*
DSV	Drilling Supervisor
EA	Environmental Assessment
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EMC	Exploration Management Consultant
EMP	Environmental Management Plan
EMU	Exploration Management Unit
EMT	Exploration Management Team
ESHS	Environment, Social, Health and Safety
ESIA	Environmental and Social Impact Assessment
ESMF	Environment and Social Management Framework
ESMP	Environment and Social Management Plan
ESDD	Environmental and Social Due Diligence
ESSC	Environmental and Social Safeguards Consultant
GEF	Global Environment Facility
GFF	Global Fund Facility
GA	General Affair

GEUDP	Geothermal Energy Upstream Development Project
GIIP	Good International Industry Practice
GIS	Geographical Information System
GNZ	Government of New Zealand
GOI	Government of Indonesia
GRM	Grievance Redress Mechanism
HC	Human Capital
HSE	Health, Safety and Environment
IA	Implementing Agency
ICT	Information and Communications Technology
IBRD	International Bank for Reconstruction and Development
IGF	Investment Guarantee Fund
IIFF	Indonesia Infrastructure Finance Facility
IPs	Indigenous Peoples
IPDP	Indigenous Peoples' Development Plan
IPP	Indigenous People Plan
IPPF	Indigenous Peoples Planning Framework
IPPKH	*Izin Pinjam Pakai Kawasan Hutan* (Forest Borrow-to-Use Permit)
ISA	Indonesian Society of Appraisers
KAT	*Kelompok Adat Terasing* (Isolated Indigenous Community)
Kecamatan	Sub-District
Keppres	*Keputusan Presiden* (Presidential Decree)
LARAP	Land Acquisition and Resettlement Action Plan
MEMR	Ministry of Energy and Mineral Resources
MHA	*Masyarakat Hukum Adat* (Customary Law Community)
MoF	Ministry of Finance
MW	Megawatt
NGO	Non-government Organization
PCR	Physical Cultural Resources
PCRMP	Physical Cultural Resources Management Plan

PMK	Government Regulation
PMU	Project Management Unit
PPKH	*Persetujuan Penggunaan Kawasan Hutan (*Approval of Forest Area Usage)
PPP	Public Private Partnership
PT GDE	PT Geo Dipa Energi (Persero)
PT SMI	PT Sarana Multi Infrastruktur (Persero)
RUPTL	Electricity Supply Business Plan or *Rencana Usaha Penyediaan Tenaga Listrik*
Satker	*Satuan Kerja* (Unit Force)
SIPPA	*Surat Izin Pengambilan dan Penggunaan Sumber Daya Air* (Surface Water Abstraction and Utilization Permit)
SOE	State Owned Enterprise
SOP	Standard Operating Procedures
SPPL	*Surat Pernyataan Kesanggupan Pengelolaan dan Pemantauan Lingkungan* (Letter of Environmental Management and Monitoring)
SPV	Supervisor
TA	Technical Assistance
tCO_2	Tons of Carbon Dioxide
TOR	Terms of Reference
UKL/UPL	*Upaya Pengelolaan Lingkungan Hidup - Upaya Pemantauan Lingkungan Hidup* (Environmental Management Effort and Environmental Monitoring Effort)
UUD	*Undang-Undang Dasar* (Constitution)
WB	World Bank

1 INTRODUCTION

1. This document details the environmental and social safeguard policies, principles, procedures, institutional arrangements, and workflows of PT Sarana Multi Infrastruktur (Persero) (PT SMI) and PT Geo Dipa Energi (Persero) (PT GDE) to guide the avoidance, minimization, and/or mitigation of any adverse environmental and/or social impacts of infrastructure projects supported by the Geothermal Energy Upstream Development Project (GEUDP). This document is Version 4 and replaces the previous ESMF (dated May 2021). The purpose of the revisions in Version 4 is to provide guidance for the due diligence of environmental and social risk management of potential sub-projects supported by GEUDP for activities related to the drilling that had been and/or currently being undertaken prior to GEUDP investment (such as development of supporting infrastructures e.g. access road and exploration drilling of wells). This version also provides update to the Indonesian laws and regulations section. Minor updates have been made to the status of Waesano Exploration Project.

1.1 Background

2. Over the past decade, Indonesia has seen strong economic growth and job creation. Indonesia's rapid economic growth has been fuelled by an ever-expanding power sector. Nonetheless, keeping up with high electricity demand is a key development challenge. In an effort to reconcile the national electrification and economic development plans, the Government of Indonesia (GOI) has put forward the Electricity Supply Business Plan or *Rencana Usaha Penyediaan Tenaga Listrik (RUPTL), 2015-2024*. Geothermal development is a pillar of the country's Low Carbon Growth Strategy and a key development priority for the GOI[1]. It is also one of the best options to provide a base load response to fast-growing energy demand and diversify the energy mix in Indonesia. Geothermal power is expected to contribute to the country's greenhouse gas emission reduction efforts, which

[1] The relevant national policies include: (i) Indonesia's Second National Climate Change Communication (2009); (ii) the Indonesia Green Paper (2009); (iii) the GOI National Energy Policy (2005); (iv) the Energy Blueprint 2005 – 2025; (v) Indonesia's National Long-Term Development Plan 2005-2025, and National Medium-Term Development Program for 2010 – 2014 (*Rencana Pembangunan Jangka Menengah*, or RPJM); (vii) the National Action Plan for Climate Change (2007); (viii) the Development Planning Response to Climate Change (2008); (ix) the Climate Change Roadmap for the National Medium-Term Development Program for 2010 – 2014 (2009); (x) Indonesia's Technology Needs Assessment on Climate Change Mitigation (2009).

targets a 29% cut by 2030 compared with a Business-As-Usual emissions projection that starts in 2010[2].

3. Despite the geothermal potential and the focus of GoI and development partners, only about 8.9 % of the total resources indigenous to Indonesia are currently developed to produce power. Against a potential of approximately 23,965.5 MWe, only about 2,130.6 MWe of total geothermal existing resources that has been developed until December 2019[3].

4. Slower-than-desired geothermal development is imputable to low levels of private sector participation, which in turn are in large part due to resource risk - a key barrier to geothermal development which remains unaddressed in Indonesia. Realizing this, GOI's renewed emphasis on geothermal development includes a number of policy interventions specifically designed to address resource risk and mobilize private capital.

5. PT SMI, in collaboration with the World Bank, has prepared the GEUDP with the objective to facilitate investments in geothermal-based electricity through government-sponsored, pre-license drilling and by providing technical assistance and capacity building. The focus of this Project is on the geothermal power development market in mainly Eastern Indonesia, where electrification rates are lowest, poverty rates are highest and electricity generation is heavily reliant on diesel.

6. The Ministry of Finance has requested a Project restructuring, which includes the introduction of an additional Implementing Agency specialized in geothermal energy to work with PT SMI in the implementation of the Project. PT SMI also wishes to focus on managing the Infrastructure Financing for Geothermal Sector/IFGS (or *Pembiayaan Infrastruktur Sektor Panas Bumi*/PISP) and an intermediary financial role for GREM project, another World Bank's project on geothermal risk mitigation.

7. PT SMI will act as an Implementing Agency with focus to oversee the financial management aspects, retaining the role of CTF/GEF Grant Recipient. PT SMI will also be responsible for reviewing and providing clearance to safeguards instruments prepared by PT GDE for the overall GEUDP sub-projects to ensure compliance with the ESMF. PT GDE will be added as an Implementing Agency with responsibility for all technical, procurement, and safeguards aspects of the Project. PT GDE is a state-owned enterprise (SOE) established in July 2002, as a

[2] Indonesia's Intended Nationally Determined Contribution, 2015

[3] Geothermal Area Distribution Map and Its Resources in Indonesia, December 2019

Special Mission Vehicle to implement the GoI's objective to accelerate the development of geothermal resources in Indonesia. The main shareholder of PT GDE is Ministry of Finance with minor shares owned by PLN.

8. The Exploration Management Unit (EMU) of PT GDE will oversee exploration activities which include supervision of the activities of Exploration Management Team (EMT), oversight of environmental and social safeguards implementation and permitting responsibilities, and management of procurement and contracting activities.

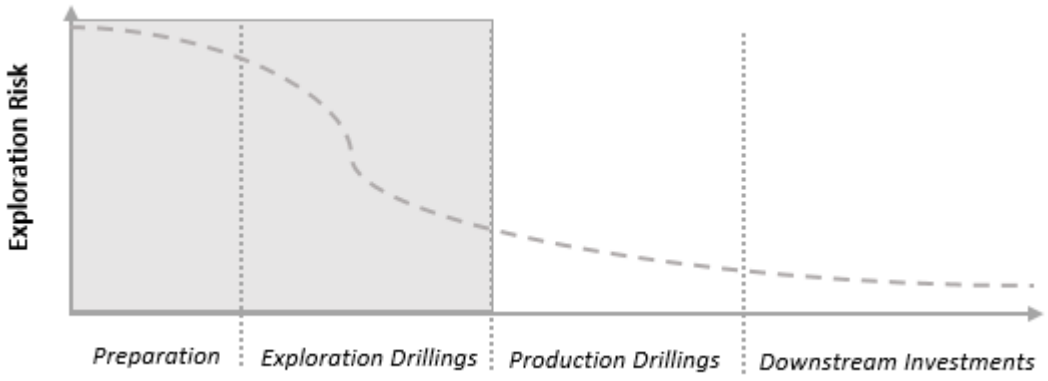
1.2 Project Description

9. The Project Development Objective is to "facilitate investment in geothermal power generation and reduce greenhouse gas emissions." This would be achieved through supporting a risk mitigation mechanism for geothermal exploration drilling and building capacity of the client to conduct an efficient exploration and tendering program. The Project has two components: Component 1: *Risk Mitigation for Geothermal Exploration Drilling*; and Component 2: *Capacity Building on Geothermal Exploration and Environmental and Social Safeguards Management*.

1.2.1 Component 1: Risk Mitigation for Geothermal Exploration Drilling

10. Design Background: *Component 1* focuses on supporting government-sponsored exploration drilling (the riskiest part of the geothermal development process as shown in the shaded area in the schematic below) for prospective license holders. This approach has been used in several countries. The most recent parallel is Turkey, where MTA (Turkey's Directorate General of Mineral Research & Exploration) explores and drills in selected areas and auctions off sites shown to be feasible for power production to private developers. Results are promising: Turkey has the fastest growing geothermal sector in the world; and most of that growth is based on development of fields where MTA has carried out exploration drilling, thus greatly reducing resource risk. Other countries that have taken this approach with successful results are the US, New Zealand, and Japan.

Figure 1 Exploration Risk



11. Financing and Risk Sharing: Funding for exploration drilling will be made available in the amount of US$49 million from WB/CTF with a matching contribution from PT SMI. WB/CTF and PT SMI will assume the same risk position going into exploration drilling. After the projects have been mostly de-risked and verified to have attractive resource capacity, they will be moved to a pipeline for tendering.

12. Business Model and Fund Management: Each exploration drilling sub-project will be financed from either the CTF, or the Infrastructure Finance for the Geothermal Sector (IFGS) at PT SMI, alternating in sequence. The first sub-project is financed by CTF; the second by IFGS, and so on. Sub-projects fully financed by CTF will follow WB's fiduciary guidelines; those by IFGS will follow government's fiduciary guidelines. However, sub-projects financed by the government are required to also comply with WB's safeguards requirements as per WB policies.

i. After exploration drilling is completed and the Resource Capacity Report (RCR) has been independently verified, a *Geothermal Data Package* will be prepared. It will include the full resource data on the site as well as land rights for future development. Based on the RCR it will be determined whether commercial development is viable and whether the sub-project should be tendered out.

ii. The GoI will need to direct a government entity to temporarily hold the land title or lease. There will be an agreement between this entity, PT SMI, PT GDE and MEMR on the transfer of land title as part of the Data Package to be provided to the future developer. An option where land is leased to future developers is being considered. As a result of activities in Wae Sano so far, lands for well pad will be acquired through direct lease by PT GDE to be returned to landowners after drilling completion in rehabilitated condition as agreed in lease agreements. Land

for the access road will be acquired by project and ownership will be transferred to local government through a grant process.

iii. In case of *successful exploration*, the Geothermal Data Package will be tendered out to prospective developers. The winning bidder will own the Geothermal Data Package. In return, he will pay for the full drilling cost plus the equivalent of a 25% premium[4]. The premium is designed to cover the cost of unsuccessful exploration and ensure sustainability of the program. For sub-projects financed by CTF, all reflow funds will go into a separate revolving fund account (CTF Reflow Account), which is different from the original CTF account to finance future exploration drilling. For sub-projects financed by IFGS funds will flow back to MOF, who will be obliged to top up the IFGS - working like a virtual revolving fund.

iv. In case of *unsuccessful exploration*, or in case tendering is unsuccessful, the sub-project may be assigned to a state-owned enterprise (SOE) developer[5]. However, if no development will take place, the Data Package will be retained by MEMR. The resource data for the site will be included in the geothermal resource database that is currently under development. In this case, there will be no reflow of funds into the revolving fund account.

v. A clear and economically sound description of the possible auctioning instruments that can be used to allocate the land and Data Packages will be included in the Project Implementation Manual (PIM). PT SMI and MEMR are advised to consider that bidders would compete on the price of the underlying asset while being offered a fixed off-take price for the geothermal power rather than the other way around, provided that it conforms to current regulations.

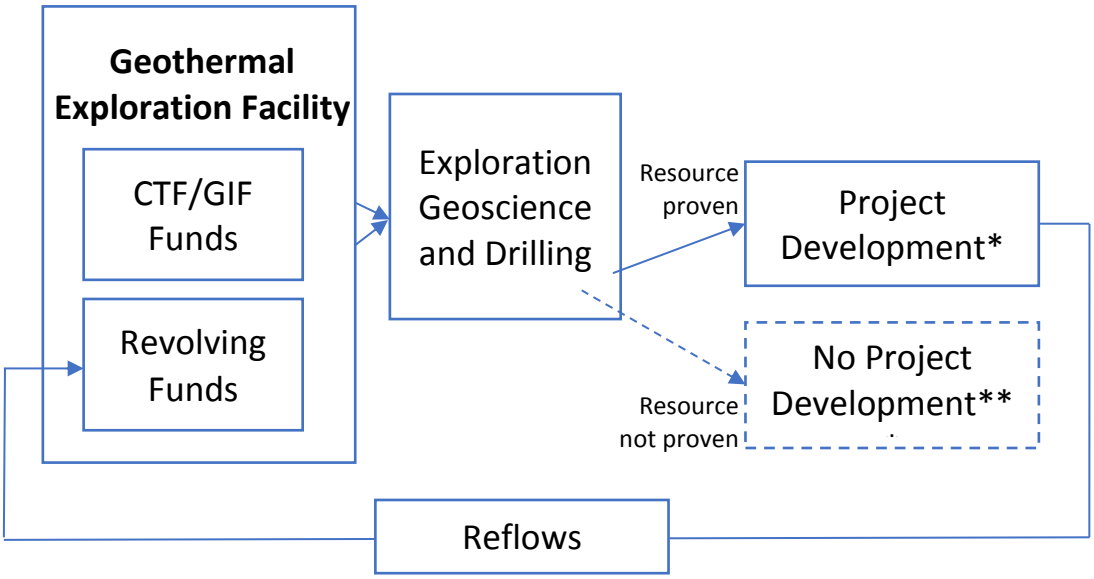
13. A schematic of the component design is presented below[6]:

[4] An 80% success rate translates into the equivalent of a 25% premium if the facility is to be fully re-capitalized by the end of the last exploration drilling cycle. The method of auctioning will be determined by MEMR. One method is to fix the premium at a pre-set level to cover an assumed success rate. An economically efficient way would be to auction off at a fixed sale price of electricity. The full analysis is presented in Annex 7.

[5] There are presently three SOE geothermal developers: PGE, PT GDE and PLN.

[6] Smaller sub-projects may not need a production drilling phase. In case of successful exploration drilling and no need for production drilling, smaller sub-projects may be in a position to securing financing and move forward.

Figure 2 Scheme of Component Design



**Successful bidder pays for the Geothermal Data Package*

*** Geothermal Data Package transferred to MEMR*

14. Geographic Focus and Scope of Drilling Activities: Sites will be selected in line with the country's geothermal development objectives determined by the Directorate General of New Energy, Renewable and Conservation Energy (EBTKE) under MEMR. Waesano has been confirmed as the first sub-project with other 3 potential sites having been identified in the pipeline. It is agreed with MEMR that at least half of the sites to be explored will be in the islands of Eastern Indonesia, where geothermal power can serve to increase access to sustainable energy. However, GoI may also wish to demonstrate government-sponsored drilling in sites connected to the larger power markets in Sumatera or Java which allow development of plants with larger capacity.

15. Site screenings are expected to be conducted on a rolling-basis based on the suggestions made by *Badan Geologi* of MEMR and it is expected that four sites will be developed as a result of the project interventions. For each site, the Exploration Management Unit (EMU) with advice from an Exploration Management Consultant (EMC) and PT GDE Corporate Sustainability will prepare a report on the basis of the following information: (i) general details, including location, prior surveys and plans, map of location; (ii) land denomination (e.g. conservation forest, protection forest, etc.); (iii) field concept and summary of resource estimation; (iv) summaries of geology, geophysics, geochemistry

surveys; (v) summary of temperature gradient wells; (vi) social and environmental issues; (vii) existing electricity infrastructure in the area, including projected demand and power supply, transmission and distribution lines; and (viii) probable type of development (e.g. flash, binary). The share of early-stage exploration to be executed by a service company on behalf of GoI (or how many exploration/reinjection wells will be drilled before a field is auctioned off) will be dependent on these reports. Feasibility reports will be updated with the results from exploration drilling. If the defined work area is considered feasible, these reports will form part of the data package for tendering the work area for exploitation.

16. Expected Impact: Component 1 will deliver drilled wells, which provide data that serve as inputs to investment decisions. Assuming a portfolio of several smaller sub-projects in Eastern Indonesia, the Project is expected to directly enable 65 MW of new geothermal power capacity, with an expected of $195 million commercial capital mobilized for investment in geothermal power generation. The proposed concept involves setting up a revolving mechanism through which the funds used for exploration drilling will flow back to the facility through repayment from developers who are successful in securing a license to develop the sub-project.

1.2.2 Component 2: Capacity Building on Geothermal Exploration and Environmental and Social Safeguards Management

17. This component will finance a program of capacity building designed to establish an efficient and effective geothermal energy exploration and tendering program including such activities as: (i) advisory support in carrying out geology, geochemistry and geophysics surveys (3G surveys) and topographic mapping for geothermal sites; (ii) advisory support for preparation of drilling, well completion and resource assessment reports (based on 3G surveys) as well as for the bidding process for exploration service companies; (iii) recruitment of an exploration management team; and (iv) just-in-time assistance to MEMR, MoF, and the Recipient in response to request for international expertise to deal with questions related to, *inter alia*, geothermal tariff setting, benefit-sharing, and data management and sharing. Capacity building on environmental and social safeguards management will include support to PT GDE in preparation of: (i) safeguards instruments and monitoring procedures, (ii) terms of references (TOR) for environmental and social specification for tendering at exploitation phase for public and private developers of the six selected sites for exploitation, and (iii) generic guidelines for industry-wide standards for safeguards management in the

exploration and exploitation phases per the applicable World Bank's safeguards policies.

18. This component will be financed by the Global Environment Facility (GEF) grant but will also benefit from a parallel grant from the Government of New Zealand (GNZ). The GNZ grant is designed to be complementary to the development objective of this Project, and will focus on supporting the GoI on: (i) establishment of an effective GIS-based database by collating and analyzing existing and new resources data, potentially to be housed within *Badan Geologi* (BG); (ii) methodology for robust resource and reserve estimation and reporting protocol to an internationally acceptable standard; (iii) methodology for prioritization of potential sites for geothermal development; and (iv) capacity building for Directorate General of Renewable Energy and Energy Conservation (DG EBTKE), PT SMI and PT GDE for tendering and executing an exploration program. The GNZ is also expected to provide similar support to PT GDE in the future.

19. The technical support and capacity building will include the building up of an Exploration Management Consultant (EMC). The EMC will consist of various experts coordinated by a geothermal consultancy company. Specifically, the EMC will provide technical assistance to the government-sponsored exploration drilling program, including advisory support in carrying out geology, geochemistry, and geophysics surveys (3G surveys) and topographic mapping for candidate sites. Support will also be made available for the preparation of drilling, well completion and resource assessment reports (based on 3G surveys) as well as for the bidding process for exploration drilling services. Capacity building plans will also benefit the Geothermal Directorate of DG EBTKE and *Badan Geologi* (Indonesia's Geological Agency) under the Ministry of Energy and Mineral Resources.

20. Furthermore, GEF resources will fund the preparation of Industry Sector practice guides for safeguards instruments (Environmental and Social Impact Assessment (ESIA), Environmental and Social Management Plan (ESMP), Indigenous Peoples Plan (IPP), and Land Acquisition and Resettlement Action Plan (LARAP)), as well as just-in-time assistance for MEMR, MoF, PT SMI and PT GDE in response to request for international expertise to deal with questions related to, inter alia, geothermal tariff setting, benefit-sharing, and data management and sharing.

1.3 Detailed Sub-Project Descriptions

1.3.1 Geothermal Development – Overview

21. Geothermal development happens in a series of phases. These phases are defined in several ways across the industry; the World Bank's ESMAP[7] uses the following:

- Phase 1: Preliminary Survey
- Phase 2: Exploration
- Phase 3: Test Drillings
- Phase 4: Project Review and Planning
- Phase 5: Field Development
- Phase 6: Construction
- Phase 7: Start Up and Commissioning
- Phase 8: Operations and Maintenance

With some subtle overlaps in the details, in broad terms the GOI's regulatory definition of 'Geothermal Exploration' is Phase 1 to Phase 4, of which in Phase 4, decision to the advance phase of 'Geothermal Exploitation' will be determined, then continues with Phase 5 to Phase 8. In most cases, Phase 4 will also be redone under Exploitation stage to confirm the project planning phase, including among others to confirm the Feasibility study, ESIA, and relevant permitting for geothermal exploitation purpose.

1.3.2 Geothermal Exploration

22. Geothermal Exploration sub-projects will be funded under Component 1 of the GEUDP. The sub-projects will: 1) contribute to further define the nature and scale of the geothermal resource within geothermal prospects identified by the GOI, and 2) support an investment package for a developer to take the project through to exploitation. Referring to Paragraph 21, the Geothermal Exploration funded by GEUDP covers the following phases or activities:

- Phase 1: Preliminary Survey
  - Data collection, ESIA and permits, planning for exploration
- Phase 2: Exploration
  - Surface and subsurface testing, seismic data, pre-feasibility study
- Phase 3: Test Drillings
  - Land acquisition and permits
  - Well drilling, well testing, reservoir simulations
- Phase 4: Project Review and Planning

[7] ESMAP. 2012. Geothermal Handbook: Planning and Financing Power Generation. Technical Report.

- Evaluation and decision making

23. GEUDP is likely to support the four sub-projects. Waesano sub-project (East Nusa Tenggara) has been formalized through Assignment Decree from MoF to PT SMI and has had clearances from the World Bank. The current status of Waesano subproject is presented in Table 1. Other possible sub-projects which have been formalized through Assignment Decree from MoF to PT SMI are: Jailolo (North Maluku), Nage (East Nusa Tenggara), and Bittuang (South Sulawesi). All of these sub-projects are located in Eastern Indonesia, and there are potential risks and impacts to physical cultural resources (PCR), natural habitats, forests, protected areas, outstanding or unique landscapes and geological/geothermal features, Indigenous Peoples, vulnerable or non-resilient communities, subsistence livelihoods (relying on private, forest or communal resources), and sensitive economic activities such as tourism to be present in the project's Area of Influence (AOI). However, the final sub-project selection is still subject to Joint Committee decision.

24. The Project's AOI will include the direct and indirect impacts of the project infrastructure and includes access routes, quarries, workers' camps, disposal areas, freshwater resources, wastewater discharge locations, and unplanned developments such as spontaneous settlements, logging and land clearance along roads and pipeline routes. The AOI also includes that of associated facilities, regardless of funding sources that are directly or significantly related to geothermal exploration.

25. Well drilling and testing will include the following activities:

- *New and upgraded transport infrastructure*: Due to the remoteness of some geothermal prospect areas, and the nature of transport infrastructure out of the main centers, it is probable that the sub-projects will include upgrades to ports, wharves, bridges and roads. New infrastructure and new access roads may be required, depending on the distance of drilling pads and other project infrastructure from serviced areas. New infrastructure and roads are likely to require land acquisition and this may be involuntary or voluntary depending on the location. Quarrying may be required to provide sand and aggregates for construction.

- *Mobilization / demobilization*: Moving large drilling rigs and heavy traffic can cause access disruptions and safety issues to other road users.

- *Well pad preparation*: Land for test well pads is only required on a short-term basis unless the well is identified as a future production well. Locations are usually flexible to avoid sensitive receptors and land can typically be negotiated on a willing buyer-willing seller, or lease arrangement. Land clearance and pad preparation will be required for up to 4 or 5 well sites per exploration activity. The land requirements are approximately 1.5 -2 hectares per pad, which includes the storage and treatment ponds.

- *Drilling*: Well depth can vary depending on the resource but are usually deep (1000m to over 2500m). Each well will take approximately 45 to 50 days of around-the-clock drilling to complete. Drilling is noisy, and the rig and well pad will be lit for night-time operations. Fresh water is required to provide cooling and lubrication during drilling, and carry rock cutting to the surface. Synthetic polymers (xanthan gum and starch or cellulose derivatives) and solid barium sulphate are added in this process.

- *Management of drilling muds / fluids and rock*: Drilling muds (bentonite clay), additives and fluids will be stored in settlement ponds adjacent to the well pad. Solids will accumulate at the bottom and the treated liquids will be discharged to reinjection wells or to surface water. Decommissioning may involve converting the ponds for community or private use, or returning the site to the pre-development condition. Pipelines will be required to transport fluids to reinjection wells. Rock will be used as fill in suitable sites nearby, unless they are considered hazardous and likely to leach contaminants, in which case they will be disposed to a lined landfill. Designated landfills may be required as part of project infrastructure, as it is unlikely that there will be suitable landfills operating in the locality.

- *Well testing and management of geothermal fluids (brine):* A significant amount of brine will be extracted during testing. This liquid typically contains heavy metals and can contain high concentrations of boron, arsenic and fluoride. Brine ponds will store brine until it is reinjected or treated and discharged to surface water. Ponds will be located on or near the well pad. Decommissioning may involve converting the ponds for community or private use, or returning the site to the pre-development condition. Pipelines will be required to transport fluids to the reinjection wells. Steam plumes will be emitted during testing, and this can be noisy and create an aerosol or droplet discharge to neighbouring land. Gases (carbon dioxide and hydrogen sulphide) will be emitted during testing, which can produce localized ‘acid’ rain at high concentrations.

- *Support facilities*: Due to the remoteness of some prospect areas it is probable that sub-projects will require on-site workers' camps and maintenance facilities. These will require waste management, wastewater treatment and disposal, fresh water supplies, health and safety of workers and community, and provision of services.

26. The progress of activities and the status of the Waesano sub-project are presented in the following table:

Table 1 The Waesano Geothermal Exploration Activities and Status

No.	Activity	Current Status	Remarks
1.	**Technical Data and Design**		
	- Design drawings	Completed	Drawings for tender issue are completed.
	- Construction drawings	In progress	To be conducted by PT GDE Civil Team by EMC Waesano
	- Geotechnical Survey	To be continued	The survey was halted due to social issues
2.	**Safeguard Instruments:**		
	- Stakeholder Engagement Plan (SEP)	SEP (June, 2018); First updated SEP (February, 2020); The last update of the SEP incorporate in IPP	Once IPP is approved by the WB, the updated SEP will be disclosed.
	- Environmental Management Effort (UKL) / Environmental Monitoring Effort (UPL)	Completed (December 2018)	Approved by the Head of Environmental and Forestry Agency of West Manggarai Regency as a commission on EIA (UKL-UPL) assessment
	- Environmental and Social Impact Assessment (ESIA)	Completed/Disclosed (March, 2019)	In accordance with World Bank Group Guideline
	- Environmental and Social Management Plan (ESMP)	Completed/Disclosed (March, 2019)	In accordance with World Bank Group Guideline

No.	Activity	Current Status	Remarks
	- Land Acquisition and Resettlement Action Plan (LARAP)	LARAP (March, 2019);	If the design changes and additional land is required, the updated LARAP will need to be approved by the Word Bank. LRP document has been integrated as complement to the latest LARAP document.
	- Physical Cultural Heritage Resources Management Plan (PCHRMP)	Completed (September, 2019)	
	- Grievance Redress Mechanism (GRM)	GRM (September, 2018); Updated GRM is in incorporate in IPP	Once IPP is approved by the WB, the updated GRM will be disclosed.
	- Indigenous People Plan (IPP)	IPP development is in progress.	Once approved by the WB, the IPP will be disclosed.
3.	**Safeguard Permitting**		
	- Conformity Letter to the Spatial Planning	Completed (June, 2018)	Issued by Head of Regional Public Works and Spatial Planning Agency
	- Principal Location Permit	Completed (November, 2018)	Issued by Regent of West Manggarai
	- Environmental Permit	Completed (December, 2018)	Issued by Regent of West Manggarai
	- Forestry Borrow-Use Permit (IPPKH)	Completed (August, 2019)	The IPPKH is required as some project footprints are located within the protected forest area. The permit was issued by Minister of Environment and Forestry

No.	Activity	Current Status	Remarks
	- Payment of Initial Forest Resources Provision (*Provisi Sumber Daya Hutan* - PSDH) and Reforestation Fund (*Dana Reboisasi* – DR) following the issuance of IPPKH	Completed (June, 2020)	The PSDH/DR payment is required prior to commencement of the logging activities in the protected forest area based on the IPPKH
	- Surface Water Usage Permit	Completed (November 2019)	The fresh water will be required for drilling. The permit was issued by Minister of Public Works and Housing
	- Hazardous Waste Temporary Storage Permit	Not acquired yet	According to the newest regulation, MoEF Regulation No. 6 2021, Hazardous Waste Temporary Storage Permit is no longer needed. *Rincian teknis* will be developed according to the regulation, and will be integrated into the updated UKL-UPL document.
4.	**Land Acquisition**		
	- To complete administrative requirements	Currently land acquisition is on hold and will be commenced upon resolving the social issues.	Including the document from National Land Agency (BPN) and Public Appraisal Firm (KJPP), Land Lease Agreement, compiling all Legal document of land acquisition process
	- Dissemination on the compensation payment process		Prioritize to be conducted to the land owners of the access road area, since there are relatively no related social issues and land measurement and valuation have been completed.

No.	Activity	Current Status	Remarks
	- Compensation payment		For the landowners of access road area
	- Discussion for price deal with landowners of the proposed well pad and infrastructure area and the payment mechanism (land lease scheme)		With landowners of Well Pads and supporting facilities area in sub-villages of Taal, Nunang, Dasak and Lempe, excluding the access road area
5.	**Preparation of Construction Works**		
	- Contractor-ESMP (C-ESMP) and SOPs	Completed (April, 2022)	
	- Dissemination of the Project Site Manual, C-ESMP and the SOPs to employees and construction workers prior to commence the construction activity	The dissemination is on hold and will be commenced upon resolving the social issues.	The construction activity cannot be commenced before the dissemination of the documents

Note: The table is prepared for the status as of October 2022. With the planning of technical design changes, there will be additional geotechnical survey, design drawings changes and most of the safeguard instruments will need to be updated and additional safeguard permitting will need to be obtained as required.

1.3.3 Geothermal Exploitation

27. The significant output of the exploration phase of drilling under GEUDP is the 'Geothermal Data Package' including the full resource data on the site as well as safeguards aspects such as information on land rights for future development, and Term of Reference (TOR) for ESIA, IPP, LARAP and other relevant safeguards processes and documentation.

28. During the ESIA process for the GEUDP sub-project, the exploitation phase risks and impacts will be screened. The outputs of the screening will be reported in an annex of the ESIA, and will contribute to draft TOR that will be included in the Geothermal Data Package along with recommended good practices such as H_2S monitoring, mitigation of possible impact to tourism (from geothermal over abstraction) and impact to surrounding community (ground water, air emission, ambient air quality) and best practice in emergency preparedness for blow out and H_2S incidents and preventive maintenance for geothermal liquid pipe corrosion etc.

29. The Geothermal Exploitation Phases and relevant safeguards instruments and activities are:

- Phase 4: Project Review and Planning
  - Feasibility study, ESIA and permits, drilling plan
- Phase 5: Field Development
  - Land acquisition and permits
  - Well drilling (production, reinjection, cooling water), well testing, reservoir simulations
- Phase 6: Construction
  - Pipelines, power plant, substation and transmission
- Phase 7: Start Up and Commissioning
- Phase 8: Operations and Maintenance
  - Managing well operations and brine reinjection
  - Managing the geothermal resource, reservoir monitoring and simulations
  - Generating electricity
  - Managing emissions, noise and waste
  - Well decommissioning
  - Make up well drilling, well testing, reservoir simulations

30. Exploitation activities will also include all of those mentioned in paragraph 22 for the exploration phase. The scale of field development / well drilling will be larger than the exploration phase, with 10 - 20 well pad sites required for production and reinjection wells (depending on the size and location of the resource) and pipelines connecting the well(s) and the power plant. Permanent land acquisition will be required for pads, roads, pipelines, ponds, distribution infrastructure etc. In addition, exploitation will involve the following activities:

- *Construction of geothermal power plants,*[8] *switchyard, substation and distribution infrastructure*: land acquisition (involuntary or voluntary), construction related hazards, wastes, noise and workforce. Temporary land uses such as workers' camps and workshops.

[8] Three types of power plants are operating today:
- Dry steam plants, which directly use geothermal steam to turn turbines;
- Flash steam plants, which pull deep, high-pressure hot water into lower-pressure tanks and use the resulting flashed steam to drive turbines; and
- Binary-cycle plants, which pass moderately hot geothermal water by a secondary fluid with a much lower boiling point than water. This causes the secondary fluid to flash to vapor, which then drives the turbines.

- *Emissions to air from cooling towers*: concentrations of contaminants such as mercury, carbon dioxide, methane and hydrogen sulphide, depending on geohydrology of location. Discharges are warmer than ambient air temperature.

- *Emission of noise*: from geothermal plant operation, mainly the cooling tower fans, steam ejectors and turbine 'hum'.

- *Solid and hazardous waste*: domestic waste, hazardous waste from workshops/maintenance and mineral precipitate sludge from cooling towers, scrubbers, steam separators etc.

- *Discharge of wastewater*: reinjection to the deep geothermal aquifer of geothermal fluids. Treatment and discharge of cooling water and other wastewater to reinjection wells or surface water.

- *Well operations*: well production reduces over time and wells are eventually abandoned and 'make-up wells' commissioned. The activities will be similar to those described in Paragraph 22.

- *Renewable energy supply to local grids*: construction and operation of distribution infrastructure. Comparative reduction in greenhouse gas emissions compared with diesel generation. Delivery of electricity to new customers and delivery of low-carbon electricity into the existing grid.

1.3.4 Technical Advisory

1.3.4.1 Exploration Management Consultant (EMC)

31. The TOR for the EMC will include the requirement to engage with the GEUDP Exploration Management Unit (EMU) Safeguards Team to integrate safeguards into the work programs, technical design, bid documents, and final reports on feasibility of each sub-project for exploitation. The requirements will include ensuring satisfactory resourcing, including competent and experienced safeguards practitioners and engineers.

32. Furthermore, the TOR will include requirements to advise and give recommendations regarding the design in accordance with OP/BP 4.37 Safety of Dams. The specific requirements of the policy and associated bank procedures are as follows:

    - All ponds shall be designed, and the construction supervised by experienced and competent professionals.

- Safety measures must be designed by qualified engineers. The nature and type of safety measures shall be commensurate with risks.

- The appropriate safety measures will be agreed between the Bank and PT GDE before designs are finalised.

- The ESIA will confirm that there will be no or negligible risk of significant adverse impacts due to potential failure of the structure to local communities and assets and mitigation measures will be included in the ESMP.

33. The bidding documents and Contractors' contracts must be ensured accordingly to include requirements of OP/BP 4.37 Safety of Dams with EMC support. The Contractors must design, construct, operate and decommission the settlement and storage ponds in accordance with the policy and the design instructions of the EMU with the advice from EMC. They must have competent and experienced professionals to undertake risk assessment, design, and construction.

2 THE GEUDP SAFEGUARD FRAMEWORKS

34. The objective of the **Environmental and Social Management Framework (ESMF)** is to provide reference and guidance for the project management staff, consultants, and other related parties participating in the GEUDP on a set of principles, rules, procedures and institutional arrangements to screen, assess, manage and monitor the mitigation measures of environmental and social impacts of the investments, the exact location and dimension, hence area of influence, of which are not known at Appraisal Stage. The ESMF is the safeguard instrument prepared for appraisal as per World Bank safeguard policy OP4.01 Environmental Assessment.

35. The purpose of issuance of this GEUDP ESMF is to ensure that all stakeholders involved in the project comply with the requirements, procedures and regulations related to environmental management in accordance with prevailing GOI regulations and supplemental provisions in compliance with relevant World Bank Safeguard Policies.

36. The **Resettlement Policy Framework (RPF)** is contained in Section 6 and is the safeguard instrument prepared under World Bank safeguard policy OP4.12 Involuntary Resettlement to ensure compliance with the policy and the laws of GOI relating to involuntary land acquisition and resettlement.

37. The **Indigenous Peoples Planning Framework (IPPF)** is contained in Section 7 and is the safeguard instrument prepared in accordance with World Bank safeguard policy 4.10 on Indigenous Peoples to comply with the policy and the laws of GOI relating to the management of impacts and benefits of projects to Indigenous Peoples (sometimes referred to as ethnic minorities). The objectives of the IPPF is that broad community support from Indigenous Peoples in the project area should be obtained and that the policy aims to minimise impacts and provide culturally appropriate benefits and mitigation measures.

3 SAFEGUARDS LAWS, REGULATIONS AND POLICIES

38. Below is a summary of regulations, laws and policies relating to environmental and social safeguards that are relevant for the ESMF. A summary of laws, policies and regulations relating to involuntary land acquisition and resettlement are provided in the RPF (Section 6) and those relating to Indigenous Peoples are provided in the IPPF (Section 7).

3.1 Indonesian Laws and Regulations

39. In the case of environmental and social management, the geothermal exploration sub-projects funded by GEUDP must refer to Law (UU) No. 32 of 2009 on Environmental Management and Protection as amended by Law No. 11 of 2020 regarding Job Creation and its implementing regulation of Government Regulation (PP) No. 22 of 2021 on the Administration of Environmental Protection and Management, Minister of Environment Regulation No. 16/2012 on Guidelines for Preparing Environmental Documents (AMDAL and UKL/UPL), Law No. 26 of 2007 on Spatial Planning as amended also by Law No. 11 of 2020, Government Regulation No. 26 of 2018 on the Guideline of Environmental Document Preparation, Assessment and Verification in the Online Single Submission System Implementation, and Ministry of Environment and Forestry Regulation No. 4 of 2021 on List of Business and/or Activities That Must Have Analysis of Environmental Impacts, Environmental Management Effort and Environmental Monitoring Effort or Statement of Ability for Environmental Management and Monitoring. According to the applicable regulation, it is stated that geothermal exploration activities will require an UKL-UPL, as long as it's supporting activities (such as road improvement, water intake, cut and fill) are not categorized as activity that requires AMDAL.

40. Law No. 32 of 2009 on the Protection and Management of the Environment as amended by Law No. 11 of 2020 regarding Job Creation with the main principles on guaranteeing the continued existence of all living things and conservation of the ecosystem, maintaining the conservation of environmental functions, and achieving the environmental congruence, harmony and balance. With regard to the geothermal activities, the law regulates the instruments for preventing pollution and/or damage to the environment, such as UKL/UPL and/or AMDAL.

41. Law No. 21 of 2014 on Geothermal as amended by Law No. 11 of 2020 regarding Job Creation has changed the geothermal activities from mining to indirect use, which allows the activities to be sited in the protected forest area, and where it is the case, the law on environmental protection prescribes that such activities

should prepare UKL-UPL for exploration stage and full EIA (AMDAL) for exploitation stage.

42. Law No. 41 of 1999 on Forestry as amended by Law No. 11 of 2020 regarding Job Creation based on the sustainability of forest ecosystem and its functions for both economic purposes and ecology. The development activities other than forestry are permissible in a selective manner in order to avoid significant damage that can reduce forest functions. The strategic development activities that are avoidable can be permitted with prudent approach, such as for mining, electricity, communication, and water installation. Hence, this applies also to geothermal development that can be implemented in forest areas, even in protection forest.

43. Law No. 5 of 1990 on Conservation of Natural Resources and Ecosystems that regulates the ecosystem and habitats to support the livelihood, as well as its biodiversity to be studied, conserved, and utilized sustainably. The geothermal permit holders have to implement these regulations, in particular where the locations are within and in the proximity of the protected and conservation areas. The geothermal development in the forest areas, as well as in the protected and conservation forest areas, is permissible and considered as the utilization of its environmental services. This should be done in a prudent manner with the implementation of the forest and biodiversity sustainability principles. Such activity should obtain relevant permits from the Ministry of Environment and Forestry.

44. Law No. 26 of 2007 on Spatial Plan as amended by Law No. 11 of 2020 regarding Job Creation that regulates the utilization planning of the land, marine, and air, including what is within the earth, as one sovereignty for human and wildlife and their livelihood. The basic principle of the spatial plans is the sustainable utilization of the resources for people's welfare. Geothermal in this law is considered as a nationally strategic activity along with oil, gas, mineral, and groundwater. The local bylaws on spatial plans have to refer to this law, especially on geothermal resource where they have potency; hence its development will not be hindered accordingly.

45. Law No. 11 of 2010 on National Cultural Heritage, especially prescribes guidance on observation and data collection on cultural heritage that may be affected by project activities.

46. Law No 2 of 2012 on Land Acquisition for Public Interest Development as amended by Law No. 11 of 2020 regarding Job Creation. According to this regulation,

compensation is an appropriate and fair compensation to those entitled to the land acquisition process.

47. Government Regulation No. 22 of 2021 on the Administration of Environmental Protection and Management, as the implementing regulation of Law No. 11 Year 2020, mandates that geothermal power plant development is considered as one of the nationally strategic activities that need to obtain Environmental Feasibility Approval, and related activities for which are mandatory to have UKL/UPL and/or AMDAL. In the case of exploration, UKL/UPL is required, as long as it's not followed by supporting activities (such as road improvement, water intake, cut and fill) that requires AMDAL.

48. Government Regulation No. 23 of 2021 regarding forestry implementation, regulates Forestry Planning; Change of Designation of Forest Area and Change of Function of Forest Area; Use of Forest Areas; Forest Administration and Forest Management and Forest Utilization Plans; Social Forestry Management; Forest Protection; Supervision; and Administrative Sanctions. This GR has allowed geothermal energy development within the protected forest areas as a nationally strategic activity. Such development should obtain the permit from the Ministry of Environment and Forestry and pay adequate levy as contribution to state revenues.

49. Government Regulation No. 26 of 2008 on National Spatial Plan as amended by Government Regulation No. 13 Year 2017 also provides for sustainable utilization of the resources to benefit the Indonesian people's welfare and recognizes geothermal as a nationally strategic activity along with oil, gas, mineral, and groundwater. The National Spatial Plan provides guidance for preparing the long-term plans, mid-term plans, land use plan, balance between the regions, investment locations, national strategic areas, and provincial and district spatial plans.

50. Government Regulation No. 28 of 2011 on the Management of Natural Reserve Area and Nature Conservation allows for geothermal development activities in conservation areas so long as they are not classified as a mining process (Article 35, verse 1c). Geothermal activities are regulated as a type of service utilization of forest ecosystem.

51. Minister of Environment and Forestry Regulation No. 3 of 2021 on Standards Of Business Activities On The Implementation Of Risk-based Business Licences In The Environmental and Forestry Sector. This regulation arranges the procedure of business licence in the environmental and forestry sector, including business

licence for geothermal exploration in conservation area (*Perizinan Berusaha-Pengusahaan Jasa Lingkungan Panas Bumi).*

52. Minister of Environment and Forestry Regulation No. 4 of 2021 on List Of Business and/or Activities That Must Have Environmental Impacts Analysis (AMDAL), Environmental Management Effort and Environmental Monitoring Effort (UKL-UPL) or Letter of Environmental Management and Monitoring (SPPL) states that even though geothermal exploration is categorized as high-risk activity, the required document to be submitted in order to obtain Environmental Approval is UKL-UPL, as long as it's supporting activities (such as road improvement, water intake, cut and fill) are not categorized as activity that requires AMDAL.

53. Minister of Environment and Forestry Regulation No. 7 of 2021 on Forestry Planning, Changes to Forest Area Use, and Changes in The Function of Forest Area and Forest Use. This regulation arranges the permit/approval application procedures for any activities carried out inside the forestry area.

54. Minister of Environment Regulation No. 16 of 2012 on Guidance on Environmental Documents Preparation prescribes how to prepare environmental documents, including AMDAL, UKL/UPL and SPPL, where the first two are key requirements to obtain the environmental permit. The regulation provides a detailed description of environmental documents to be prepared by the project proponents, including for geothermal exploration projects subject to UKL/UPL requirement.

55. Minister of Environment Regulation No. 17 of 2012 on Guidelines for Public Involvement in Environmental Assessment and Environmental Permitting Process. The regulation is based on the principles that: a) information provision in full and transparent; 2) equal position of all stakeholders; 3) resolution in fair and wise manner; and, 4) coordination, communication and cooperation among the involved parties. It regulates the public involvement in the AMDAL establishment and environmental permit issuance through announcement, inputs provision, feedback and public consultation, as well as in the AMDAL review commission. The public defines as: 1) project affected people; 2) environmental watchdog; and, 3) AMDAL process and decision affected people. The regulation prescribes the free, prior, and informed consultation (FPIC) principles and requirements for disclosure.

56. The Presidential Regulation No. 62 of 2018 concerning handling of social impacts in the provision of land for national development. Communities are residents who control state land or land owned by the government, regional government, state-owned business entity, or regionally owned business entity. Land Provision is land

acquisition that is needed to be used in the implementation of national development. This is to anticipate if there are government-owned lands such as forests affected and have been occupied by residents for more than 10 years.

3.2 World Bank Safeguard Policies

57. Based on desk review of similar projects and preliminary environmental and social screenings, it is anticipated that the following World Bank Safeguard Policies are relevant and/or could be triggered by the GEUDP sub-projects[9]:

Table 2 Safeguards Policy Triggered by the Project

Safeguard Policies Triggered by the Project	**Yes**	**No**
Environmental Assessment OP/BP 4.01	X	
Natural Habitats OP/BP 4.04	X	
Forests OP/BP 4.36	X	
Pest Management OP 4.09		X
Physical Cultural Resources OP/BP 4.11	X	
Indigenous Peoples OP/BP 4.10	X	
Involuntary Resettlement OP/BP 4.12	X	
Safety of Dams OP/BP 4.37	X	
Projects on International Waterways OP/BP 7.50		X
Projects in Disputed Areas OP/BP 7.60		X

The new World Bank Environmental and Social Framework does not apply.

58. **OP 4.01 Environmental Assessment**. Under project Component 1, the project will fund exploration of geothermal resources at several sites. The sub-projects will fall into either Category B or Category A Classification. Category B sub-projects would be where the impacts would be local, reversible, and readily managed with proven or standardized mitigation measures. Category A sub-projects are those with significant, sensitive, complex, irreversible, and unprecedented potential adverse environmental and social impacts that may affect an area broader than the sites of facilities subject to physical work. All sub-projects require a full Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Plan (ESMP) to manage and mitigate such impacts in accordance with OP 4.01. The assessment of potential impact should also consider the social community or social living of the resident around the geothermal field location.

59. **OP 4.04 Natural Habitats** outlines the World Bank policy on biodiversity conservation taking into account ecosystem services and natural resource management and those used by project affected people (PAP). Projects must assess potential impacts on biodiversity. The policy strictly limits circumstances under which damage to natural habitats can occur, and prohibits projects that likely result in significant loss of critical natural habitats. Where a prospective geothermal

[9] OP4.10 Indigenous Peoples Policy is assessed in Section 7.3. OP 4.12 Involuntary Resettlement Policy is assessed in Section 6.3.

site is located in an area that is designated as *hutan lindung* (HL) or 'protected forest area, to remain in forest cover for watershed protection' or conservation area, or similar, this policy will apply. Impacts will be assessed in the ESIA process.

60. **OP 4.11 Physical Cultural Resources (PCR)** sets out World Bank requirements to avoid or mitigate adverse impacts resulting from project development on cultural resources. It is likely that PCR will be found near geothermal exploration projects. In some cases in Indonesia, local communities consider the manifestations of geothermal energy as sacred. The ESMF includes the requirements for preparing PCR Management Plans (PCRMP), which will be developed as part of the ESIA and ESMP processes, as well as requirement for a chance find procedure to be attached to every ESMP.

61. **OP 4.36 Forests**. This policy recognizes the need to reduce deforestation and promote sustainable forest conservation and management. The prospect geothermal areas could be within a forest area as defined by its protection status based on the GoI regulations as well as definition of forests under the Policy. The impacts on forest health and functions, and the impacts on affected persons that rely on forest resources, will be assessed as part of the ESIA and Resettlement Action Plan processes and mitigation measures will be incorporated into the ESMP and LARAP.

62. **OP 4.37 Safety of Dams**. When the Bank finances a project that includes the construction of a new dam, this Policy requires that the dam be designed and its construction supervised by experienced and competent professionals. It also requires that the Borrower adopt and implement certain dam safety measures for the design, bid tendering, construction, operation, and maintenance of the dam and associated works. The Policy is triggered because the drilling process requires storage and settling ponds for brine and other drilling fluids. The requirements of the Policy will be included in the civil contracts and drilling contracts, and the activities and outputs will be monitored under the ESMF.

63. **OP 4.10 Indigenous Peoples**. This policy requires the Government to engage in a process of free, prior and informed consultations with indigenous peoples, as described by the policy in situations where indigenous peoples are present in, or have collective attachment to, the project area and for the preparation of an Indigenous Peoples Plan (IPP) and/or Indigenous Peoples Planning Framework (IPPF). The objectives of the policy are that broad community support from Indigenous Peoples in the project area should be obtained and that the policy aims to minimise impacts and provide culturally appropriate benefits and mitigation measures.

64. **OP 4.12 Involuntary Resettlement**. This policy addresses direct economic and social impacts from the projects activities that will cause (a) involuntary taking of land resulting in (i) relocation or loss of shelter, (ii) loss of assets or access to assets or (iii) loss of income sources or livelihoods and (b) involuntary restriction of access to legally designated parks and protected areas resulting

in adverse impacts on the livelihoods of the displaced persons. The policy requires siting of project infrastructure to be chosen so as to avoid these impacts altogether or to minimize them to the extent possible. Where these cannot be avoided, the policy requires the preparation of either or both of these instruments (i) Resettlement Policy Framework, (ii) Resettlement Action Plan, and for meaningful consultations with potentially affected people. The policy prohibits Community donations of lands for location-specific infrastructure.

65. The World Bank Group EHS Guidelines, including the Industry Sector Guidelines for Geothermal, will be integrated into the ESIA and ESMP processes and documentation.

3.3 Gap Analysis

66. Table 3 below presents the comparison of key features between the GOI's Laws and Regulations and the World Bank safeguards policies and how the gaps are addressed in the frameworks.

67. The significant difference between the Indonesian ESIA/AMDAL laws and regulations relating to geothermal exploration and Bank Policy relates to the applicable safeguard instrument. The GOI prescribes that only an Environmental Management Plan and Monitoring Plan (UKL/UPL) is required for geothermal exploration regardless of potential impacts, whereas OP4.01 requires an assessment of safeguard instrument depending on the classification of activity based on risk (Category A, B, or C). Both the Bank and country's own systems will be followed, and the content of documents will be harmonized where possible; however, separate sets of instruments will be prepared for separate approval processes.

68. OP4.01 Environmental Assessment requires an assessment of associated facilities where they are considered part of the project (either geographically, or over time), whereas the GOI laws and regulations consider project activities discreetly. Meanwhile, the GoI laws and regulations consider each phase as a separate environmental permit process, and thus require separate application and obtainment of approvals accordingly.

69. GoI laws and regulations have recently been amended to remove barriers to carrying out geothermal exploration and exploitation activities in forests and protected areas, and exempting requirements for full ESIA/AMDAL in many cases. These regulatory revisions take into account the low-impact use of ecosystem services and that geothermal is accepted and increasingly considered as a nationally strategic activity. In contrast, the Bank's OP4.01 Environmental Assessment, OP4.04 Natural Habitats and OP4.36 Forests have maintained its requirements and standards regardless of the activities. The Bank requires full impact assessment before sub-project appraisal; and would either require significant mitigations, or not fund certain exploration activities – that may result in degradation or removal of critical habitats – in forests and protected areas.

70. Where there is conflict between the country's own systems and the Bank Policies, the highest standard prevails, meaning that the most precautionary, or the most restrictive in terms of avoiding or minimizing social and environmental impacts, will be followed to comply with both systems.

Table 3 Gap Analysis for Environmental and Social Safeguards Policies and Indonesian Laws and Regulations

Scope/Topic	Bank Policy	Government of Indonesia Regulation	Gaps Identified	Addressed in the ESMF
OP 4.01 Environmental Analysis				
Reference to legal and administrative framework such as international environmental treaties, agreement, international standard policies etc.	OP 4.01 paragraph 3 OP 4.01 (Annex B) EA takes into account obligations of the country, pertaining to project activities under relevant international treaties or agreement.	Government Regulation No. 22/2021, Appendix III, section F.5, stipulated that other data and information required in reporting UKL-UPL shall be incorporated including reference to other requirements.	Lack of reference to legal and administrative framework such as international environmental treaties, agreement, international standard policies etc. The current regulation only refers to "other data and information".	The ESMF follows OP4.01. Three sub-project ESIA, ESMP and UKL-UPL will also cover this gap and follow OP 4.01.
Project Area of Influence.	OP 4.01 paragraph 2 OP 4.01 (Annex B) *EA evaluates a project's potential environmental risks and impacts in its area of influence, identifies ways of improving project selection and sitting etc.*	Government Regulation No. 22/2021, Appendix III, section B, requested project proponent to provide information in detail on this aspect with "*map, scale of operation and activities component*" that could be used to determine the project area of influence, availability of ancillary facilities and associated facilities during UKL UPL preparation as good practice. However, it does not state about the project's area of	Lack of analysis about project area of influence, ancillary facilities, induced impacts and site selection analysis for activities require UKL-UPL.	The sub-project ESIA, ESMP and UKL-UPL will cover the project area of influence as per OP4.01.

Scope/Topic	Bank Policy	Government of Indonesia Regulation	Gaps Identified	Addressed in the ESMF
		influence outside the project's footprints.		
Environmental Impact Screening	OP 4.01 paragraph 8 OP 4.01 (Annex C) *Environmental screening of each proposed project to determine the appropriate extent and type of EA.*	Government Regulation No. 22/2021, Appendix III, section C, regulates the requirement to evaluate all possible impacts from the project and prepare mitigation measures to tackle those issues. However, further screening based on significant environmental impact evaluation is not clearly stated.	Environmental screening based on technical thresholds only will result in inappropriate extent and type of EA.	The sub-project ESIA, ESMP and UKL-UPL will include the environmental impact screening and scoping as stipulated at Section 5 of the ESMF.
Environmental Monitoring Data	OP 4.01 (Annex C) *Environmental monitoring data to evaluate the success of mitigation and to foster corrective actions.*	Government Regulation No. 22/2021, Appendix III, section C.3, clearly regulates the requirement for data monitoring of UKL-UPL.	Insufficient follow up, analysis, use of environmental monitoring data for evaluation and continual improvement. The environmental monitoring program is not sufficient or is not corresponding to the scale of the impact of the project.	The ESMP and UKL/UPL will address the gaps and include appropriate environmental monitoring programs appropriate to the scale of the impact of the project. Refer to Appendix D.

Scope/Topic	Bank Policy	Government of Indonesia Regulation	Gaps Identified	Addressed in the ESMF
Capacity Development and Training.	OP 4.01 Paragraph 13 *(When the borrower has inadequate technical capacity to carry out environmental safeguards management functions, the project includes components to strengthen that capacity).* OP 4.01 (Annex C). Paragraph 4 *(Technical Assistance program for EMP implementation)*	Not covered.	Insufficient capacity development and training for EMP implementation	This is addressed in Section 9 of this ESMF.
Institutional Arrangements. Institutions responsible for environmental management and ESMP implementation	OP 4.01 (Annex C) Para 4 and 5. *(EMP must provide specific description of institutional arrangement and implementation schedule for mitigation and monitoring measures)*	Government Regulation No. 22/2021 section C.4, clearly regulates the institutional arrangement for UKL UPL implementation, monitoring and reporting. Also the frequency and detail location of monitoring and implementation effort (section C.3).	No gaps identified.	This is addressed in the Section 9 of this ESMF.
Cost estimate of ESMP to ensure "*the adequacy of*	OP 4.01 (Annex C) Paragraph 5.	Ministry of Environment Decree No. 45/2005 concerning	The source of funds for ESMP implementation is not	This is addressed in the Section 10 of this ESMF.

Scope/Topic	Bank Policy	Government of Indonesia Regulation	Gaps Identified	Addressed in the ESMF
financing arrangements for EMP".	*(EMP provides the capital and recurrent cost estimates and source of funds for EMP implementation).*	Guideline for Compiling the EMP Implementation Report.	addressed in this GOI regulation.	
Public Consultation.	OP 4.01- paragraph14 *Consulted with project affected groups and CSO during preparation and implementation* OP 4.01 (Annex B) *(For AMDAL but the gap analysis for UKL UPL is also useful as good practice* Consultation requirements are less clearly specified in the UKL UPL preparation especially during project implementation.	Ministry of Environment Regulation no. 17/2012 about The Guidelines for Public Involvement in Environmental Assessment and Environmental Permitting Process, including UKL UPL document. Government Regulation No. 22/2021 section C.4, clearly regulates regular reporting requirements for UKL UPL implementation.	No gaps identified.	This is addressed in the Section 8 of this ESMF.
Public Disclosure.	OP 4.01--Paragraph 15. *(Timely disclosure and understandable documents in the local language.)*	Not covered in the Ministry of Environmental Regulations but stipulated in the Ministry of Communication and Information Regulations.	No gaps identified.	This is addressed in the Section 8 of this ESMF.
OP 4.04 Natural Habitat				

Scope/Topic	Bank Policy	Government of Indonesia Regulation	Gaps Identified	Addressed in the ESMF
Project consistency with national and Regional spatial planning for conservation purpose	OP 4.04 - Paragraph 5. (*Wherever possible, Bank-financed projects are sited on lands already converted).* BP 4.04--Paragraph 5. (*Project consistency with national and Regional spatial planning for conservation purpose).*	Government Regulation No. 22/2021, Appendix III about UKL UPL preparation section B point a, stipulated that any project proposal shall be rejected if the project is not in line with the regional/district spatial planning and with the Presidential Instruction on 10/2011 about Forestry Permit/Environmental Permit moratorium at specific area (in primary forest, wetlands and other sensitive area etc.).	No gaps identified.	
Classification, criteria for Significant conversion (loss) and degradation of Critical and Natural Habitat whether directly (through construction) or indirectly (through human act) induced by the project ecosystem.	OP 4.04- Paragraph 4. (*The Bank does not support projects that, in the Bank's opinion, involve the significant conversion or degradation of critical natural habitats).*	Government Regulation No. 22/2021, Appendix III about UKL UPL preparation section B point a, stipulated that any project proposal shall be rejected if the project is not in line with the regional/district spatial planning and with the Presidential Instruction on 10/2011 about Forestry Permit/Environmental Permit moratorium at specific area (in primary forest, wetlands and other sensitive area etc.).	The regulation does not specifically mention natural habitat and critical natural habitat as per 4.04.	Through the Screening Process (Section 5.2 and 5.3) and the ESIA process (Section 5.4) critical natural habitats and protected areas will be identified, and the potential for significant conversion or degradation of these areas, and mitigation options, assessed. Both sections identify that if the project is not consistent with Safeguards Policies or GOI laws and regulations, the sub-project will not be funded.

Scope/Topic	Bank Policy	Government of Indonesia Regulation	Gaps Identified	Addressed in the ESMF
Capacity Building for both local and national level institutions in Biodiversity Management or Nature Conservation.	OP 4.04-- Paragraph 6. *(Borrower's ability to implement the appropriate conservation and mitigation measures strengthened by project components or other measures).*	Not specifically regulated.	Not covered in current regulation.	This is addressed in the Section 5.3.4.3 of this ESMF. A specific sub plan to the ESMP, the Biodiversity Management Plan, will include specific capacity building.
Public consultation efforts, stakeholder involvement including NGO	OP 4.04--Paragraph 9 – 10. (*The Bank expects the borrower to take into account the views, role, rights or groups including local NGO and local communities during planning, design, implementation, monitoring and evaluation).*	Ministry of Environment Regulation No. 17/2012 about The Guidelines for Public Involvement Environmental Assessment and Environmental Permitting Process, including UKL UPL document. Government Regulation No. 22/2021, Appendix III, section C.4, clearly regulates regular reporting requirements for UKL UPL implementation.	No gaps identified.	This is addressed in Section 8 of the ESMF.
OP 4.11 Physical Cultural Resources				
Physical Cultural Heritage Resources Management Plan	OP 4.11 – Paragraph 17. *(For projects in which the physical cultural resources management plan incorporates*	Law No. 11 of 2010 (on National Cultural Heritage, especially prescribes guidance on observation and data collection on cultural heritage	National regulations have not specifically regulated the mechanism for anticipating and mitigating impacts	PCR screening and impact assessment is addressed in Section 5 of the ESMF.

Scope/Topic	Bank Policy	Government of Indonesia Regulation	Gaps Identified	Addressed in the ESMF
	provisions for safeguarding physical cultural resources, supervision missions include relevant expertise to review the implementation of such provisions.)	that may be affected by project activities.	caused by the projects on cultural heritage objects.	
OP 4.36 Forests				
The potential impacts of project on forests and protection of critical forest areas.	OP 4.36 – Paragraph 13 *(In accordance with OP/BP 4.01EA, in projects that trigger the Forests Policy, the environmental assessment (EA) should address the potential impact of the project on forests and/or the rights and welfare of local communities.)* OP 4.36 – Paragraph 14 *For projects involving the management of forests proposed for Bank financing, the borrower furnishes the Bank with relevant information on the forest sector concerning the borrower's overall policy framework, national legislation,*	Act No. 41 of 1999 on Forestry based on the sustainability of forest ecosystem and its functions for both economic purposes and ecology. The development activities other than forestry are permissible in a selective manner in order to avoid significant damage that can reduce forest functions. The strategic development activities that are avoidable can be permitted with prudent approach, such as for mining, electricity, communication, and water installation. Hence, this applies also to geothermal development that can be	While the GoI Acts enable geothermal development in forested and protected areas, OP4.36 requires an assessment of impacts on the forest ecosystems and the rights and welfare of local communities, particularly of those using the areas for subsistence or livelihood purposes.	Screening and ESIA activities will identify the ecological and social values of the forests and undertake an impact assessment in accordance with OP4.01, OP4.04 and OP4.36. Even where GOI regulation enables geothermal development, Section 5 of the ESMF notes that a sub-project must comply with both World Bank safeguards and GOI regulations.

Scope/Topic	Bank Policy	Government of Indonesia Regulation	Gaps Identified	Addressed in the ESMF
	institutional capabilities, and the poverty, social, economic, or environmental issues related to forests. This information should include information on the country's national forest programs or other relevant country-driven processes. BP 4.36 – Paragraph 4 *During project preparation, the TT ensures that the borrower provides the Bank with an assessment of the adequacy of land use allocations for the management, conservation, and sustainable development of forests, including any additional allocations needed to protect critical forest areas.*	implemented in forest areas, even in protected forest. Government Regulation No. 24 of 2010 on Forest Area Utilization, has allowed geothermal energy development within the protected forest areas as a nationally strategic activity. Such development should obtain the permit from the Ministry of Environment and Forestry and pay adequate levy as contribution to state revenues. The project proponent is required to submit the proposal to the Ministry along with the supporting documents outlined in the regulation. Government Regulation No. 28 of 2011 on the Management of Natural Reserve Area and Nature Conservation allows for geothermal development activities in conservation areas so long as they are not classified as a mining process		

Scope/Topic	Bank Policy	Government of Indonesia Regulation	Gaps Identified	Addressed in the ESMF
		(Article 35, verse 1c). Geothermal activities are regulated as a type of service utilization of forest ecosystems. Minister of Environment and Forestry Regulation No. 3 of 2021 on Standards Of Business Activities On The Implementation Of Risk-based Business Licences In The Environmental and Forestry Sector. This regulation arranges the procedure of business licence in the environmental and forestry sector, including business licence for geothermal exploration in conservation area (Perizinan Berusaha-Pengusahaan Jasa Lingkungan Panas Bumi).		
OP 4.37 Safety of Dams				
Design and Supervision of Dam Safety	Policy requires that dams be designed and its construction supervised by experienced and competent professionals. It also requires that the Borrower adopt	Government of Indonesia Regulation No. 37/2010 concerning Dam Safety.	No gaps identified.	ESMF covers this in section 1.3.4.1. The requirements of the Policy will be included in the EMT contracts and drilling contracts, and the activities and

Scope/Topic	Bank Policy	Government of Indonesia Regulation	Gaps Identified	Addressed in the ESMF
	and implement certain dam safety measures for the design, bid tendering, construction, operation, and maintenance of the dam and associated works.			outputs will be monitored under the ESMF.
OP 4.12 Involuntary Resettlement				
Direct Impacts.	Covers provision of benefits to address direct social and economic impacts caused by loss of land, assets and income.	Relates to compensation for loss of land and assets also other losses that can be accounted for by taking of land for a project. Once fair compensation is given, further consideration and impact mitigation are not elaborated.	No gaps identified.	Covered by the valuation methods as specified in the MAPPI Standards.
Indirect impacts.	States that indirect social and economic impacts caused by project should be addressed under OP 4.01	Not covered, however, is indirect impact regulated Government Regulation Number 22/2021 regarding the Administration of Environmental Protection and Management, including UKL UPL and AMDAL document guidance.	Indirect impacts are not covered in the land acquisition law.	It will be covered in the ESIA, ESMP and UKL/UPL
Related activities.	Covers impacts that result from other activities is if they are (i) directly and significantly related	Not covered	Related activities are not covered.	It is addressed in the RPF and will be considered in the

Scope/Topic	Bank Policy	Government of Indonesia Regulation	Gaps Identified	Addressed in the ESMF
	to the proposed project; (ii) necessary to achieve its objectives; and (iii) carried out or planned to be carried out contemporaneously with the project			LARAP process for each sub-project.
Host Communities.	Impacts on host communities need to be considered, and host communities need to be consulted.	Not covered since the option of resettlement/relocation is not sufficiently elaborated.	Host communities are not explicitly covered in the GOI regulations.	This will be addressed in the LARAP for each sub-project
Resettlement as a Sustainable Development Program.	Resettlement activities should be conceived as sustainable development programs, providing sufficient resources to enable persons displaced to share in project benefits.	Resettlement (relocation) is an option of compensation but not sufficiently elaborated; focuses more on cash compensation.	Lack of noncash support.	RPF provides options for compensation consistent with OP4.12
Vulnerable Groups.	Pay particular attention to the needs of vulnerable groups among those displaced, especially those below the poverty line, the landless, the elderly, women and children, Indigenous Peoples, ethnic minorities, or other displaced persons who may not be protected through national land compensation legislation.	Project Affected People are not differentiated by vulnerability or gender.	No specific separation by vulnerability or by gender.	The LARAP will include information on the vulnerable groups (women, very poor, disable, etc.), particularly during the census survey.

Scope/Topic	Bank Policy	Government of Indonesia Regulation	Gaps Identified	Addressed in the ESMF
Resettlement Planning Instruments.	Different planning instruments must be prepared to achieve the objectives of the policy (resettlement plan, resettlement policy framework or process framework) and must cover all aspects of the proposed resettlement.	Land acquisition plan[10] based on a feasibility study, the project suitability[11] to the spatial plan	Not equivalent with the development plan in LARAP or in Resettlement Planning (RP).	Requirement to prepare a LARAP when sub-projects involves involuntary land acquisition and resettlement
Eligibility for No Formal Legal Rights.	For those without formal legal rights to lands or claims to such land that could be recognized under the laws of the country, provide resettlement assistance in lieu of compensation for land to help improve or at least restore their livelihoods. Will covers squatters and encroachers	Does not cover squatters (unless in good faith on public land), encroachers and renters on private land. ● Landless and laborers are **not** expected to be **compensated and provided rehabilitation measures**; it is the responsibility of the landowner to compensate them.	In Presidential Decree No. 62 of 2018, the compensations are settlement compensation or relocation. In world bank policy the compensations include restoring their livelihoods.	The RPF specifies that licensed appraisers compensation criteria include among others, assistance and livelihood
Eligibility for Indigenous Peoples.	IPs are covered when screening identifies the presence of IPs as per characteristics in OP4.10	Indigenous Peoples are covered by the land acquisition and resettlement legislation once	Different ways to identify Indigenous People.	IPPF specifies that if a sub-projects needs to acquire land, RPF applies.[13]

[10] Not the same as World Bank LARAP/RP, there is more implementation procedure than development plan.

[11] At present the spatial-planning zoning could accommodate the function proposed by the project. If not the project has to move to other place or revision of zoning should be issued by the local parliament proposed by the relevant government institution

Scope/Topic	Bank Policy	Government of Indonesia Regulation	Gaps Identified	Addressed in the ESMF
	policy (which does not require any legal recognition).	they have been legally recognized[12]		
Land for Land (Resettlement).	Preference given to land based resettlement strategies for displaced people whose livelihoods are land based.	No time allocation and detail procedures to implement this resettlement scheme	The compensation does not theorize land to land mechanisms.	RPF provides options for compensation
Benefits Package.	Provide technically and economically feasible resettlement alternatives and needed assistance, including (a) prompt compensation at full replacement cost for loss of assets attributable to the project; (b) if there is relocation, assistance during relocation, and residential housing, or housing sites, or agricultural sites of equivalent productive potential, as required; (c) transitional support and development assistance, such as land preparation, credit facilities, training or job opportunities as required, in addition to compensation measures; (d)	Mainly cash; in MAPPI guideline compensation is market price plus transaction and other costs, plus premium (to cover beyond valuation cost such as emotional loss). ● Real Property (Physical Assets) ✓ Land ✓ Buildings & Facilities ✓ Plants ✓ Other things related to the land required to restore to the owner a property of at least the same quality as that owned prior to the land acquisition.	No Gaps Identified.	RPF provides requirements for compensation options, and licensed appraisers assess physical assets, cost and loss of non- physical assets and premium

[12] In BPN and Forestry Regulations IP institutions should be recognized by the local government, while institutions in favor of IPs prefer that the recognition comes from an independent IPs Committee.

Scope/Topic	Bank Policy	Government of Indonesia Regulation	Gaps Identified	Addressed in the ESMF
	cash compensation for land when the impact of land acquisition on livelihoods is minor; and (e) provision of civic infrastructure and community services as required.	● Cost & Loss (Non-Physical Losses) ✓ Transaction costs ✓ Moving costs ✓ Loss of on-going business (business interruption) ✓ Other losses of special nature, subjective and difficult to calculate ● Premium		
Full Replacement Cost.	Requirement for compensation for land and asset to be at full replacement cost	"Fair and reasonable", based on value assessment made by the licensed appraisers.	No Gaps Identified.	Criteria used by licensed appraisers as specified in the RPF included compensation for physical, non-physical and premium
Livelihood Restoration.	The resettlement plan or resettlement policy framework also include measures to ensure that displaced persons are: (i) Offered support after displacement, for a transition period, based on a reasonable estimate of the time likely to be needed to restore their livelihood and standards of living such support could take	Once fair compensation given further consideration and impact mitigation are not elaborated.	Impact mitigation not elaborated.	RPF included resettlement assistance and livelihood

Scope/Topic	Bank Policy	Government of Indonesia Regulation	Gaps Identified	Addressed in the ESMF
	the form of short-term jobs, subsistence support, salary maintenance or similar arrangements; and (ii) Provided with development assistance in addition to compensation measures described in paragraph 6 (a) (iii), such as land preparation, credit facilities, training, or job opportunities.			
Indigenous Peoples.	Land of indigenous people is addressed in both OP 4.12 and OP 4.10. If land of IPs is to be taken, requires broad community support and free, prior and informed consultation.	Land of indigenous people is treated in the same way as other, if land rights are recognized by relevant local government	WB policy requires specific engagement and broad community support by Indigenous Peoples.	RPF applies of a sub-project involve land acquisition and/or resettlement, regardless of who owns the land. Consultation as specified in the RPF and LARAP should be consistent with the IPPF (free, prior and informed consultation, broad community support), specifically tailored to the local context and the characteristics of the affected persons.[13]

[13] Refer to the definition of Indigenous Peoples, the legal framework and to the consultation methods, in the IPPF, Section 7.

Scope/Topic	Bank Policy	Government of Indonesia Regulation	Gaps Identified	Addressed in the ESMF
Resettlement Cost.	The full costs of resettlement activities necessary to achieve the objectives of the project are included in the total costs of the project. [20]	Budget plan is part of the land acquisition plan but tends not to consider the resettlement cost.	Budget plan does not theorize the resettlement cost.	RPF and LARAP require that costs for land acquisition and resettlement is budgeted
Consultation and Complaint Procedure.	Displaced persons should be meaningfully consulted and should have opportunities to participate in planning and implementing resettlement programs (2.b) Grievance mechanism should take into account availability of judicial resources and community and traditional dispute settlement mechanism (17)	Consultation to the Project Affected People needed to get a permit for the proposed location of the project. There is no prior consultation before negotiation on the option of compensation. The grievance redress mechanism is clearly described and within the court it will follow the court procedure. Understanding the limitation and over burden of the court system, the effectiveness of the implementation still in question	Consultation is limited, GRM is limited to the court system.	RPF and LARAP require consultation and implementation of GRM. Overall, the project has GRM in place as a continuation of the well-functioning GRM system of the PNPM-Urban/ND.
Monitoring of outcomes.	Requirement to carry out adequate monitoring and evaluation of all activities set out in the resettlement plan [24] Assess whether the objectives of the resettlement instrument have been achieved, upon completion	Monitoring and evaluation covers the occupation, ownership, utilization and benefit of the result of land acquisition without being clear on when, how and what correction measure could be	No mechanisms for enforcing corrective measures.	LARAP specifies the requirement of monitoring of land acquisition and resettlement activities. Overall, the project is required to monitor and report the preparation and implementation

Scope/Topic	Bank Policy	Government of Indonesia Regulation	Gaps Identified	Addressed in the ESMF
	of the project, taking account of the baseline conditions and the results of resettlement monitoring [24]	enforced.		of LARAP (and EMPs and IPPs as well)

4 ANTICIPATED ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES

4.1 Geothermal Exploration – Drilling Activities and Associated Infrastructure and Activities

71. The following anticipated impacts and mitigation measures are relevant for exploration sub-projects under GEUDP Component 1.

Table 4 Environmental and Social Aspects, Potential Impacts and Mitigation Measures for Geothermal Exploration Activities

Environmental and Social Aspects and Issues	**Potential Impacts**	**Mitigation Measures**
Natural habitats, including critical natural habitats **Aquatic and terrestrial habitats and endemic species** **Forest resource users** **Water users** **Aesthetics and landscapes**	Land clearance for well pads, roads, pipelines and supporting infrastructure will cause direct damage or destruction to natural habitats.	Avoid, or otherwise minimize, development in sensitive areas (forest habitats, landscapes, scenic areas etc.) Adoption of directional drilling to avoid sensitive areas. Remove and decommission infrastructure after exploration and rehabilitate areas quickly, re-contour where necessary to natural ground conditions and replant with native species or commercial species (depending on land use). Prepare a mitigation plan for land use following the exploration activities, together with communities and local authorities to avoid indiscriminate development and potential conflict. Provide justification that there are no feasible alternatives for the project and its siting, and comprehensive analysis demonstrates that overall benefits from the projects substantially outweigh the environmental costs. Specifically, for project located in conservation forest: ● Provide justification that there are no feasible alternatives for the project and its siting, and comprehensive analysis demonstrates that overall benefits from the projects substantially outweigh the environmental costs ● Minimizing habitat loss (e.g., strategic habitat retention and post-development restoration) and establishing and maintaining ecologically similar protected area.
	Roads, pipelines and drilling pads can create intrusions into natural and scenic landscapes.	
	Indirect impacts from induced development (agriculture, poaching, land clearances, land disputes) into forested areas and protected natural areas.	
	Water abstractions and discharges of treated wastewater/drilling fluids and other wastes to land and water bodies	All types of wastewater will be treated accordingly before being discharged to land or water body in accordance with related regulation.

Environmental and Social Aspects and Issues	Potential Impacts	Mitigation Measures
	cause direct or indirect impacts on habitats and species. Pollution of water or water abstractions affects other water users. Possible overflow or failure of ponds.	Based on Regulation of Minister of Energy and Mineral Resources No. 45 of 2006, separate different waste streams and treat via ponds, dosing, cooling or other methods and ensure that effluent of treated water quality comply with the applicable regulation before discharge to non-sensitive areas of land or water bodies. Based on the Ministry of Energy and Mineral Resources Regulation Number 21 of 2017 relating to the management of drilling fluid and drilling cuttings for geothermal activities, the drilling fluid is not classified as hazardous waste. However, representative drilling fluid will be laboratory tested using Toxic Characteristic Leaching Potential (TCLP) testing technique to identify proper treatment method and wastewater management. Drilling during full return of circulation, the drilling fluid can be returned to the drilling mud tanks and reused for drilling. If possible, remaining drilling fluid can be reuse for another well. Avoid overexploitation of freshwater resources – find multiple sources, take from streams with high flow rate, time drilling for the rainy season, use storage dams or ponds, take no more than 1/3 of the seasonal low flow from surface water features. Identify other water uses such as farm irrigation and ensure sustainable abstraction rates that do not interfere with their water use, fishing etc. The option to import fresh water could be taken into account in case there is a constraint to use water sources of the communities. Discharge to reinjection wells wherever possible. Use septic tanks to treat domestic wastewater before discharge to land. Empty septic tanks regularly and dispose sludge to landfill. Resource planning and management, in conjunction with authorities & communities to locate storage ponds away from sensitive areas. Careful design of ponds in accordance with OP4.36 Safety of Dams and monitoring of pond structures for signs of failure.
	Indiscriminate dumping of hazardous and solid waste to riparian zones and water ways.	Maintain safe systems of hazardous materials and solid waste management as part of Construction and Drilling standard operating procedures and EMP. Separate waste streams and recycle, compost and reuse waste where possible. Keep waste tidy / covered / secure.

Environmental and Social Aspects and Issues	Potential Impacts	Mitigation Measures
		Dispose of unrecyclable waste to designated landfills that have permits from local authorities. Clean and remove spills and remediate land quickly. Train staff to use spill equipment and respond to incidents. Prohibit dumping of waste.
	Disturbance to ecological function	Re-vegetation cleared area following the completion of exploration activities
	Poaching and hunting of animals by workers. Competition with locals for forest resources.	Prohibit poaching and hunting, and use of forest resources, as part of workforce management. Provide clear notification signage
Land use, and soils (and subsequent surface and groundwater contamination)	Discharge of contaminated muds and fluids to ground.	Avoid discharging fluids to ground. Test muds for contaminants prior to disposal. Contaminated muds will be treated as hazardous waste and disposed to lined landfill.
	Spills of hazardous materials.	Maintain safe systems of hazardous materials and solid waste management as part of Construction and Drilling standard operating procedures and EMP. Separate waste streams and recycles, compost and reuse waste where possible. Keep waste tidy / covered / secure. Dispose of unrecyclable waste to designated landfills that have permits from local authorities. Clean and remove spills and remediate land quickly. Train staff to use spill equipment and respond to incidents. Prohibit dumping of waste. Store hazardous waste in permitted Temporary Hazardous Waste Storage Facility
	Indiscriminate dumping of solid and hazardous waste.	
	Loss of topsoil, landslides and other severe erosion from road construction,	Avoid high risk areas such as steep terrain. Minimize land clearance, especially on slopes.

Environmental and Social Aspects and Issues	Potential Impacts	Mitigation Measures
	pipelines, pad construction, borrow pits, quarries, fill sites.	Design bank stability, slope protection and drainage systems into road design, borrow pit design etc. Restore disturbed and damaged areas immediately. Employ sediment and erosion control measures during construction (fences, traps, treatment ponds etc.). Take / dispose material to approved sites.
	Land use change after drilling activity and abandoned unproductive wells	Land restoration / rehabilitation to pre-existing condition or to alternatives selected by land owner as agreed by both parties
Geothermal features	Interference from pumping or reinjection of geothermal water, or from abstraction of freshwater. Damage from road construction, pipelines or other ancillary activities.	Identify and avoid significant features (values such as cultural, historical, spiritual, scientific, biological, landscape, ecotourism etc.) Avoid damaging or disturbing geothermal features where possible. Monitor activity to identify interference from pumping or reinjection. Adjust well testing and reinjection where necessary to mitigate significant impacts. Provide barriers and avoid disturbances to features from construction operations where necessary.
Groundwater	Contamination of groundwater from interference with geothermal water from abstraction wells or reinjection wells.	Prepare wells with appropriate casing and well head protection to prevent contamination. Monitor well levels and pressure to identify leaks early and repair casing or decommission wells to avoid further contamination.
	Impacts on aquifer levels from over-abstraction for fresh water supplies.	Model yield to ensure sustainable groundwater use. Use multiple sources. Use storage tanks, ponds and dams to store water.
Ambient noise	Drilling rig operations, increased traffic, well discharge testing, heavy machinery, and blasting for roads or quarrying – all emit noise not otherwise experienced in the project area. Disturbances to animals, domestic life, working life, schooling.	Plan work to avoid disturbances at sensitive times (night, holidays) Locate sites away from noise-sensitive receptors such as schools and villages. Restrict traffic through villages and near sensitive receptors. Use noise barriers such as bunds, or the natural topography. Warn people before noisy work begin and provide specific mitigation options to vulnerable people (such as temporary relocation).

<table>
<tr><th>Environmental and Social Aspects and Issues</th><th>Potential Impacts</th><th>Mitigation Measures</th></tr>
<tr><td></td><td></td><td>Use appropriate construction methods and equipment (and keep maintained).
Prepare a study (use consultant services) to evaluate the acceptable noise level for animals in the geothermal exploration field location if required.
Use Guidelines for ambient noise levels (by receptor):
<table>
<tr><th rowspan="2">Receptor</th><th colspan="2">Maximum allowable Leq (hourly), in dB(A)</th></tr>
<tr><th>Daytime
07.00-22.00</th><th>Nighttime
22.00-07.00</th></tr>
<tr><td>Residential; institutional; educational</td><td>55</td><td>45</td></tr>
<tr><td>Industrial; commercial</td><td>70</td><td>0</td></tr>
</table></td></tr>
<tr><td rowspan="2">Ambient air quality</td><td>Discharge to air of contaminants from well testing and drilling (hydrogen sulfide, mercury, arsenic etc.), depending on the nature of the resource.</td><td>Locate sites away from sensitive receptors such as schools and villages.
Warn people before work begin and provide specific mitigation options to vulnerable people (such as temporary relocation).
Safety planning and measures for uncontrolled gas releases.
Remediation / replacement of any damaged vegetation, crops etc.</td></tr>
<tr><td>Dust emissions from road construction, land clearance, site activities.</td><td>Locate sites away from sensitive receptors such as schools and villages.
Control dust with water during windy and dry conditions.
Stage land clearance activities and rehabilitate open areas quickly.</td></tr>
<tr><td>Critical infrastructure</td><td>Damage or destruction to critical infrastructure (roads, ports, bridges)</td><td>Upgrade infrastructure prior to use.
Provide new, purpose-built infrastructure.
Repair damaged infrastructure to at least the pre-project condition.</td></tr>
<tr><td>Occupational health and safety</td><td>Risks relating to working with machinery, traffic accidents, falling into ponds, scalding from hot fluids and steam, toxic gas emissions, and noise impact.
Non-routine risks such as well blow outs.</td><td>Gas monitoring systems.
Appropriate personal protective equipment (PPE).
Appropriate training.
Implement safety systems and procedures.</td></tr>
</table>

Environmental and Social Aspects and Issues	Potential Impacts	Mitigation Measures
		Shielding surfaces where working with hot fluids and steam. Fencing ponds and mud pits. Well maintained vehicles and machinery. Application of rock mufflers, sound insulation, and barriers during drilling and well testing. Emergency and incident planning and management. First aid training and plans for evacuation to hospital. Impacts and Mitigation Measures for Geothermal Exploration Activities, site-specific OHS risk assessment will be done during development of ESIA for all sub-projects, which will also consider the GIIP
	Risks relating to infectious disease including COVID-19	Development of protocol to mitigate health risks that would impact to the employees, workforce, visitors in the project area and the surrounding communities, referring to International, National and Local Guidelines Provision of appropriate PPE Development of emergency responses First aid training, and plans for evacuation to health facility or hospital Appropriate handling of waste related to COVID-19 prevention measures
Land ownership, livelihood and resettlement	Involuntary resettlement for quarries, roads, well pads, pipelines and other sites where land is required, leading to loss of livelihood and social disconnection. Loss of crops, structures, and other assets	Prioritize willing buyer-willing seller negotiations for land lease or land purchase. Consult widely and identify all affected persons, including squatters. Compensate at replacement value. Use the RPF guidance for involuntary land acquisition and resettlement.
	Restricting access to forests or other resources.	Consult widely and engage communities in any changes to forest access and management. Integrate resettlement and livelihood issues into the integrated management plans.
Social Wellbeing	Concerns and complaints of affected communities.	Consultation on risks and adverse impacts of the project and creation of opportunities to receive affected communities' views on project.

Environmental and Social Aspects and Issues	Potential Impacts	Mitigation Measures
		Establishment of grievance mechanism to collect and facilitate resolution of affected communities' concerns and grievances regarding the sponsor's environmental and social performance. Transparent public disclosure to inform each phase of the project through web site, notice boards, telecommunication tools and public meetings. Establishing well designed and structured public questionnaire to receive feedback from affected communities
	Potential risks to the cultural integrity and social organization of indigenous peoples and other remote, vulnerable communities.	Conducting screening assessment to avoid potential impact to cultural integrity and social organization. When affecting integrity and social organization, socio-cultural assessment to be applied to further develop option to protect /mitigate
Community health and safety	Risks to bystanders and community relating to traffic accidents, toxic gas emissions,	Location of sites away from sensitive receptors. Gas monitoring systems. Traffic warning systems (pilot vehicles, roadside signs) Appropriate training of drivers. Regular community consultation. Warning signs. Emergency planning includes community.
	Unauthorized access to drilling rigs and storage / treatment ponds	Fencing around well site, ponds and pits. Warning signs. Regular community consultation. ID required to use access road and/or work on site.
Physical cultural resources. **Historic, spiritual, archaeological, religious, graves, etc.**	Disturbance, degradation, desecration of sites or artefacts as a result of land disturbances, land acquisition, impacts on geothermal features or landscapes.	Locate sites away from PCR. Use the PCR Management Plan to remedy impacts (mitigation, minimization, relocation etc.). Use the chance find procedure to stop work immediately on the discovery of a PCR.

Environmental and Social Aspects and Issues	Potential Impacts	Mitigation Measures
Indigenous Peoples	Potential impacts on access to resources and connection to the land. Lack of access to benefits of the project.	Consult early and extensively (Free, Prior and Informed Consultation) in accordance with the IPPF, in language and using methods appropriate to the IP group. Include IP in the project design, and ensure that benefits accrue to IP. Avoid and minimize harm to IP, and engage with them to identify appropriate mitigation. Undertake a social assessment.

Environmental and Social Aspects and Issues	Potential Impacts	Mitigation Measures
Natural habitats, including critical habitats **Aquatic and terrestrial habitats and species** **Forest resource users** **Water users** **Aesthetics and landscapes**	Land clearance for power station, substation, and transmission lines cause direct damage or destruction to natural habitats.	Avoid, or otherwise minimize, development in sensitive areas (habitats, landscapes, scenic areas etc.) Develop integrated resource management plans, inclusive of community-driven development opportunities, to manage long term impacts from induced development. Develop this in coordination with relevant land owners, communities, Ministries and local authorities to avoid indiscriminate development and potential conflict. Rehabilitate areas quickly, re-contour where necessary to natural ground conditions and replant with native species or commercial species (depending on land use). Specifically, for project located in conservation forest: ● Provide justification that there are no feasible alternatives for the project and its siting, and comprehensive analysis demonstrates that overall benefits from the projects substantially outweigh the environmental costs Minimizing habitat loss (e.g., strategic habitat retention and post-development restoration) and establishing and maintaining ecologically similar protected area.
	Power station, substation, transmission lines can create intrusions into natural and scenic landscapes.	
	Indirect impacts from induced development (agriculture, poaching, land clearances, land disputes) into forested areas and protected natural areas.	
	Water abstractions for cooling towers or domestic / office use and discharges to water of cooling water and other wastes cause direct or indirect impacts on habitats and species. Pollution of water or water abstractions affects other water users. Possible overflow or failure of ponds.	Separate different waste streams and treat via ponds, dosing, cooling and other methods before discharge to land or water bodies. Prioritize discharges to reinjection wells over surface water bodies and land. Avoid overexploitation of freshwater resources – find multiple sources, take from streams with high flow rate, time drilling for the rainy season, use storage dams or ponds, take no more than 1/3 of the seasonal low flow from surface water features. Identify other water uses such as farm irrigation and ensure sustainable abstraction rates that do not interfere with their water use, fishing etc. Discharge to reinjection wells. Use septic tanks to treat domestic waste water before discharge to land. Empty septic tanks regularly and dispose sludge to landfill. Resource planning and management, in conjunction with authorities & communities to locate storage ponds away from sensitive areas. Careful design of ponds in accordance with OP4.36 Safety of Dams and monitoring of pond structures for signs of failure.
	Well blow-outs discharging contaminants. Possibility of discharge of mud or fluid from inside the well as the result of overburden pressure from the formation inside the well annulus.	Design of emergency response for well blowout and pipeline raptures including measures for containment of geothermal fluid spills. Use of geothermal energy exploration contractor that has high competency and certified with international standard well control certification, trained to detect any fluid kick potential from inside the borehole and able to give a quick response.

Environmental and Social Aspects and Issues	Potential Impacts	Mitigation Measures
		Use of safety exploration devices with international standard, such as well head and blow out preventer that could minimalized the risk of fluid kick from inside the borehole. Use of mud pit to storage the potential fluid discharge from inside the borehole. Regular maintenance of wellheads and geothermal fluid pipelines: - corrosion control and inspection - pressure monitoring - use of blowout prevention equipment (e.g. shutoff valves)
	Indiscriminate dumping of sulphur, silica, and carbonate precipitates collected from cooling towers, air scrubber systems, turbines, and steam separators, and other hazardous wastes to riparian zones and water ways.	Maintain safe systems of hazardous materials and solid waste management as part of Power Station standard operating procedures and Environmental Management System. Separate waste streams and recycle, compost and reuse waste where possible. Keep waste tidy / covered / secure. Dispose of unrecyclable waste to designated landfills that have permits from local authorities. Clean and remove spills and remediate land quickly. Train staff to use spill equipment and respond to incidents. Prohibit dumping of waste.
	Poaching and hunting of animals by workers. Competition with locals for forest resources.	Prohibit poaching and hunting, and use of forest resources, as part of workforce management.
Land use, and soils (and subsequent surface and groundwater contamination)	Discharge of sulphur, silica, and carbonate precipitates collected from cooling towers, air scrubber systems, turbines, and steam separators to land.	Sludge / precipitates to be stored in bounded areas. Test sludge for leach ability of contaminants prior to disposal. Contaminated sludge will be dewatered, treated as hazardous waste and disposed to lined landfill. Non-hazardous wastes will be buried away from water sources.
	Spills of hazardous materials.	

Environmental and Social Aspects and Issues	Potential Impacts	Mitigation Measures
	Indiscriminate dumping of other solid and hazardous waste.	Maintain safe systems of hazardous materials and solid waste management as part of Power Station standard operating procedures and Environmental Management System. Separate waste streams and recycles, compost and reuse waste where possible. Keep waste tidy / covered / secure. Dispose of unrecyclable waste to designated landfills that have permits from local authorities. Clean and remove spills and remediate land quickly. Train staff to use spill equipment and respond to incidents. Prohibit dumping of waste.
	Loss of topsoil, landslides and other severe erosion from distribution infrastructure construction and other construction sites.	Avoid high risk areas such as steep terrain. Minimize land clearance, especially on slopes. Use temporary haulage roads and restore promptly. Design bank stability, slope protection and drainage systems into site design. Restore disturbed and damaged areas immediately. Employ sediment and erosion control measures during construction (fences, traps, treatment ponds etc.). Take / dispose material to approved sites.
	Abandoning well pad area where the drilling failed or the well is not productive.	Land reclamation/rehabilitation.
Geothermal features	Interference from pumping or reinjection of geothermal water, or from abstraction of surface water.	Identify and avoid significant features (values such as cultural, historical, spiritual, scientific, biological, landscape, ecotourism etc.) Avoid damaging or disturbing geothermal features where possible. Model the geothermal reservoir and geothermal features. Monitor activity to identify interference from pumping or reinjection. Adjust production and reinjection where necessary to mitigate significant impacts. Provide barriers and avoid disturbances from construction and operations where necessary.

<table>
<tr><th>Environmental and Social Aspects and Issues</th><th>Potential Impacts</th><th>Mitigation Measures</th></tr>
<tr><td rowspan="3">Groundwater and geothermal reservoir</td><td>Contamination of groundwater from interference with geothermal water from abstraction wells or reinjection wells.</td><td>Prepare wells with appropriate casing and well head protection to prevent contamination.
Monitor well levels and pressure to identify leaks early and repair casing or decommission wells to avoid further contamination.
Detailed analysis of aquifer structure and existing groundwater use at development area
Determination of existing groundwater users in the vicinity of the operational wells (e.g. 1 km) should be identified. In addition, some of technical information about existing groundwater wells (e.g. depth, flow, etc.) should be collected.</td></tr>
<tr><td>Impacts on aquifer levels from over-abstraction for fresh water supplies.</td><td>Model yield to ensure sustainable groundwater use.
Use multiple sources of fresh water. Use storage tanks, ponds and dams to store water.</td></tr>
<tr><td>Over-abstraction of geothermal resource, leading to subsidence, saline intrusion, impacts on aquifer levels, reduced geothermal yield</td><td>Modelling of geothermal abstractions and reinjections.
Locate make up and reinjection wells to maximise the efficient use of the geothermal resource and avoid land subsidence.
Monitor ground subsidence, groundwater levels and water quality.
Construct and maintain wells to avoid interference with groundwater.</td></tr>
<tr><td>Ambient noise</td><td>Construction works, cooling tower fans, the steam ejector, and the turbine ’hum’.
Disturbances to animals, domestic life, working life, schooling.</td><td>Plan work to avoid construction disturbances at sensitive times (night, holidays)
Locate sites away from noise-sensitive receptors such as schools and villages.
Use noise barriers such as bunds, or the natural topography.
Use Guidelines for ambient noise levels (by receptor):
<table>
<tr><th rowspan="2">Receptor</th><th colspan="2">Maximum allowable Leq (hourly), in dB(A)</th></tr>
<tr><th>Daytime
07.00-22.00</th><th>Nighttime
22.00-07.00</th></tr>
<tr><td>Residential; institutional; educational</td><td>55</td><td>45</td></tr>
<tr><td>Industrial; commercial</td><td>70</td><td>0</td></tr>
</table></td></tr>
</table>

Environmental and Social Aspects and Issues	Potential Impacts	Mitigation Measures
Ambient air quality	Toxic gas emissions from cooling tower, open contact condenser cooling tower systems.	Locate plant away from sensitive receptors (model air emissions to assist with identification of suitable location of plant). Consideration of total or partial re-injection of gases with geothermal fluids. Using closed non-contact cooling alternatives. Depending on the characteristics of source, venting of toxic chemicals (i.e. hydrogen sulfide and non-condensable volatile mercury) in line with current regulations. Depending on the characteristics of source, removal of possible toxic chemicals from non-condensable gases.
Critical infrastructure	Damage or destruction to critical infrastructure (roads, ports, bridges) during construction.	Upgrade infrastructure prior to use. Provide new, purpose-built infrastructure. Repair damaged infrastructure to at least the pre-project condition.
Occupational health and safety	Risks relating to working with machinery, traffic accidents, falling into ponds, scalding from hot fluids and steam, working at height, working in a noisy environment, construction site-related risks. Toxic gas emissions during operation of power plant Non-routine exposures include potential blowout accidents during operation.	Installation of hydrogen sulfide monitoring and warning systems. Development of a contingency plan for hydrogen sulfide release events, including all necessary aspects from evacuation to resumption of normal operations. Provision of an emergency response teams, with personal hydrogen sulfide monitors, self-contained breathing apparatus and emergency oxygen supplies, and training in their safe and effective use. Provision of adequate ventilation of occupied buildings to avoid accumulation of hydrogen sulfide gas. Appropriate PPE. Appropriate training. Implement site specific safety systems and procedures (construction and operation). Shielding surfaces where working with hot fluids and steam. Fencing ponds and pits. Well maintained vehicles and machinery. Emergency and incident planning and management.

Environmental and Social Aspects and Issues	Potential Impacts	Mitigation Measures
		First aid training, and plans for evacuation to hospital. Design of emergency response for well blowout and pipeline raptures including measures for containment of geothermal fluid spills. Regular maintenance of wellheads and geothermal fluid pipelines: - corrosion control and inspection - pressure monitoring - use of blowout prevention equipment (e.g. shutoff valves).
	Risks relating to infectious disease including COVID-19	Development of protocol to mitigate health risks that would impact to the employees, workforce, visitors in the project area and the surrounding communities referring to International, National and Local Guidelines Provision of appropriate PPE Development of emergency responses First aid training, and plans for evacuation to health facility or hospital Appropriate handling of waste related to COVID-19 prevention measures
Well-drilling impact	Induced seismicity or earthquake activity when large amounts of geothermal fluids are withdrawn and injected below the earth's surface Land subsidence Land subsidence can occur following the withdrawal of large amounts of fluid—water, oil, and even geothermal fluid—from beneath the earth's surface.	Ensure close monitoring of the activity Assure to Inject spent geothermal fluids back into reservoirs to sustain resources in order to prevent subsidence from occurring.
Land ownership, livelihood and resettlement	Involuntary resettlement for power plant, distribution infrastructure, associated facilities leading to loss of livelihood and social disconnection. Loss of crops, structures, and other assets.	Prioritize willing buyer-willing seller negotiations for land lease or land purchase. Consult widely and identify all affected persons, including squatters. Compensate at replacement value. Use the RPF guidance for involuntary land acquisition and resettlement.

Environmental and Social Aspects and Issues	Potential Impacts	Mitigation Measures
	Restricting access to forests or other resources.	Consult widely and engage communities in any changes to forest access and management. Integrate resettlement and livelihood issues into the integrated management plans.
	Impacts on other economic activities such as tourism, fishing, agriculture.	Consult with the representatives of industries that could be affected by geothermal development. Work on opportunities to enhance the benefits to the sector (such as improved roads or more reliable electricity) or minimize impacts on the sector, as part of the EMP and integrated management plans.
Social Wellbeing	Concerns and complaints of affected communities.	Consultation on risks and adverse impacts of the project and creation of opportunities to receive affected communities' views on project. Establishment of grievance mechanism to collect and facilitate resolution of affected communities' concerns and grievances regarding the sponsor's environmental and social performance. Transparent public disclosure to inform each phase of the project through web site, notice boards, telecommunication tools and public meetings. Establishing well designed and structured public questionnaire to receive feedback from affected communities
	Potential risks to the cultural integrity and social organization of indigenous peoples and other remote, vulnerable communities.	Conducting screening assessment to avoid potential impact to cultural integrity and social organization. When affecting integrity and social organization, socio-cultural assessment to be applied to further develop option to protect /mitigate
Community health and safety	Risks to bystanders and community relating to traffic accidents, toxic gas emissions.	Location of sites away from sensitive receptors. Continuous operation of the hydrogen sulfide gas monitoring systems to facilitate early detection and warning. Construction traffic warning systems (pilot vehicles, roadside signs) Appropriate training of drivers. Regular community consultation. Warning signs. Emergency planning includes community.

Environmental and Social Aspects and Issues	Potential Impacts	Mitigation Measures
	Unauthorized access to construction sites or power plant, substation and switch yard.	Fencing around all construction sites, power plant etc. Warning signs and security gates. Regular community consultation. ID required to use access road and/or work on site.
Physical cultural resources. **Historic, spiritual, archaeological, religious, graves, etc.**	Disturbance, degradation, desecration of sites or artefacts as a result of construction of power station infrastructure or alignment of transmission lines.	Locate sites away from PCR. Use the PCR Management Plan to remedy impacts (mitigation, minimization, relocation etc.). Use the chance find procedure to stop work immediately on the discovery of a PCR.
Indigenous Peoples	Potential impacts on access to resources and connection to the land. Lack of access to benefits of the project	Consult early and extensively (Free, Prior and Informed Consultation) in accordance with the IPPF, in language and using methods appropriate to the IP group. Include IP in the project design, and ensure that benefits accrue to IP. Avoid and minimize harm to IP, and engage with them to identify appropriate mitigation. Undertake a social assessment

4.2 Post Project Activities: Geothermal Exploitation – Energy Generation and Associated Infrastructure and Activities

72. In addition to those activities that are listed in, exploitation phase activities within the project area of influence will also be screened, as this information will be relevant to the risk assessment for exploration, and it will inform the recommendations as part of the post-exploration Geothermal Data Package. The screening report will clearly state which risks relate to the funded exploration project and which relate to the future, post-project exploitation projects/activities. This partial assessment (screening) is part of the ESIA process. They will not be fully assessed as the nature and scale of the activities will not be confirmed at this time[14].

[14] Detailed impact assessment and preparation of ESIA/AMDAL would be undertaken in future, if exploitation was to be pursued. This is beyond the life of this project.

Table 5 Environmental and Social Aspects, Potential Impacts and Mitigation Measures for Geothermal Exploitation Activities

Environmental and Social Aspects and Issues	Potential Impacts	Mitigation Measures
Natural habitats, including critical habitats **Aquatic and terrestrial habitats and species** **Forest resource users** **Water users** **Aesthetics and landscapes**	Land clearance for power station, substation, and transmission lines cause direct damage or destruction to natural habitats.	Avoid, or otherwise minimize, development in sensitive areas (habitats, landscapes, scenic areas etc.) Develop integrated resource management plans, inclusive of community-driven development opportunities, to manage long term impacts from induced development. Develop this in coordination with relevant land owners, communities, Ministries and local authorities to avoid indiscriminate development and potential conflict. Rehabilitate areas quickly, re-contour where necessary to natural ground conditions and replant with native species or commercial species (depending on land use). Specifically, for project located in conservation forest: • Provide justification that there are no feasible alternatives for the project and its siting, and comprehensive analysis demonstrates that overall benefits from the projects substantially outweigh the environmental costs Minimizing habitat loss (e.g., strategic habitat retention and post-development restoration) and establishing and maintaining ecologically similar protected area.
	Power station, substation, transmission lines can create intrusions into natural and scenic landscapes.	
	Indirect impacts from induced development (agriculture, poaching, land clearances, land disputes) into forested areas and protected natural areas.	
	Water abstractions for cooling towers or domestic / office use and discharges to water of cooling water and other wastes cause direct or indirect impacts on habitats and species. Pollution of water or water abstractions affects other water users. Possible overflow or failure of ponds.	Separate different waste streams and treat via ponds, dosing, cooling and other methods before discharge to land or water bodies. Prioritize discharges to reinjection wells over surface water bodies and land. Avoid overexploitation of freshwater resources – find multiple sources, take from streams with high flow rate, time drilling for the rainy season, use storage dams or ponds, take no more than 1/3 of the seasonal low flow from surface water features. Identify other water uses such as farm irrigation and ensure sustainable abstraction rates that do not interfere with their water use, fishing etc. Discharge to reinjection wells. Use septic tanks to treat domestic waste water before discharge to land. Empty septic tanks regularly and dispose sludge to landfill. Resource planning and management, in conjunction with authorities & communities to locate storage ponds away from sensitive areas.

Environmental and Social Aspects and Issues	Potential Impacts	Mitigation Measures
		Careful design of ponds in accordance with OP4.36 Safety of Dams and monitoring of pond structures for signs of failure.
	Well blow-outs discharging contaminants. Possibility of discharge of mud or fluid from inside the well as the result of overburden pressure from the formation inside the well annulus.	Design of emergency response for well blowout and pipeline raptures including measures for containment of geothermal fluid spills. Use of geothermal energy exploration contractor that has high competency and certified with international standard well control certification, trained to detect any fluid kick potential from inside the borehole and able to give a quick response. Use of safety exploration devices with international standard, such as well head and blow out preventer that could minimalized the risk of fluid kick from inside the borehole. Use of mud pit to storage the potential fluid discharge from inside the borehole. Regular maintenance of wellheads and geothermal fluid pipelines: - corrosion control and inspection - pressure monitoring - use of blowout prevention equipment (e.g. shutoff valves)
	Indiscriminate dumping of sulphur, silica, and carbonate precipitates collected from cooling towers, air scrubber systems, turbines, and steam separators, and other hazardous wastes to riparian zones and water ways.	Maintain safe systems of hazardous materials and solid waste management as part of Power Station standard operating procedures and Environmental Management System. Separate waste streams and recycle, compost and reuse waste where possible. Keep waste tidy / covered / secure. Dispose of unrecyclable waste to designated landfills that have permits from local authorities. Clean and remove spills and remediate land quickly. Train staff to use spill equipment and respond to incidents. Prohibit dumping of waste.
	Poaching and hunting of animals by workers.	Prohibit poaching and hunting, and use of forest resources, as part of workforce management.

Environmental and Social Aspects and Issues	Potential Impacts	Mitigation Measures
	Competition with locals for forest resources.	
Land use, and soils (and subsequent surface and groundwater contamination)	Discharge of sulphur, silica, and carbonate precipitates collected from cooling towers, air scrubber systems, turbines, and steam separators to land.	Sludge / precipitates to be stored in bounded areas. Test sludge for leach ability of contaminants prior to disposal. Contaminated sludge will be dewatered, treated as hazardous waste and disposed to lined landfill. Non-hazardous wastes will be buried away from water sources.
	Spills of hazardous materials. Indiscriminate dumping of other solid and hazardous waste.	Maintain safe systems of hazardous materials and solid waste management as part of Power Station standard operating procedures and Environmental Management System. Separate waste streams and recycles, compost and reuse waste where possible. Keep waste tidy / covered / secure. Dispose of unrecyclable waste to designated landfills that have permits from local authorities. Clean and remove spills and remediate land quickly. Train staff to use spill equipment and respond to incidents. Prohibit dumping of waste.
	Loss of topsoil, landslides and other severe erosion from distribution infrastructure construction and other construction sites.	Avoid high risk areas such as steep terrain. Minimize land clearance, especially on slopes. Use temporary haulage roads and restore promptly. Design bank stability, slope protection and drainage systems into site design. Restore disturbed and damaged areas immediately. Employ sediment and erosion control measures during construction (fences, traps, treatment ponds etc.). Take / dispose material to approved sites.

Environmental and Social Aspects and Issues	Potential Impacts	Mitigation Measures
	Abandoning well pad area where the drilling failed or the well is not productive.	Land reclamation/rehabilitation.
Geothermal features	Interference from pumping or reinjection of geothermal water, or from abstraction of surface water.	Identify and avoid significant features (values such as cultural, historical, spiritual, scientific, biological, landscape, ecotourism etc.) Avoid damaging or disturbing geothermal features where possible. Model the geothermal reservoir and geothermal features. Monitor activity to identify interference from pumping or reinjection. Adjust production and reinjection where necessary to mitigate significant impacts. Provide barriers and avoid disturbances from construction and operations where necessary.
Groundwater and geothermal reservoir	Contamination of groundwater from interference with geothermal water from abstraction wells or reinjection wells.	Prepare wells with appropriate casing and well head protection to prevent contamination. Monitor well levels and pressure to identify leaks early and repair casing or decommission wells to avoid further contamination. Detailed analysis of aquifer structure and existing groundwater use at development area Determination of existing groundwater users in the vicinity of the operational wells (e.g. 1 km) should be identified. In addition, some of technical information about existing groundwater wells (e.g. depth, flow, etc.) should be collected.
	Impacts on aquifer levels from over-abstraction for fresh water supplies.	Model yield to ensure sustainable groundwater use. Use multiple sources of fresh water. Use storage tanks, ponds and dams to store water.
	Over-abstraction of geothermal resource, leading to subsidence, saline intrusion, impacts on aquifer levels, reduced geothermal yield	Modelling of geothermal abstractions and reinjections. Locate make up and reinjection wells to maximise the efficient use of the geothermal resource and avoid land subsidence. Monitor ground subsidence, groundwater levels and water quality. Construct and maintain wells to avoid interference with groundwater.
Ambient noise	Construction works, cooling tower fans, the steam ejector, and the turbine 'hum'.	Plan work to avoid construction disturbances at sensitive times (night, holidays)

<table>
<tr><th>Environmental and Social Aspects and Issues</th><th>Potential Impacts</th><th>Mitigation Measures</th></tr>
<tr><td></td><td>Disturbances to animals, domestic life, working life, schooling.</td><td>Locate sites away from noise-sensitive receptors such as schools and villages.
Use noise barriers such as bunds, or the natural topography.
Use Guidelines for ambient noise levels (by receptor):
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<tr><th rowspan="2">Receptor</th><th colspan="2">Maximum allowable Leq (hourly), in dB(A)</th></tr>
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<tr><td>Industrial; commercial</td><td>70</td><td>0</td></tr>
</table></td></tr>
<tr><td>Ambient air quality</td><td>Toxic gas emissions from cooling tower, open contact condenser cooling tower systems.</td><td>Locate plant away from sensitive receptors (model air emissions to assist with identification of suitable location of plant).
Consideration of total or partial re-injection of gases with geothermal fluids.
Using closed non-contact cooling alternatives.
Depending on the characteristics of source, venting of toxic chemicals (i.e. hydrogen sulfide and non-condensable volatile mercury) in line with current regulations.
Depending on the characteristics of source, removal of possible toxic chemicals from non-condensable gases.</td></tr>
<tr><td>Critical infrastructure</td><td>Damage or destruction to critical infrastructure (roads, ports, bridges) during construction.</td><td>Upgrade infrastructure prior to use.
Provide new, purpose-built infrastructure.
Repair damaged infrastructure to at least the pre-project condition.</td></tr>
<tr><td>Occupational health and safety</td><td>Risks relating to working with machinery, traffic accidents, falling into ponds, scalding from hot fluids and steam, working at height, working in a noisy environment, construction site-related risks.</td><td>Installation of hydrogen sulfide monitoring and warning systems.
Development of a contingency plan for hydrogen sulfide release events, including all necessary aspects from evacuation to resumption of normal operations.</td></tr>
</table>

Environmental and Social Aspects and Issues	Potential Impacts	Mitigation Measures
	Toxic gas emissions during operation of power plant Non-routine exposures include potential blowout accidents during operation.	Provision of an emergency response teams, with personal hydrogen sulfide monitors, self-contained breathing apparatus and emergency oxygen supplies, and training in their safe and effective use. Provision of adequate ventilation of occupied buildings to avoid accumulation of hydrogen sulfide gas. Appropriate PPE. Appropriate training. Implement site specific safety systems and procedures (construction and operation). Shielding surfaces where working with hot fluids and steam. Fencing ponds and pits. Well maintained vehicles and machinery. Emergency and incident planning and management. First aid training, and plans for evacuation to hospital. Design of emergency response for well blowout and pipeline raptures including measures for containment of geothermal fluid spills. Regular maintenance of wellheads and geothermal fluid pipelines: - corrosion control and inspection - pressure monitoring - use of blowout prevention equipment (e.g. shutoff valves).
	Risks relating to infectious disease including COVID-19	Development of protocol to mitigate health risks that would impact to the employees, workforce, visitors in the project area and the surrounding communities referring to International, National and Local Guidelines Provision of appropriate PPE Development of emergency responses First aid training, and plans for evacuation to health facility or hospital

Environmental and Social Aspects and Issues	Potential Impacts	Mitigation Measures
		Appropriate handling of waste related to COVID-19 prevention measures
Well-drilling impact	Induced seismicity or earthquake activity when large amounts of geothermal fluids are withdrawn and injected below the earth's surface Land subsidence Land subsidence can occur following the withdrawal of large amounts of fluid—water, oil, and even geothermal fluid—from beneath the earth's surface.	Ensure close monitoring of the activity Assure to Inject spent geothermal fluids back into reservoirs to sustain resources in order to prevent subsidence from occurring.
Land ownership, livelihood and resettlement	Involuntary resettlement for power plant, distribution infrastructure, associated facilities leading to loss of livelihood and social disconnection. Loss of crops, structures, and other assets.	Prioritize willing buyer-willing seller negotiations for land lease or land purchase. Consult widely and identify all affected persons, including squatters. Compensate at replacement value. Use the RPF guidance for involuntary land acquisition and resettlement.
	Restricting access to forests or other resources.	Consult widely and engage communities in any changes to forest access and management. Integrate resettlement and livelihood issues into the integrated management plans.
	Impacts on other economic activities such as tourism, fishing, agriculture.	Consult with the representatives of industries that could be affected by geothermal development. Work on opportunities to enhance the benefits to the sector (such as improved roads or more reliable electricity) or minimize impacts on the sector, as part of the EMP and integrated management plans.

Environmental and Social Aspects and Issues	Potential Impacts	Mitigation Measures
Social Wellbeing	Concerns and complaints of affected communities.	Consultation on risks and adverse impacts of the project and creation of opportunities to receive affected communities' views on project. Establishment of grievance mechanism to collect and facilitate resolution of affected communities' concerns and grievances regarding the sponsor's environmental and social performance. Transparent public disclosure to inform each phase of the project through web site, notice boards, telecommunication tools and public meetings. Establishing well designed and structured public questionnaire to receive feedback from affected communities
	Potential risks to the cultural integrity and social organization of indigenous peoples and other remote, vulnerable communities.	Conducting screening assessment to avoid potential impact to cultural integrity and social organization. When affecting integrity and social organization, socio-cultural assessment to be applied to further develop option to protect /mitigate
Community health and safety	Risks to bystanders and community relating to traffic accidents, toxic gas emissions.	Location of sites away from sensitive receptors. Continuous operation of the hydrogen sulfide gas monitoring systems to facilitate early detection and warning. Construction traffic warning systems (pilot vehicles, roadside signs) Appropriate training of drivers. Regular community consultation. Warning signs. Emergency planning includes community.
	Unauthorized access to construction sites or power plant, substation and switch yard.	Fencing around all construction sites, power plant etc. Warning signs and security gates. Regular community consultation. ID required to use access road and/or work on site.

Environmental and Social Aspects and Issues	Potential Impacts	Mitigation Measures
Physical cultural resources. **Historic, spiritual, archaeological, religious, graves, etc.**	Disturbance, degradation, desecration of sites or artefacts as a result of construction of power station infrastructure or alignment of transmission lines.	Locate sites away from PCR. Use the PCR Management Plan to remedy impacts (mitigation, minimization, relocation etc.). Use the chance find procedure to stop work immediately on the discovery of a PCR.
Indigenous Peoples	Potential impacts on access to resources and connection to the land. Lack of access to benefits of the project	Consult early and extensively (Free, Prior and Informed Consultation) in accordance with the IPPF, in language and using methods appropriate to the IP group. Include IP in the project design, and ensure that benefits accrue to IP. Avoid and minimize harm to IP, and engage with them to identify appropriate mitigation. Undertake a social assessment

5 SUB-PROJECT SAFEGUARDS OPERATIONAL PROCEDURES

5.1 Overview

73. There are two scenarios for sub-project development under GEUDP:

i. The sub-project has never carried out physical activities and no safeguards instruments have been prepared by the time the sub-projects are added to GEUDP pipeline activities. PT GDE will conduct screening of the proposed activities before concluding that the sub-project is suitable as GEUDP pipeline activities, and then prepare safeguards instruments in accordance with the ESMF requirements. Figure 3 shows systematic process for this scenario.

ii. The sub-project had been and/or currently being developed when it is added to GEUDP pipeline. Such sub-project may already have built infrastructures to support the drilling activities, or exploration well(s) has been drilled, or there are current drilling activities on site performed by other party. In this case, PT GDE will firstly conduct Environmental and Social Due Diligence (ESDD) of the existing activities that have been completed or are underway (including for all E&S instruments and related permits) and carry out screening of the proposed activities before concluding that the sub-project is suitable as GEUDP pipeline activities, and then implement Corrective Action Plans (CAP) when gaps are found and prepare additional instruments as necessary in accordance with the ESMF. Detailed process is shown in Figure 4.

Figure 3 Sub-project Screening and Safeguard Implementation Process for Scenario 1

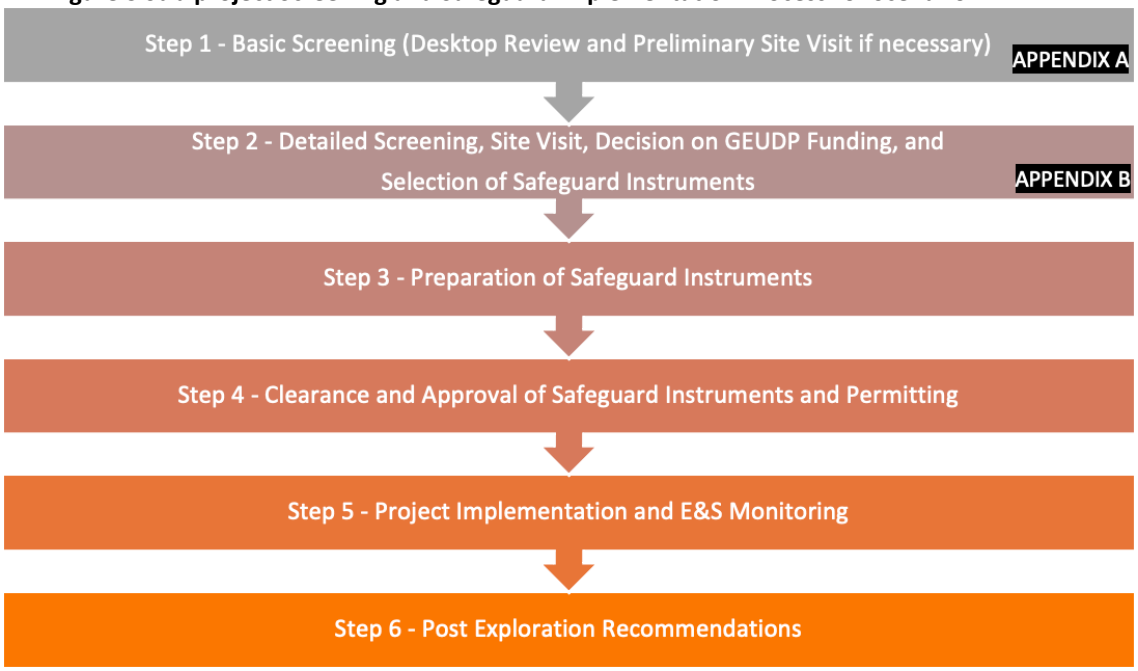
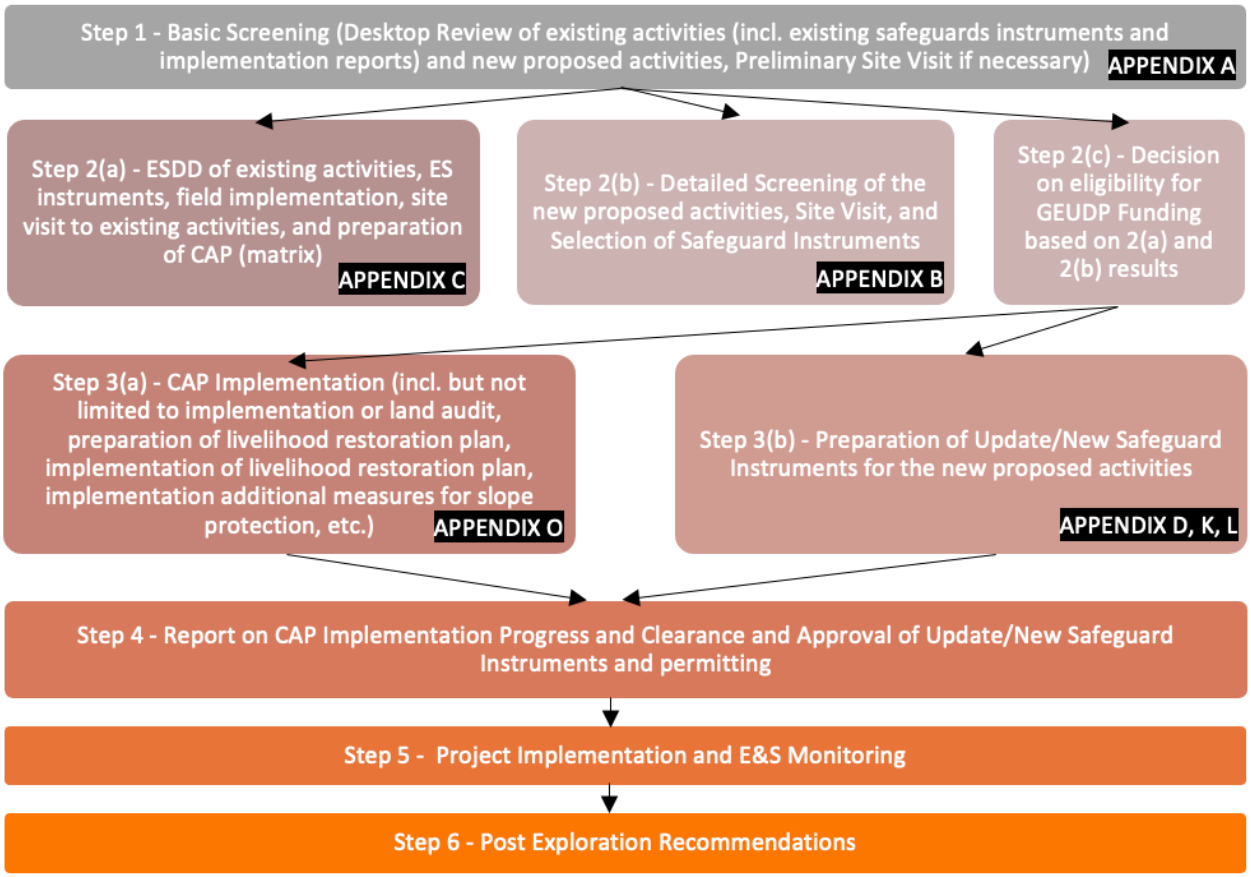


Figure 4 Sub-project Screening and Safeguard Implementation Process for Scenario 2



5.2 Step 1: Basic Screening

74. For sub-project in scenario 1, the basic screening as a part of identification process. PT GDE (assisted by Environmental and Social Safeguards Consultant - ESSC), will screen the sub-projects using desktop information and the checklist in Appendix A. The basic screening can preliminary identify potential environmental and social risks of the proposed activities using available information such as from BG, maps, published data and google earth.

75. For sub-project in scenario 2, the basic screening will include desktop review of existing activities and existing safeguards instruments such as LARAP, ESIA, UKL-UPL as well as the proposed future activities (see checklist in Appendix A). The basic screening may include preliminary site visit to the proposed site to ensure the adequacy of information required for decision making.

76. The outputs of the basic screening will contribute to sub-project prioritization and selection process and provide background information to the sub-project feasibility report.

5.3 Step 2: Detailed Screening

77. For sub-project in scenario 1, PT GDE (assisted by ESSC) will conduct a site visit and collect further secondary data to screen for environmental and social risks, using the screening checklists in Appendix B as a guidance. This process will identify a probable area of influence, sensitive receptors, anticipated significant impacts that will require particular attention, the World Bank Risk Category (A, B), and the safeguard instruments required. The screening process will focus on the exploration phase, and also consider significant impacts from the exploitation phase. The detailed screening process will identify the required safeguard instruments need to be developed, among others ESIA, LARAP, IPP, etc. Exploration phase issues will be assessed as part of the ESIA process, whereas exploitation phase issues will go through further screening as part of the ESIA process but will not be fully assessed.

78. For sub-project in scenario 2, the detailed screening will consists of three steps.

    (a) Environmental and Social Due Diligence (ESDD) assessment of existing activities, ES instruments, field implementation, site visit to existing activities, and preparation of Corrective Action Plan (CAP) matrix (see Appendix C). PT GDE (assisted by ESSC) will carry out ESDD assessment and proposed Corrective Action Plan (CAP). The CAP indicates the actions that must be taken by PT GDE to assess current environmental and social management practices and identify measures to be taken to comply with GEUDP requirements. The contents of the CAP are in the form of a table that contains the state of the gaps or risks that have been identified, the plans needed to carry out the execution of activities, the improvements needed in the field safeguard instrument, the responsible institution or company (previous developer or PT GDE), follow-up time of implementation and process which will be carried out prior to approval to use GEUDP funding during project implementation. The final ESDD report and CAP will be subject to review and clearance by PT SMI and the World Bank. The findings of ESDD will conclude any E&S fatal flaws from existing activities and may inform whether the next step need to be carried out or not.

    (b) Detailed screening of the new proposed activities, site visit and selection of Safeguard Instruments (see Appendix B). PT GDE (assisted by ESSC) will carry out the detailed screening and conduct site visit.

    (c) Decision on eligibility for GEUDP funding based on (a) and (b) results. Bank and Joint Committee will make the decision.

79. The outputs of the detailed screening shall contribute to the sub-project feasibility report. A sub-project will not proceed to development under GEUDP if a ‘show stopper’ is identified and fails the detailed screening step. An example would be where a sub-project would potentially have irreversible impacts on critical habitats, or where existing or previous activities related to exploration drilling have caused (or continue to cause) significant environmental and social harm. Significant potential impacts for exploitation may also be considered a ‘show stopper’.

5.3.1 Screening of Sensitive Receptors and Potential Impacts

80. The screening will produce a preliminary description of the project area of influence and will identify sensitive receptors including the feasibility study regarding the endemic habitat that lives in the potential geothermal field location (if any). This study will involve necessary specialist depends on the project location (e.g. bird, aquatic, mammals specialist). The screening will also identify the nature of the host community and the presence of Indigenous People in the project area. The screening questions will assist to identify potentially significant social and environmental impacts, such as the potential conversion or degradation of natural habitats, or the potential impacts on Indigenous Peoples.

5.3.2 Screening of World Bank Safeguard Policies

81. Based on the sensitive receptors and potentially significant impacts, the screening questions will assist to identify the relevant World Bank Safeguard Policies for each sub-project.

5.3.3 Screening of World Bank OP4.01 Risk Category

82. The World Bank classifies projects into one of three categories (A, B and C), depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts.

83. **Category A:** When the sub-project is likely to have significant adverse environmental impacts that are sensitive, diverse or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works. Examples are: exploration activities within conservation areas which may result in significant impacts on a population of endangered species or on a critical habitat; exploration activities that may improve access for induced development that will cause harm to Indigenous Peoples. All Category A projects are required to have an ESIA and EMP in compliance with Indonesian Regulations as well as World Bank OP4.01, WBG EHS guidelines, and GIIP.

84. **Category B:** When the sub-project's adverse environmental impacts on human populations or environmentally important areas (including wetlands, forests, grasslands, and other natural habitats) are less adverse than those of Category A sub-projects. Impacts would be site – specific; For example, if few of the impacts, if any, would be irreversible and mitigation measures can be designed more readily than for Category A sub-projects. The scope of environmental assessment for a Category B sub-project will vary based on the outcomes of the screening process. All Category B sub-projects will also require an ESIA and EMP in compliance with Indonesian Regulations as well as World Bank OP4.01, WBG EHS guidelines, and GIIP. The scope of the ESIA will be based on the potential risks, address the sub-project's potential negative and positive environmental impacts, and recommend measures to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance.

85. **Category C:** If the sub-project is likely to have minimal or no adverse environmental impacts. Beyond screening, no further environmental assessment action is required for a Category C sub-project. It is expected that there will be no Category C sub-projects under the GEUDP.

5.3.4 Selection of Safeguards Instruments

86. For sub-project in Scenario 1, the risk screening and categorization process will identify the potential significance of social and environmental impacts. The checklists in Appendix A and Appendix B outline a decision-making process for selecting appropriate safeguards instruments for each sub-project. Since the Project scope will only cover Geothermal Exploration Drilling, potential impacts on exploitation activities will be identified, however the measures for exploitation stage will be assessed in the ESIA for exploitation stage.

87. For sub-project in Scenario 2, the result of ESDD of existing activities and detailed screening of the proposed new activities will identify the potential significance of social and environmental impacts caused by the existing activities and proposed activities. The CAP will inform the necessary additional safeguard instruments need to be prepared for to manage E&S impacts of existing activities, while the detailed screening of new proposed activities will conclude the required E&S instruments to be prepared. As seen in Figure 4, those results from CAP will be implemented accordingly, along with the preparation of updated/new safeguards instruments.

88. The safeguard instruments to be prepared are among others as below.

5.3.4.1 UKL/UPL

89. In accordance with Indonesian regulations, every geothermal exploration project is required to have UKL/UPL and submit it to the Ministry of Environment and Forestry to obtain a Statement of Capability for Environmental Management (*Pernyataan Kesanggupan Pengelolaan Lingkungan*), to be used as the basis to apply for the Environmental Feasibility Approval (*Persetujuan Lingkungan*). However, if the proposed activities followed by supporting activities (road improvement, cut and fill, and water intake) that categorized as activity that requires AMDAL, then an AMDAL will need to be prepared (refer to Minister of Environmental and Forestry Regulation No. 4 of 2021). The required format and contents of UKL-UPL is provided in Government Regulation No. 22 of 2021 Appendix III, and Appendix II for AMDAL. For the GEUDP the content of the UKL/UPL and AMDAL mitigation and monitoring plans will be at least fulfill ESMP requirements (see Section 5.3.4.3). To comply with OP4.01, the ESMP will contain additional information on capacity assessment and capacity building plans, implementation arrangements and implementation budget.

90. According to the applicable regulation, physical works can be performed after the environmental permit/approval has been obtained. Therefore, sub-project in scenario 2 have developed UKL-UPL to fulfil national regulation requirements. To continue the sub-project, UKL-UPL needs to be

updated according to the new design and latest development of the project's area of influence, if the project footprint or any additional technical design is different from the previous design.

5.3.4.2 Environmental and Social Impact Assessment

91. Every geothermal exploration sub-project under GEUDP will require an ESIA prepared to World Bank operational policies and the ESMF, including Scenario 2 sub-projects. The breadth, depth and type of analysis will depend on the nature, scale, and potential impacts of the proposed sub-project. The screening and due diligence process will identify the scope of the ESIA. For Scenario 2 projects PT GDE may use data from a previous ESIA, UKL and UPL in the preparation of the sub-project ESIA.

92. The Environmental Assessment (EA, as part of the ESIA process) evaluates a project's potential environmental risks and impacts in its area of influence; and identifies ways of improving project planning, design and implementation by preventing, minimizing, mitigating, or compensating for adverse environmental impacts and enhancing positive impacts, and gap filling or resolving any previous or ongoing harm caused by previous associated activities. Preventive measures will be favoured over mitigation or compensatory measures whenever feasible.

93. An EA takes into account the natural environment (air, water and land), human health and safety, natural habitat and project-related social (involuntary resettlement, Indigenous Peoples, and cultural property), trans-boundary, and global environmental aspects. The EA considers natural and social aspects in any integrated way. It takes into account the following aspects:

    - variations in sub-project and country conditions;
    - findings of country environmental studies;
    - previous ESIA, UKL and UPL studies and outputs for earlier works or associated activities;
    - due diligence findings;
    - overall national policy framework, environmental actions plan, legislations and licensing and permitting requirements;
    - World Bank Group EHS Guidelines;
    - PT GDE's capabilities related to the environment and social aspects, and its history of compliance with national and local laws, including those on environment and public consultation and notification;
    - An analysis of possible alternatives; and
    - National obligations under international environmental treaties and agreements relevant to the sub-project.

94. Sub-projects that would contravene such country obligations as identified during the EA will not be supported under the GEUDP.

95. The social impact assessment and mitigation strategy will encompass the following activities:

(a) *Social assessment survey* of the community groups impacted by the geothermal exploration: collecting relevant data on Indigenous Peoples, income, livelihoods, access to services, customs and norms, and identifying vulnerable community members and gender issues;

(b) Identification of *land acquisition requirements* for the project footprint: assessments of the land ownership status, understanding of affected peoples' willingness to participate in voluntary or involuntary land acquisition, and accordingly apposite options and preferences (potentially suggested by affected people) for both voluntary and involuntary land acquisition scenarios);

(c) Development of approach and mechanism for *land lease for collective land ownership* or communally owned assets;

(d) Undertaking of a *survey of physical cultural resources (PCR)* in the area, through consultation with the affected communities and stakeholders, and identification and mapping of cultural heritage assets such as cultural, religious, historical and archaeological sites, including sacred sites, graveyards and burial places; and

(e) Screening for presence of Indigenous Peoples in the project area of influence will be included in the Social Assessment reviewing key aspects as listed in Appendix K.

(f) Assess potential, specific impacts and risks to IPs (if present) and the initiation of free, prior and informed consultations with affected IPs.

96. The ESIA methodology will include a detailed screening process to identify the potential risks and issues with the exploitation phase and the approach to how the phases of geothermal exploration and exploitation will be presented and discussed during consultation.

97. The ESIA will include an examination of the sub-project's potential negative and positive environmental impacts, and will compare them with those of feasible alternatives (including the 'without sub-project' situation). Recommendations will be made of any measures needed to prevent, minimize, mitigate or compensate for adverse impacts and improve environmental performance.

5.3.4.3 Environmental and Social Management Plan

98. Every geothermal exploration sub-project under GEUDP will require an ESMP. The scope will depend on the nature, scale, and potential impacts of the proposed sub-project. The contents of an ESMP are provided in Appendix E consistent with World Bank Policy OP4.01 Environmental Assessment and World Bank Group Industry Sector EHS Guidelines for Geothermal. For the GEUDP, the content of the ESMP mitigation and monitoring plans will be the same as the UKL/UPL. To comply with OP 4.01, the ESMP will contain additional information on capacity

assessment and capacity building plans, implementation arrangements and implementation budget.

99. An ESMP may include specific sub-plans such as Physical Cultural Heritage Resources Management Plan, Biodiversity Management Plan, Workforce Management Plan, Contractors Environmental and Social Management Plan (including labor influx management, health and safety, traffic management etc.), Grievance Redress Mechanism, and others as necessary to manage specific and significant impacts.

5.3.4.4 Land Acquisition and Resettlement Instruments

100. The matrix for identifying the applicable instrument for land acquisition and resettlement is as follows:

Table 6 Land Acquisition and Resettlement Instrument Matrix

Trigger	**Instrument**
Voluntary land acquisition through a willing buyer-willing seller, or lease arrangement.	All administrative material (land Statement Letters from BPN-the National Land Agency, land lease agreement. Invoices, etc.), dissemination implementation and other relevant records are documented
Assets are affected by a sub-project, but not related to land acquisition or resettlement.	ESMP (Appendix E)
When involuntary land acquisition for a sub-project affects less than 200 people, less than 10% of households' productive assets are affected and/or does not involve physical relocation.	An abbreviated LARAP (Appendix M)
When involuntary land acquisition for a sub-project affects more than 200 people, affects more than 10% of households' productive assets and/or involves physical relocation.	A comprehensive LARAP (Appendix L)
When a sub-project leads to involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of displaced persons.	An abbreviated or comprehensive LARAP, depending on the scale.
➔ *When sub-project identified as scenario-2 that has carried out land acquisition for construction and drilling*	Land audit

5.3.4.5 Indigenous Peoples Instruments

101. Where Indigenous Peoples are present in the project area, or have a collective attachment to the project area, an Indigenous Peoples Plan, or a broader Community Development Plan, based on a Social Assessment in the ESIA (Appendix K), will be prepared.

102. Under scenario 2, if Indigenous Peoples are present in the project area, due diligence will be conducted to assess the adequacy of the consultation include when relevant the process and result of Free Prior Informed Consultations. Necessary corrective actions will be developed based on the findings of such assessment.

5.3.5 Screening Report

103. The screening report will be prepared by EMU Safeguards Team (or ESSC) and include:

(a) Completed Screening Forms (Appendix A).

(b) Due diligence assessment.

(c) Description of the environmental and social context, including maps and photos.

(d) Comprehensive screening of the indigenous peoples' identification.

(e) Identification of the project area of influence and sensitive receptors.

(f) Clearly state the screening outputs related to the funded exploration project, and to post-project exploitation activities.

(g) World Bank safeguard policies triggered.

(h) World Bank Risk Categorization.

(i) Significant environmental and social risks, with a preliminary assessment of the nature and scale of impact assessment and/or mitigation measures likely to be required (such as Biodiversity Management Plans, a comprehensive consultation program, economic or health impact assessments, scale of land acquisition, impacts to indigenous peoples). This includes any previous or ongoing risks or harm for Scenario 2 Projects.

(j) List of required safeguards instruments (ESIA, ESMP, UKL/UPL, SEP, LARAP, Abbreviated LARAP, PCHRMP, GRM, IPP and other sub-plans) and a program to prepare them, estimating the time required, expertise required, and budget. Note any issues such as timeframes or budgets that may affect geothermal

(k) Project feasibility or the development plan.

(l) Recommendations for the design of the geothermal development plan, such as the location of drilling sites, location of fresh water supplies, the avoidance of sensitive receptors, etc. The detailed screening report may conclude that the sub-project is not feasible, and should not be funded under this project, based on significant potential safeguards issues.

104. The screening report will be submitted to PT SMI and the World Bank for review. PT SMI and the World Bank can conduct a site visit to confirm the information presented in the screening report.

5.4 Step 3: Preparation, Consultation and Disclosure of Safeguards Instruments or Corrective Action Plan Implementation/ Preparation Update New Safeguard Instruments

5.4.1. Step 3: Preparation, Consultation and Disclosure of Safeguard Instrument (for scenario 1)

105. Terms of Reference (TOR) for safeguards instruments will be prepared by PT GDE and reviewed by PT SMI and the World Bank before the work is tendered to competent and qualified Environmental and Social Safeguard Consultants (ESSC). PT SMI and the World Bank must clear the TOR for Category A sub-project ESIA before it is issued in a 'Request for Proposal'. The ESSC with experience in Indonesian regulatory processes and World Bank safeguard policies will be responsible in preparing ESIA and other safeguards instruments. The safeguards instruments will be completed in parallel with the feasibility studies, and before PT SMI and the World Bank clears the project for funding and the drilling contract bid documents are finalized. The safeguards work will feed into the final design of the geothermal exploration plan, bid documents, etc.

106. The scope of the ESIA, ESMP, UKL/UPL and IPP will be commensurate to the nature and scale of potential impacts and the outputs of the due diligence. The scope of the LARAP or abbreviated LARAP will be determined based on the number of Project Affected People, and the nature and scale of compensation and livelihood restoration.

107. Consultation and disclosure will be carried out as per Section 8. PT GDE will lead consultation with support from the ESSC.

108. The safeguard instruments prepared by ESSC will be reviewed by the EMU safeguard team prior to be submitted to PT SMI and the World Bank. PT SMI and the World Bank will then review draft documents and provide feedback prior to finalization. At this time, if there are significant risks that cannot be satisfactorily mitigated to meet World Bank safeguards policies and /or GoI laws, regulations and international commitments, the sub-project will not be funded. PT GDE and MEMR could choose to redesign the sub-project and/or improve the avoidance, mitigation and management of significant potential impacts and resubmit a revised set of safeguards documents for review.

5.4.2. Step 3: Corrective Action Plan Implementation or Preparation of Update/New Safeguard Instruments for the new proposed activities (for scenario 2)

109. The implementation of CAP includes implementation of any measures identified to manage E&S impacts of the existing activities based on the result of ESDD among others preparing the needs for land audit, preparation of livelihood restoration plan and implementation, additional measures for slope protection, etc. (see Appendix O).

110. In addition to implementing the CAP for the existing activities; this step will also include preparation of the necessary safeguard instruments for the new proposed activities (see Appendix D, L, K.

5.5 Step 4: Clearances and Approvals

111. The UKL/UPL will be submitted to the relevant Provincial or District Environment Agency for approval; the UKL/UPL approval will be used as the basis to apply for the Environmental Feasibility Approval (*Persetujuan Lingkungan*). The final ESIA, ESMP, LARAP, IPP, and other sub-plans will be subject to review by PT SMI and the World Bank. Once the documents are acceptable to PT SMI and the World Bank, clearance will be issued by the World Bank and PT SMI. No work is to begin on site until the documents have been cleared and the relevant regulatory approvals have been awarded. In Indonesia *"Dokumen Persiapan dan Pengadaan Tanah"* (based on UU No.2/2012) will be approved by the Governor and/or Head of the City/District where the project is located. Based on this approval, the location permit will be issued. LARAP can be prepared based on this documentation.

112. Other permits will also be applied for at this time, such as Forest Area Use Approval (PPKH) of the project area if the project area is located within Protected Forest and Surface Water Abstraction and Utilization Permit (SIPPA).

113. For scenario 2, prior to necessary permitting and safeguard instruments clearances and approvals, CAP Implementation Progress needs to be provided.

5.6 Step 5: Implementation and Monitoring

114. PT GDE will prepare detailed implementation processes in the Project Operations Manual. In brief, implementation will occur as follows:

(a) The Exploration Operation Manager and the EMU Safeguards Team with the support from PT GDE Corporate Sustainability will integrate WB safeguard policies and requirements as described in this ESMF into geothermal exploration plans (location of infrastructure, construction methods, mitigation measures relating to design etc.).

(b) The Exploration Operation Manager and the EMU Safeguards Team with the support from PT GDE Corporate Sustainability will require the sub-project ESMP and UKL-UPL to be part of the legal agreement with the Contractor and included as part of in the civil works Contractors' bid documents and Contractor's contract. Contractor's selection process will include the review of the organizational capacity to implement ESMP and UKL-UPL.

(c) The Contractor will be required to prepare a Contractor's ESMP before work begins. The Contractor's ESMP will document, in detail, how the Contractor will fulfill its roles and responsibilities as documented in the Project ESMP.

(d) No work will begin on site (including ancillary works such as access roads) until land acquisition has been completed and the Contractor's ESMP has been cleared by EMU Safeguards Team (to the satisfaction of PT SMI and the World Bank).

(e) The Exploration Management Team (EMT) Safeguards Team will monitor and supervise the Contractor's ESMP implementation and be responsible for implementing other aspects of the sub-project ESMP not under the Contractor's control.

(f) PT GDE will be responsible for leasing or purchasing land through 'willing buyer/willing seller' or compensation, and providing entitlements and other support to affected persons. They will coordinate the activities with those of the EMT and the Contractor(s) and the Regional Land Agency.

(g) Training will be carried out by the PT GDE Corporate Sustainability Team coordinating with EMU Safeguards Team in accordance with the capacity building plans in the ESMP.

(h) Supervision, monitoring and reporting will be carried out as per Section 11 and the detailed requirements of the ESMP and CAP where gaps are found for Scenario 2.

5.7 Step 6: Post Exploration Recommendations

115. Safeguards screening and risk assessments from the ESIA regarding the exploitation phase (and any learnings from the implementation of the project ESMP, LARAP and IPP and exploration activities) will inform the resource feasibility assessments that are produced following the exploitation phase, as well as the recommendations and decision making regarding future commercialization of the resource for electricity generation. This may include a list of conclusions and recommendations if there is a low possibility of the geothermal prospects being developed, or may include draft or final TOR for ESIA and other safeguards instruments if the prospect will be delivered to market for development in the short term. These outputs/recommendations will be included in the Geothermal Data Package.

6 RESETTLEMENT POLICY FRAMEWORK

6.1 Key Principles

116. Under the GEUDP, this Resettlement Policy Framework (RPF) provides guidance on resettlement screening, assessment, institutional arrangements, and processes regarding land acquisition and involuntary resettlement to be complied with by project management staff, consultants, and related parties.

117. The World Bank recognizes that land acquisition and land use restrictions induced by the project can have adverse impacts on land users and communities. The World Bank OP 4.12 on Involuntary Resettlement sets the standards on addressing and mitigating risks resulting from involuntary resettlement, including any case of involuntary land taking. Here "involuntary resettlement" refers both to physical displacement (relocation or loss of shelter) and economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood) as a result of the project activities. This includes the involuntary restriction to access to legally designated parks and protected areas. Resettlement is considered involuntary when affected persons or communities do not have the right to refuse land acquisition or restrictions on land use that result in physical or economic displacement. This occurs in cases of: (i) lawful expropriation, or temporary or permanent restrictions on land use, and (ii) negotiated settlements in which the buyer can resort to expropriation or impose legal restrictions on land use if negotiations with the seller failed.

118. **Voluntary Land Acquisition.** The majority (if not all) acquisition of the land for drilling activities will be conducted through voluntary land transaction mechanisms such as *willing seller-willing buyer*[15] or lease arrangement. The RPF provides guidance for the acquisition of land through willing seller willing buyer or mutual agreement as the preferable mode of acquisition.

119. **Involuntary Land Acquisition and Resettlement.** Involuntary land acquisition is unlikely as the footprint of the infrastructure is flexible. There may be instances, such as access roads for large drilling equipment, where flexibility of alignment is not possible, and specific land is required. Should it be identified that specific land is necessary for the project (for example for aggregate material sourcing) or the options for land are limited because of topography or other constraints, and negotiated settlement is not successful, the requirements of involuntary land acquisition under this Resettlement Policy Framework (RPF) will be implemented.

120. Involuntary resettlement will also be avoided as a priority, but there may be cases, such as in protected areas and forests, where people's access is restricted or their livelihoods affected. In these cases the RPF requirements will also apply. The RPF specifies the preparation of Land

[15] That is, market transactions in which the seller is not obliged to sell and the buyer cannot resort to expropriation or other compulsory procedures if negotiations fail

Acquisition and Resettlement Action Plan (LARAP) for involuntary land acquisition or resettlement. Under this situation involuntary resettlement includes land acquisition implemented under the eminent domain principle that could involve physical and economic displacement. In all other cases of any adverse economic, social, or environmental impacts from project activities other than for land acquisition (e.g., loss of access to assets or resources or restrictions on land use), such impacts will be avoided, minimized, mitigated or compensated for through the process of social assessment as part of the environmental and social impact assessment. PT GDE will refer to the requirements of the World Bank OP 4.12 on Involuntary Resettlement to avoid, remedy or mitigate the impacts as part of this process.

121. **Land Acquisition for Exploitation, post-project.** The need for bigger parcel of land at this exploitation stage may rise as the activities have included for development of powerhouse, labour camp, contractor office, and yards for heavy equipment as well for wider and longer roads. Willing seller and willing buyer approach or mutual agreement can be applied to privately owned land up to five hectares according to the country system. Above that threshold and / or when the land status is not privately owned, land acquisition is implemented under the eminent domain principle. This approach could involve physical and economic displacement. The same standard procedures as discussed in the RPF will be integrated into the TOR's, guidelines and other outputs of the GEUDP following the exploration phase, to be implemented in any post-project phases.

122. The overall objectives of the Bank's policy on involuntary resettlement are the following:

(a) Involuntary resettlement should be avoided where feasible, or minimized, exploring all viable alternative project designs;

(b) Where it is not feasible to avoid resettlement, resettlement activities should be designed and executed as part of a sustainable development program, e.g., providing sufficient resources to enable the persons displaced by the project to share in project benefits. Persons displaced by the project should be meaningfully consulted and be given the opportunity to participate in the planning and implementation of resettlement programs; and

(c) Displaced persons should receive assistance in their efforts to improve their livelihoods and living standards, or at least to restore them, in real terms, to pre-displacement levels, or to levels prevailing prior to the project commencement, whichever is higher.

123. Prior to implementation of land acquisition and resettlement activities, PT GDE will ensure the following approaches and methodology of social assessment as required by OP4.12 requirements:

(a) Avoid involuntary resettlement and, if unavoidable, minimize its potential impacts;

(b) Assess the potential economic and social impacts of involuntary land acquisition and resettlement on PAP and their livelihoods;

(c) Identify categories of affected persons and their respective entitlements;

(d) Set out clear process of consultation with and participation of Project Affected People in the preparation and planning of involuntary land acquisition and resettlement, if any, as well as information dissemination to the Project Affected People;

(e) Compensate for lost assets at full replacement cost;

(f) Compensate informal/illegal land users for lost assets and provide assistance in relocating, if needed;

(g) Compensate and obtain legal access to expropriated land before starting construction;

(h) Provide information and prepare special assistance programs for vulnerable groups including the persons without any immovable property; and

(i) Provide and prepare plans for grievance redress and monitoring in line with the RPF.

6.2 Indonesian Laws and Policies Relating to Land Acquisition

124. Geothermal exploration is important for energy infrastructure development, and under the country system it is categorized as public interest development. In case of land acquisition for infrastructure development for public purposes, any sub-project should refer to Law 2 of 2012 on Land Acquisition for Project Activity for Public Interest. The following are its implementing regulations: Presidential Decree No. 71 of 2012, Head of National Land Bureau Regulation No. 5 of 2012, Minister of Finance Regulation No. 13 / PMK.02 of 2013, and Ministerial of Home Affairs Regulation No. 72 of 2012.

125. The Presidential Decree No. 62 of 2018 concerning handling of social impacts in the provision of land for national development. Communities are residents who control state land or land owned by the government, regional government, state-owned business entity, or regionally-owned business entity. Land Provision is land acquisition that is needed to be used in the implementation of national development. This is to anticipate if there are government-owned lands such as forests affected and have been occupied by residents for more than 10 years.

126. The Presidential Decree No. 71 of 2012 has been amended four times. The key changes are: No. 40 of 2014 (…Land acquisition up to 45 hectare can be directly conducted by the agency needing land with holders of land right through a business transaction or other way agreed by both parties…); No. 99 of 2014 (…Head of Land Acquisition Implementation issues compensation value resulted from appraiser or public appraiser); No. 30 of 2015 (…Finance for land acquisition can

be sourced from a company (*Badan Usaha*) as Agency acquiring the land has been given the right to act on behalf of the state, ministerial, non-ministerial government agency, or provincial or district government; and the most updated one, No. 148 of 2015 (…Land acquisition for public interest development purpose up to 5 hectares does not need location determination letter. Agency needing land to use appraiser for land valuation…).

127. Minister of Finance Regulation No. 13/PMK.02 of 2013 has been also amended by No. 10 / PMK 02 of 2016, which indicates a threshold budget allocation for land acquisition for public-interest development projects. Minister of Home Affairs Regulation No. 72 of 2012 indicated operational and supporting land acquisition implementation for public interest development source from a regional budget.

128. Head of National Land Bureau (BPN) Regulation No. 5 of 2012 has been amended by No. 22 of 2015, which highlights a bailout scheme to accelerate infrastructure development. The government revised the Ministerial of Agrarian and Spatial Planning (ATR) Regulation No. 22 of 2015 for the Amendment Regulation of the National Land Bureau (BPN) No. 5 of 2012 on Technical Guidelines for the Implementation of Land Acquisition. This revision opens up the opportunity for private entrepreneurs to bailout[16] *(dana talangan)* land acquisition fund for public-interest infrastructure projects. Then bailout is replaced using state budget funds through the relevant ministries or agencies through a special account mechanism.

129. Land acquisition for public interest development shall be performed in accordance with the Regional Spatial Plan; the National/Regional Development Plan; the Strategic Plan; and the Working Plan of the Agency needing land. However, as indicated in Elucidation of Article 7 (2) of Law 2 of 2012, geothermal energy activities are to a degree flexible, uncertain and changeable. Because of this, flexible planning is required in order to ensure the effectiveness and efficiency of the development of geothermal energy resources.

130. Law 2 of 2012 has significantly improved the country system for resettlement with greater protection for the rights of property owners through consultation and fair compensation. It also deals with compensation for non-titled property if land acquisition is required. If the land is publically owned, the law does not apply and the required land would be cleared according to Law No. 5 of 1960, in which its Article 18 states that the rights on land may be expropriated by the government for public-interest activities by providing reasonable compensation in accordance to procedures stipulated in the Law. The Law also stipulates that public entities, including state-owned companies, are eligible to acquire land under this mechanism[17]. Similarly,

[16] Private bails advance funds for land acquisition. This approach will benefit toll roads development and helps Toll Road Regulatory Agency (BPJT) can quickly build toll road. However, Minister Public Works and Housing (PUPR) also requires to prepare technical regulations of the private use of the bailout fund.

[17] Beside the Law 2 of 2012 and its implementing regulations, there are other regulations related to the land acquisition and resettlement for public interest, such as the Presidential Degree No. 40 of 2016 concerning the Acceleration of the Development

private companies can also acquire land by establishing public private partnerships with state-owned enterprises and eligible government agencies.

131. Government Regulation No. 19 of 2021 concerning the Implementation of land acquisition for Development for Public Interest as the implementing regulation of Law No. 11 Year 2020, regarding further implementation process on procedures for land acquisition for public interest in more detail regarding the stages.

132. Law 2 of 2012 and its supporting regulations stipulate that valuation of compensation should be done by "…Independent and Professionals Appraisers, who have a license from the Ministry of Finance as Public Appraiser and registered in National Land Bureau (BPN)". The Indonesian Society of Appraisers (MAPPI) issued the Valuation Standard 306, Valuation in the Context of Land Acquisition for Development for Public Interest, to guide and support the implementation of Law 2 of 2012. The Standard follows the same principles as the Law, where determination of the compensation amount is based on the "principles of humanity, fairness, usefulness, certainty, transparency, agreement, participation, welfare, harmony and sustainability." Fair Replacement Value is the based on the market value of the property, with attention to non-physical elements associated with loss of property ownership, caused by the land acquisition. The definition of Fair Replacement Value follows the same principles as that for compensation as cited earlier.

133. Valuation consists of physical and non-physical components. Physical components that will be compensated include: a) land; b) space above- and under-ground; c) plants that grow above the ground; d) buildings; and e) amenities and facilities supporting the building. Non-physical components to be compensated for includes:

    - Disposal rights of landowners, to be given as a premium in monetary terms under existing legislations. The substitutions may include matters relating to: a) loss of employment or loss of business, including change of the profession (with respect to Law No. 2 of 2012 Article 33 letter f of the Elucidation); b) emotional loss associated with loss of shelter as a result of land acquisition (with due regard to the Act No. 2 in 2012 Article 1 Paragraph 10, Article 2 the elucidation and Article 9, paragraph 2).

    - Cost of transaction, such as moving expenses and corresponding taxes.

    - Compensation for waiting period, that is, payment to account for the time difference between the valuation date and the estimated payment date.

of Electricity Infrastructure that has significant aspects in reducing the time of land acquisition process and determining the location. This is discussed more in the section 8.3. Energy Sector in this document.

- Loss of value of the remaining land, which can be calculated over the entire land value if it can no longer be used as intended.

- Physical damage and repair costs to building and structure atop the land, if any, as a result of land acquisition.

6.3 World Bank Safeguard Policy OP4.12 Involuntary Resettlement

134. This policy aims to avoid involuntary resettlement where possible. However, it sets out – where necessary – requirements for participation in resettlement planning, as well as compensation provision that improves, or at least restores, incomes and living standards. The Bank's experience with geothermal projects in Indonesia with regard to involuntary resettlement indicates that land is acquired through commercial transactions rather than expropriation, and involuntary resettlement does not occur. However, this RPF establishes the principles and procedures for land acquisition and resettlement in case there are instances when PT GDE must invoke involuntary acquisition or resettlement.

135. The World Bank OP 4.12 does not apply to resettlement resulting from voluntary land transactions (i.e., market transactions in which the seller is not obliged to sell and the buyer cannot resort to expropriation or other compulsory procedures sanctioned by the legal system of the host country if negotiations fail). It also does not apply to impacts on livelihoods where the project is not changing the land use of the affected groups or communities.

6.4 Gap Analysis

136. Section 3.3 of the ESMF presents the comparison of key features between the GOI's Laws and Regulations pertaining Land Acquisition and Resettlement including specific requirements for IP, and how they are addressed in the RPF.

6.5 Process for Preparing and Approving Land Acquisition and Resettlement Action Plan

137. Depending on the ESIA results, LARAP will be prepared when there will be involuntary acquisition of land and/or resettlement and/or restriction of access to resources. PT GDE will prepare a LARAP in compliance with the Bank OP 4.12 and the country system[18] and responsible for applying the RPF and preparing LARAP for all sub-projects. The LARAP document requires the approval from PT SMI and the World Bank before being implemented. The following sub-chapters detail the required elements to prepare a LARAP. A template for Abbreviated LARAP is in Appendix M and for a full LARAP in Appendix L.

[18] In accordance to the country safeguard system, in this stage, PT GDE shall make a Plan of Land Acquisition in the Public Interest in accordance with the laws and regulations. The Plan shall refer to the Regional Planning, Spatial Planning and the development priority as stated in the Medium – Term Development Plan, Strategic Plan, and the Working Plan of the relevant Agencies.

6.5.1 Required Information for the Involuntary Acquisition of Private or Village Land

138. EMU Safeguards Team will first provide documentation regarding land acquisition needs (including the lands that will be needed for the project in future). What land will be needed, where, and what the existing land ownership and land uses are. PT SMI and the World Bank's social development specialist will review the documents and determine remedies if there are any circumstances that would jeopardize compliance with OP 4.12. If so, additional information and an appropriate course of action may be required by the EMU Safeguards Team.

139. The EMU Safeguards Team will then use the enclosed reporting formats (Abbreviated LARAP in Appendix M or the full LARAP in Appendix L) to cover the following issues:

(a) Assessment of the temporary and permanent impacts of land acquisition or expropriation, and categories of persons/households affected, number of lands/plots affected, percentage of land/plots affected in any landholding, land use before and after acquisition, prior land use and number of owners.

(b) Documentation of the socioeconomic situations of affected households, such as income stream and percentage of income derived from the acquired land in line with the World Bank safeguard policy requirements. The aim is to understand the adverse impacts on livelihoods of displaced persons and provide restoration measures to compensate for their income losses.

(c) Compensation standards applied for temporary and permanent loss of land, loss of crops, loss of productive trees, loss of residence and businesses (documenting the value equivalent to full replacement cost),

(d) Result of court decisions, if any,

(e) Provision for replacement land, if relevant, and

(f) Provision of documentation for vulnerable groups, grievance redress and monitoring.

140. Under Indonesian Law, *Land Acquisition Plan in the Public Interest Document* prepared in the form of a land acquisition planning document must entail: (a) objectives of the development plan; (b) consistency with the Regional Spatial Planning and the National/Regional Development Plan; (c) land location; (d) land size needed; (e) description of the land (legal and physical) status; (f) estimated period of land acquisition; (g) estimated period of construction implementation; (h) estimated land value; (i) budget plan; and (j) that the Plan shall be made under a feasibility study prepared in accordance with the laws and regulations. The last step is submission of the Land Acquisition Plan in the Public Interest Document to the Governor with complete supporting documents.

6.5.2 Required Information for the Acquisition of Public Land

141. OP4.12 also applies where public land (land owned by GOI or local government) is purchased, transferred, leased or used informally/temporarily by PT GDE. This also includes easements. While the land transaction may be 'voluntary' by the Government agency, there may be third parties who use the land (tenants, informal land users, squatters etc.) that will be subject to involuntary resettlement.

142. In this case, PT GDE will submit a Social Impact Screening Summary to PT SMI and the World Bank, using information from the Detailed Screening Process (Refer Section 5.3). PT GDE will document the transfer mechanism, the amount of land, whether it is in use and for what purpose(s), and the number, name, gender and status of land-users (e.g., tenants, informal users).

143. For each sub-project that requires involuntary resettlement of third parties from public land, PT GDE will prepare a LARAP, and submit to PT SMI and the World Bank for approval before implementation of land acquisition. LARAPs will include a detailed description of resettlement planning and implementation in compliance with the World Bank OP 4.12. The scope and level of details of the LARAP will vary with the magnitude and complexity of the land acquisition and compensation issues. The Plan will indicate the number and ownerships of parcels to be acquired or subject to lease or easement, the number of parcels affected, estimated cost of the land and other assets to be acquired or subject to the acquisition, responsibility for execution and schedule for acquisition. PT SMI and the World Bank will review and ensure conformance of the land acquisition and resettlement process to OP4.12.

144. Once the LARAP is cleared by PT SMI and the World Bank, it will be disclosed locally at the project site and on PT GDE's, PT SMI's and the World Bank's website.

145. PT GDE will be responsible for implementation of the LARAP, including all support and entitlements to be paid for completing the first phase of the land acquisition process and the following stage of land acquisition (well pad at A, B, and D and their supporting facilities including additional road access) in Waesano.

146. PT GDE also will be responsible for the LARAP implementation in other sub-projects, and ensure that all activities are fully consistent with the LARAP. As part of LARAP implementation, PT GDE will provide a quarterly report of land acquisition activities to PT SMI and the World Bank, as part of the overall project progress report. The report will indicate the number and ownership of parcels affected and their current status, progress of negotiations and appeals, and the price offered and finally paid (reported as number of square meters of the original whole plot and the size of the specific area acquired, and amount per square meter). At the end of the project and as part of project completion report, PT GDE will provide PT SMI and the World Bank with a completion audit.

147. PT SMI and the World Bank supervises LARAP implementation to ensure compliance with OP 4.12. If necessary, it may contact affected parties to confirm the validity and determine whether or not the process and outcomes have complied with OP/BP 4.12. However, following the location determination during the preparation stage, any land transaction can only be done to the BPN. The land freeze has been applied when location determination is effective.

148. Under the country system, the responsible entities for activities in the preparation stage – including the LARAP approval process – are 1) PT GDE that will be the eventual land owner / lease holder and 2) Local Government. After the document is submitted by PT GDE, the Regent will establish a Preparation Team for the project land acquisition. Under the Regent's instruction, the Team will prepare the '*Penetapan Lokasi'* following the below steps:

(a) Notice of the development plan;

(b) Identification of the development plan;

(c) Undertaking public consultation concerning the development plan;

(d) Announcement of the 'location determination' (*Penetapan Lokasi Pembangunan);*

(e) Disclosure of the Determination of Location (to be printed and placed at the *Kelurahan* Office), and announcing it in local paper/electronic media.

For the Waesano sub-project the land acquired in the project area are through leasing with option to buy procedure, therefore the implementing agency shall be the land lease owner. For the land access road in Wae Sano the land will be compensated by implementing agency based on valuation by independent appraiser, to be transferred to local government.

For the other GEUDP sub-projects (scenario 1 or scenario 2), land acquisition schemes will be decided case by case through discussion between the World Bank, Joint Committee, Implementing Agency, and PT SMI as a fund manager.

6.5.3 Cut-off Date & Eligibility Criteria for Affected Persons

149. For the purposes of this framework, eligibility for a Project Affected Person will include:

(a) any person or household adversely affected by acquisition of assets or change in use of land due to exploration activities;

(b) any vulnerable and affected person including women, destitute, artisans, tribal communities, squatters,

(c) those with usufruct rights, poverty groups depending for livelihood upon the land to be acquired by the project; and

(d) any other person who may prove and establish his/her right as an affected person to the satisfaction of the EMU.

150. The cut-off date for eligibility for compensation and/or resettlement assistance is the last day during the census/inventory of assets. The affected people / communities will be informed of the cut-off date through the responsible agencies, community elders and leaders. Individuals or groups that are not present at the time of registration but who have a legitimate claim to membership in the affected community can be accommodated.

151. Under the country system, the cut-off date is determined during the implementation stage after verification of eligibility has been conducted (See Section 6.7). The provincial-level Land Office (BPN) will be responsible for the implementation stage activities, which it has the authority to delegate to the district level[19]. Prior to the cut-off date, the Land Office will conduct these steps:

(a) Developing the implementation team, including at the local level;

(b) Inventory, identification and disclosure of result;

(c) Filing the objection and verification.

6.5.4 Proof of Eligibility

152. PT GDE will consider various forms of evidence as proof of eligibility for affect people as stated in the RPF, for example, *formal legal rights*, such as land title registration certificates, leasehold indentures, tenancy agreements, rent receipts, building and planning permits, business operating licenses, and utility bills; or in lieu of formal documentation, an *affidavit* signed by land owners and tenants witnessed by the administrative authority. Criteria for establishing claims to eligibility without any documentation will be determined on a case-by-case basis.

153. Only project affected persons enumerated during the census/inventory of assets shall be eligible for compensation or supplemental assistance. Any new structures or additions to existing structures carried out after the cut-off date will not be considered affected, and their owners or occupants will not be able to claim compensation or supplemental assistance for these, unless they can demonstrate that the census/inventory of assets has failed to identify them as affected.

6.5.5 Entitlement Policy

154. The World Bank safeguard policy requires that compensation be paid at replacement value in addition to transitional assistance. Land is replaced with that of equal value and amenities.

[19] Head of Land Office Decree 2 of 2013 concerned about the Delegation of Authority for Land Rights and Land Registration Activities

Livelihood assets are replaced with those of equal value. Benefit sharing is assured through additional support mechanisms where possible.

155. Project Affected People will be entitled to value compensation, rehabilitation, and resettlement support as follows:

Table 7 RPF Entitlement Matrix

Type of Loss	Category of Project Affected Person	Compensation Entitlements
Permanent agricultural land loss	Owner: Person / group with legal title/registration of land ownership (including customary and traditional rights under Indonesian law)	Full replacement cost and relocation allowance.
	Tenant	Cash compensation for above ground assets and relocation allowance. Owner/tenant agreements apply.
	Encroachers/informal or unofficial land users	Cash compensation for above ground assets and relocation allowance
Permanent residential land loss	Owner: Person / group with legal title/registration of land ownership (including customary and traditional rights under Indonesian law)	Full replacement cost and relocation allowance
	Tenant	Relocation allowance
	Encroachers/informal or unofficial land users	Relocation allowance
Permanent commercial land loss	Owner: Person / group with legal title/registration of land ownership (including customary and traditional rights under Indonesian law)	Full replacement cost and relocation allowance and compensation for temporary income loss
	Tenant Encroachers/informal or unofficial land users	Relocation allowance, compensation for temporary income loss
Temporary land loss	Owner: Person / group with legal title/registration of land ownership	Cash compensation for rent, or, plot rehabilitation equivalent to $1/10^{th}$ of market land value.

Type of Loss	Category of Project Affected Person	Compensation Entitlements
	(including customary and traditional rights under Indonesian law)	
	Tenant Encroachers/informal or unofficial land users	Cash compensation lump sum equivalent to 1/10th of market land value, shared between land users as per proportions.
Residential building loss	Owner: Person / group with legal title/registration of ownership	Cash compensation for residential building at replacement value based on market price free of depreciation/transaction costs and salvaged materials plus relocation allowance. Partial impacts will entail the compensation of the affected portion of the building plus repairs to return to at least pre-project standard.
	Tenants / squatters in residential buildings who are identified in census.	Relocation and severe impact allowance as below.
Commercial and non-residential buildings/ asset loss	Owner of commercial or non-residential buildings/assets with registration or who is identified in census	Cash compensation for non-residential building and other fixed assets at replacement value based on market price free of depreciation/transaction costs and salvaged materials plus relocation allowance. Partial impacts will entail the compensation of the affected portion of the building plus repairs.
	Tenants/squatters in commercial or non-residential buildings/assets who are identified in census	Relocation and severe impact allowance as below.
Crop losses	Owner of crops	Advance notice to harvest last crop

Type of Loss	Category of Project Affected Person	Compensation Entitlements
		Cash compensation to equal amount of market value of crop lost plus cost of replacement of seed based on Agriculture Department estimate.
Tree losses	Owner of tree	Advance notice to harvest tree products. Salvage material free of cost. Cash compensation to equal amount of market value of tree lost plus cost of replacement of seed based on Agriculture Department estimate taking into account type, age and productive value.
Income losses	All project affected people, all income (employment, business)	For a permanent impact, cash compensation of one year net business income or salary. For a temporary impact, cash compensation of net income or salary for the number of months of business or employment stoppage for a period of up to 1 year. Assessment to be based on paper evidence or oral testimony and Village Head confirmation. At least government decreed minimum salary will be provided.
Community structures or public Infrastructure losses (including religious and public service structures)	The public via leadership of the relevant authority	Reconstruction of lost structure in consultation with community. They will be fully replaced or rehabilitated so as to satisfy their pre-project functions taking into account any recognised new needs that could increase use or service levels.

Type of Loss	Category of Project Affected Person	Compensation Entitlements
Allowance for severe impacts Rehabilitation assistance for PAPs with more than 10 percent of land holding affected or to be relocated	All severely affected PAPs including informal settlers and relocated tenants	For severe land impacts, an additional allowance equal to the market value of the land for one year. For those being relocated, a rehabilitation allowance of equal to six months of average annual salary.
Allowance for relocation (transport and transition costs)	All Project Affected People	Provision of funds to cover transport costs and livelihood expenses for 1 month of average annual salary.
Allowance for especially vulnerable people	Especially vulnerable' include households headed by a single parent, woman or widow; include a pregnant woman or woman with a newly born child; have more than six dependent children; and have a family member who has a disability, long term illness (including mental illness), or who has mobility challenges.	Allowance equivalent to 6 months of average annual salary and employment priority for a household family member in project-related jobs.
Unforeseen impacts		Will be documented and mitigated or compensated in the LARAP, based on the principles in this RPF.

6.6 Negotiated Land Acquisition / Voluntary Transaction

156. Negotiated land acquisition, or voluntary transaction, will be the preferred method for acquiring land. The location of the drilling sites, and supporting infrastructure such as access roads, are flexible to a point, therefore, there can be some negotiations as to which site is selected based on land-owners' willingness to sell or lease land.

157. PT GDE will apply the following principles for negotiated land acquisition / voluntary transaction for exploration drilling stage:

- *Meaningful consultations* with Project Affected People, including those without legal title to land and assets;

- *Offer of fair price* for land and other assets at replacement cost. Deduction of income tax for land transaction will be openly communicated with and agreed by the Project Affected People;

- *Transparency in negotiation* with Project Affected People to reduce risks of asymmetry of information and bargaining power of the parties. An independent external party will be engaged to document and validate the negotiation and settlement process. Verification (for example, notarized or witnessed statements) of the voluntary nature of land donations must be obtained from each person selling or leasing land.

158. Under the country system, acquisition for land of up to 5 ha can be done through the willing seller-willing buyer mechanism. Indonesian Civil Laws (*Kitab Undang-undang Hukum Perdata*) Chapter 1458 on Selling and Buying spells out the principles and outlines buyer and seller obligations and responsibilities. Under this Law, the mechanism has an obligatory character, where the rights attached to the land or assets sold are not automatically transferred to the buyer. Unlike land transactions conducted under a customary law *(hukum adat)*, such transactions still require transfer of the land ownership right. Land registration is a precondition for land transfer under a negotiated land acquisition or willing buyer-willing seller mechanism.

159. The Minister for Agriculture and the Head of the National Land Bureau's National Regulation No. 5/2012 specifies procedures for land registration. It outlines requirements for the land registration and acquisition process, and prescribes: (i) steps for scaling and mapping the land coordinates and accepted survey procedures, (ii) regulations pertaining to valuation in the land markets, (iii) necessary documentation, (iv) official publication of claim and title, (v) objection mechanism, (vi) title verification procedures, and (vii) issuance of land certificates.

160. However, valuation of the affected assets under the scope of GEUDP would follow the procedures as prescribed by Law 2 of 2012 and supporting regulations, under which valuation of compensation should be done by "…Independent and Professionals Appraisers who have license from Ministry of Finance as Public Appraiser and registered in National Land Bureau (BPN)". The Indonesian Society of Appraisers (MAPPI) issued the Valuation Standard (SPI) 306, Valuation in the Context of Land Acquisition for Development for Public Interest, to support the implementation of Law 2 of 2012. Valuation Standard 306 shares the same principles as the Law, which bases the determination of compensation amount on the principles of "humanity, fairness, usefulness, certainty, transparency, agreement, participation, welfare, harmony and sustainability."

161. The Fair Replacement Value is the value of the ownership, which equals the market value of a property, with attention to elements such as non-physical losses of ownership resulting from land acquisition. The Fair Replacement Value definition is same as definition for compensation in the Law 2 of 2012.

162. The Scope of Valuation consists of physical and non-physical components. Physical components that will be compensated for include: a) land; b) space above- and under-ground; c) plants that grow above the ground; d) buildings; and e) amenities and facilities supporting the building. Non-physical components to be compensated for include:

- *Disposal rights* of land-owners, to be given as a premium in monetary terms under existing legislations. The substitutions may include matters relating to: a) loss of employment or loss of business, including change of the profession (with respect to Law No. 2 of 2012 Article 33 letter f of the Elucidation); b) emotional loss associated with loss of shelter as a result of land acquisition (with due regard to the Act No. 2 in 2012 Article 1 Paragraph 10, Article 2 the elucidation and Article 9, paragraph 2).

- Cost of transaction, such as moving expenses and corresponding taxes.

- Compensation for waiting period, that is, payment to account for the time difference between the valuation date and the estimated payment date.

- Loss of value of the remaining land, which can be calculated over the entire land value if it can no longer be used as intended.

- Physical damage and repair costs to building and structure atop the land, if any, as a result of land acquisition.

6.7 Involuntary Restriction to Access to Legally Designated Parks and Protected Areas

163. Exploration activities may restrict access to legally designated parks and protected areas, in a manner that may adversely impact on income and livelihood. This would be avoided where possible by the design and operation of the drilling activities (location of the wells and access roads) or minimising the impacts (such as minimising the time that the restriction is in place).

164. The screening process will identify this potential impact. Where involuntary restrictions cannot be avoided, the impacts will be managed in the same way as 'involuntary taking of land', and the RPF provisions will apply. A LARAP will be prepared to identify Project Affected People and their entitlements, as per Section 6.5.

6.8 Independent Verification

165. PT GDE will engage an independent monitoring agency to monitor all land acquisition implementation if deemed necessary for compliance with the ESMF and RPF. The agency will audit the documentation and interview land owners and affected land / resource users to verify both the process and the outcomes. Any discrepancies or non-compliances will be brought to the attention of PT GDE and will be recorded as a grievance in the GRM for resolution through that process. The PIM will include procedures for the independent monitoring and verification, and the resolution process.

7 INDIGENOUS PEOPLES PLANNING FRAMEWORK

7.1 Objectives and Principles

166. This IPPF will be applied when Indigenous Peoples (IPs) are present in a sub-project's area of influence as identified during the social and environmental screening process or subsequently during the ESIA. PT GDE is responsible for implementing the necessary actions to meet the requirements outlined by this framework.

167. There is no universally accepted definition of Indigenous Peoples. Indigenous Peoples may be referred to in different countries by such terms as: indigenous ethnic minorities, aboriginals, hill tribes, minority nationalities, scheduled tribes, first nations, or tribal groups (known in Indonesia as *Komunitas Adat Terpencil* (Isolated Indigenous Community) or *Masyarakat Hukum Adat* (Customary Law Community)).

168. The term "Indigenous Peoples" is used in a generic sense to refer to a distinct social and cultural group possessing the following characteristics in varying degrees:

(a) Self-identification as members of a distinct indigenous cultural group and recognition of this identity by others;

(b) Collective attachment to geographically distinct habitats or ancestral territories in the project area and/or to the natural resources in these habitats and territories;

(c) Customary cultural, economic, social, or political institutions that are separate from those of the dominant society or culture;

(d) An indigenous language, often different from the official language of the country or region.

Ascertaining whether a particular group consider as Indigenous Peoples for purpose may require technical judgment of qualified social scientists with expertise on the social and cultural groups in the project area and also consultation with the Indigenous Peoples concerned. The national framework may be followed for identification of Indigenous Peoples during project screening, when that framework is consistent with the Bank policy OP 4.10.

7.2 Indonesian Laws and Regulations relating to Indigenous Peoples Safeguards

169. Undang-Undang Dasar (UUD 1945) (Amendment) chapter 18 B (2) The state recognizes and respects customary law community units and their traditional rights as long as they are still alive and in accordance with the development of society and the principles of the Unitary State of the Republic of Indonesia as regulated in law; chapter 28 I (3) Cultural identity and rights of traditional communities are respected in line with the times and civilizations.

170. UU No.5 of 1960 which places respect for and protection of the customary rights of indigenous peoples. Chapter 2 Para. 4, Chapter 3, and Chapter 5 provide general principles that accommodate the recognition of indigenous peoples, customary land rights, and customary law. In subsequent developments, the acknowledgment of the UUPA on customary law is associated with "national interests".

171. Regulation of the Minister of Agrarian Affairs and Spatial Planning/ Head of National Land Agency No. 5 of 1999 about on guidelines for resolving the problem of customary rights of customary law communities.

172. Forestry Acts (Act No. 5 of 1967 and Act No. 41 of 1999). The Act divides forest area into two categories: state forest and proprietary forest. State forest is forest growing on land not covered by proprietary rights. The state forest category also covers *ulayat*, or *adat* forest. Proprietary forest is forest growing on land covered by proprietary rights. By including *ulayat* forest as state forest, the Act ignores *ulayat* rights of *adat* communities over their forest area

173. Regulation of the Minister of Agrarian Affairs and Spatial Planning/Head of National Land Agency No. 10 of 2016 about concerning procedures for determining communal rights over lands of customary law communities and communities residing in certain areas.

174. The Constitutional Court Decision No. 35/PUU-X/2012 resolved a major ambiguity in Article 1 of the Forestry Act No. 41 of 1999 and formally recognized that customary forests are state forests located in the areas of customary communities. Article 5 of the same Law was revised to mandate that state forest category does not cover customary forest. The ruling was made in favor of a petition filed by Indonesia's National Indigenous Peoples Alliance, or *Aliansi Masyarakat Adat Nusantara* (AMAN) in March 2012. [20]

175. Ministerial of Home Affairs (MOHA) Regulation No. 52 of 2014 on Guidelines for the Recognition and Protection of Indigenous Peoples can be used as a reference for local governments regarding customary communities. The Regent/Mayor may form a committee on Indigenous Peoples in the regencies/cities, which serves to identify, verify and validate Indigenous Peoples. Results of the verification and validation, then submitted to the head region. The Regent/Mayor can issue decision on the recognition and protection of Indigenous Peoples based on the committee's recommendations.

176. Ministerial of Forestry Regulation (MoF) No. P.62/Menhut-II/2013 (adjustment of Ministerial of Forestry Regulation No. P.44/2012) on the Establishment of Forest Area. This MoF regulation

[20] In 1999, a national congress of Indonesian indigenous peoples took place, attended by over 200 *adat* community representatives from 121 indigenous peoples. The Congress agreed to establish a national alliance of indigenous peoples, AMAN. By 2001, AMAN had 24 affiliated organizations in islands and provinces. It has several objectives, including the restoration of sovereignty to *adat* communities over their socioeconomic laws and cultural life, and control over their lands and natural resources and other livelihoods.

was criticized by AMAN for equating forest area with state forest, which they perceived to be against of the Constitutional Court Decision No. 35/PUU-X/2012.

177. Joint Regulation of Ministerial of Home Affairs (MOHA), Ministerial of Forest, Ministerial of Public Works and National Land Bureau No. 79/2014; No: PB.3/Menhut-11/2014; No: 17/PRT/m/2014: No: 8/SKB/X/2014 on Procedures to Settle Land Ownership Conflict in Forest Area. This regulation recognized that there are other rights such as customary rights over forest land.

178. Ministerial Regulation of the Land Agency and Spatial Development No. 9/2015 on the Procedures to Establish the Land Communal Rights on the MHA Land and Community Living in the Special Area. This regulates communal rights of not only the *Customary Law Community*, but also other groups of people residing and depending in the same land area. *Customary Law Community* is a community bound by customary law, both genealogically (common ancestor) and territorially (similar residence). These Communities have a socio-cultural bond with the land and its resources for a long time. Whereas "people in certain areas" are people who control the land for at least 10 years, who depend on forestry products and natural resources, and whose existing socio-economic activities are closely linked to the area. Communal rights addressed in Regulation No. 9/2015 are controversial, because they not distinguish the source of legitimacy for communal land rights between that based on membership to the *Customary Law Community* versus the land use and ownership of the area by other people not belonging to the Community for an extended period of time. Consequently, the Regulation has raised legal issues, namely competing claims between these two groups.

179. Law No. 6/2014 recognizing the existence of the Customary Village (Desa Adat). The local government is empowered to evaluate the boundary of a *Customary Law Community*'s area and designate a Customary Village through local regulation. Three criteria must be met: 1) the traditional customs and rights of the Customary Law Community are being practiced and maintained by members of the group, 2) the preservation of a Customary Village with all their traditional customs and rights is in accordance with the development of society, and 3) the purpose is in line with the principles of the Unitary Republic of Indonesia.

180. Regulation of the Minister of Agrarian Affairs and Spatial Planning/Head of National Land Agency No. 18 of 2019 about concerning the administration of customary land of customary law community units.

7.3 World Bank Policy OP4.10 Indigenous Peoples

181. The World Bank's OP 4.10 Indigenous Peoples recognizes that Indigenous Peoples may be exposed to different types of risks and impacts from development projects. The policy requires that projects identify whether Indigenous Peoples are affected by the project, and accordingly, to undertake specific consultation activities, and avoid or mitigate impacts on these potentially

vulnerable groups. Site visits to confirm IPs presence will be done in accordance with the requirements specified in this IPPF.

7.4 General Requirements

7.4.1 Avoidance of Adverse Impacts

182. PT GDE will identify, through the social and environmental screening and ESIA, communities of Indigenous Peoples that may be present in the sub-project's area of influence, as well as the nature and degree of the expected social impacts, impacts on physical cultural resources, environmental impacts as well as potential benefits to the Indigenous Peoples. PT GDE shall avoid adverse impacts whenever feasible.

183. When avoidance is not feasible, PT GDE will minimize, mitigate or compensate for these impacts in a culturally appropriate manner. The proposed actions will be developed with the informed participation of affected Indigenous Peoples and included in a time-bound Indigenous Peoples Development Plan (IPP), or a broader community development plan, depending on the nature and scale of impacts.

184. When the project is considered high impact due to other potential risk such as conflict around natural resources, PT GDE should obtain Broad Community Support for the Project before beginning of the project.

7.4.2 Information Disclosure, Consultation, and Informed Participation

185. PT GDE shall establish an ongoing relationship with the affected IPs communities as early as possible in the sub-project planning and throughout the life of the sub-project. They will recruit specialist consultants to assist them, particularly to design and implement an appropriate consultation approach. In sub-projects with IPs communities in the project area, the consultation process will ensure their free, prior, and informed consultation (FPIC) and facilitate their informed participation on matters that affect them, such as proposed impact mitigation measures, sharing of development benefits and opportunities, and implementation issues. The process of community engagement will need to be culturally appropriate and correspond with the potential risks and impacts to the Indigenous Peoples. In particular, the process will include the following steps:

(a) Involve Indigenous Peoples representative bodies (for example, councils of elders or village councils, among others);

(b) Be inclusive of both women and men and of various age groups in a culturally appropriate manner;

(c) Provide sufficient time for IPs' collective decision-making process;

(d) Facilitate the IPs' expression of their views, concerns, and proposals in the language of their choice, without external manipulation, interference, or coercion, and without intimidation;

(e) Ensure that the grievance mechanism established for the project is culturally appropriate and accessible for IPs communities; and

(f) Ensure that the IPP is available to the affected IPs communities in an appropriate form, manner and language.

186. The aim is to achieve broad community support for the project. This determination generally is based upon collective and often informal expression of supportive views regarding project purposes, plans, and implementation arrangements. This determination does not require unanimity; broad community support may exist even when there is internal disagreement within the community or when there is limited opposition to project purposes or proposed arrangements. The IPP will explain the basis upon which the determination has been made.

7.4.3 Development Benefits

187. Through the FPIC process and informed participation of the affected IPs communities, PT GDE shall identify opportunities for culturally appropriate development benefits. Such opportunities should be commensurate with the degree of project impacts, aimed at improving their living standards and livelihoods in a culturally appropriate manner, and to fostering the long-term sustainability of the natural resources on which they depend. PT GDE will document development benefits and provide them in a timely and equitable manner in the Indigenous Peoples Plan.

7.4.4 Indigenous Peoples Plan

188. Where Indigenous Peoples are identified in the project area through the screening process, an Indigenous Peoples Plan (IPP) will be prepared by PT GDE. The Plan will be informed by a Social Assessment, prepared during the ESIA, and the consultation processes discussed above. The Plan will set out the measures through which PT GDE, and other GoI entities involved in the project, will ensure that (a) Indigenous Peoples affected by the project receive culturally appropriate social and economic benefits; and (b) if potential adverse effects on Indigenous Peoples are identified, those adverse effects will be avoided, minimised, mitigated or compensated. When Indigenous Peoples are the sole or the overwhelming majority of direct project beneficiaries, the elements of an IPP should be included in the overall project design, and a separate IPP is not required. Contents of an IPP are included in Appendix K.

189. The plan will focus on the exploration phase. Post project activities will be discussed and agreed by all parties before the end of the project and the IPP will be updated at this time to cover potential long term impacts from the exploitation phase.

7.5 Social Assessment

190. The social assessment will include the following elements (as relevant):

(a) description of the sub-project and potential issues or impacts relating to communities (and identifying where some communities or subgroups may be affected differently);

(b) identification of relevant communities and other key stakeholders to be consulted;

(c) baseline information on the demographic, social, cultural, economic and political characteristics of relevant communities;

(d) assessment of the potential adverse impacts and benefits likely to be associated with the project based on consultation; and

(e) summary of preferences and concerns of communities relating to project objectives, access and cultural appropriateness of project benefits, mitigation of any adverse impacts, and project implementation arrangements.

7.6 Special Requirements

191. Because Indigenous Peoples may be particularly vulnerable to the project circumstances, appropriate requirements will be required as described below. When any of these special cases apply, PT GDE will engage qualified external experts to assist in conducting the Social Assessment and ensuring their adequate inclusion in the IPP or Community Development Plan.

7.6.1 Impacts on Traditional or Customary Land under Use

192. Indigenous Peoples are often tied to their customary land, as well as the natural and cultural resources on the land. While the land may not be under 'legal' ownership pursuant to national laws, the use of the land, including seasonal or cyclical uses, by the IPs communities for their livelihoods, or cultural, ceremonial, or spiritual purposes that define their identity and community, can be substantiated and need to be duly documented.

193. If the sub-project location is decided to be on traditional or customary land, and adverse impacts are expected on the livelihoods, or cultural, ceremonial, or spiritual uses that define the identity and community of the Indigenous Peoples, PT GDE will work with the GoI Entity that will lease or own the land to ensure that the process of land acquisition is respectful of their use of the land. They will do this by taking the following steps:

(a) PT GDE documents efforts to avoid or at least minimize the proposed project footprint;

(b) Experts will be engaged to document land uses in collaboration with the affected Indigenous Peoples communities without prejudicing their land claim;

(c) The affected Indigenous Peoples communities are informed of their rights with respect to their land under national laws, particularly those recognizing customary rights or use;

(d) PT GDE will offer the affected Indigenous Peoples communities fair compensation and due process similar to those with full legal land title, as well as culturally appropriate development opportunities (such as benefit-sharing mechanisms); and/or land-based and/or in-kind compensation in lieu of cash compensation where feasible;

(e) PT GDE enters into good faith negotiation with the affected Indigenous Peoples communities, and documents their informed participation and outcomes of the negotiation.

7.6.2 Relocation of Indigenous Peoples from Traditional or Customary Lands

194. PT GDE shall consider alternative project designs to avoid relocation of Indigenous Peoples from their communally held traditional or customary land. If such relocation is unavoidable, PT GDE will not proceed with the project, unless there has been good faith negotiation with the affected Indigenous Peoples communities, and PT GDE documents their informed participation and a successful outcome from the negotiation. Any relocation of Indigenous Peoples will need to be consistent with the World Bank safeguard policy OP. 4.12 Involuntary Resettlement and will be implemented by the PT GDE as the agent that will own or lease the land. Where feasible, the relocated Indigenous Peoples should be able to return to their traditional or customary land, should the reason for their relocation cease to exist.

7.6.3 Cultural Resources

195. Physical cultural resources defines as movable and immovable objects, sites, buildings, and a group of buildings, natural facilities and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic significance, or other cultural properties. The objective this policy is to avoid, or mitigate, adverse impacts on cultural resources from development projects that the World Bank finances

196. Where a project proposes to use the cultural resources, knowledge, or practices of Indigenous Peoples for commercial purposes, PT GDE shall inform them of: (i) their rights under national laws; (ii) the scope and nature of the proposed commercial development; and (iii) the potential consequences of such development. PT GDE shall not proceed with such commercialization unless it: (i) enters into a good faith negotiation with the affected Indigenous People communities; (ii) documents their informed participation and a successful outcome from the negotiation; and (iii) provides for fair and equitable sharing of benefits from commercialization of such knowledge or practice consistent with their customs and traditions. However, this is an unlikely outcome of the GEUDP.

8 CONSULTATION AND DISCLOSURE

8.1 Safeguard Framework Consultation

197. The first stakeholder consultation for Version 1 was held by PT SMI in September 14, 2016 in Jakarta. The main purposes of the consultation were to seek inputs on the GEUDP project, and the draft ESMF, RPF and IPPF from stakeholders. Key stakeholder institutions, such as Ministry of Finance, Ministry of Energy and Mineral Resources, local governments, NGOs, private sector, the academia, the media/press, etc. were invited to participate in the consultation workshop.

198. The draft frameworks were shared in advance with representatives from the institutions to allow for constructive inputs to be provided at the workshop. Discussions focused on the ease of use and implementation of the ESMF, adequacy of safeguard mitigation mechanisms, and training needs for stakeholders. Following the consultations, stakeholders' inputs have been recorded and considered for the finalization of the ESMF, RPF and IPPF. Refer to the summary in Appendix N.

199. Consultation on the GEUDP and the framework documents has been carried out in Wae Sano and will be conducted in other sub-project locations. The consultations began at the earliest stages of drilling site identification. This is described in Section 1.

200. A summary of the ESMF draft consultation is as follows:

- Local community should be involved as early as possible to ensure that the project will be well understood by the stakeholders;
- Project need to conduct screening regarding the presence of Indigenous Peoples in the project area;
- In the context of dispute management, the Project needs to prioritize benefits in the form of access, not monetary compensation;
- Understanding gender equality needs to be emphasized to stakeholders;
- Legal aspects need to be expanded, because regulations regarding work safety do not yet include in the existing legal regulations;
- PT SMI needs to make detailed procedures related to community livelihood around the project being financed; and
- This ESMF document can become a reference for other geothermal projects, therefore, a verification mechanism to be set up in order to monitor the ESMF implementation.

201. Due to COVID-19 pandemic situation, the consultation and disclosure of the revised GEUDP ESMF draft (version 2 on July 2020) was not in-person event but by sending email to stakeholders on Tuesday, July 28, 2020 with an opportunity window for feedback in 14 working days, as well as upload it into https://ptsmi.co.id/wp-content/uploads/2020/07/July-2020-Draft-ESMF-GEUDP-Revision.pdf and https://www.geodipa.co.id/environmental-social-standard/. The key

stakeholders include Ministry of Finance, Ministry of Energy and Mineral Resources, local governments, and NGOs.

202. Based on agreement between PT GDE, PT SMI, and WB and due to COVID-19 pandemic situation, the GEUDP ESMF Ver. 3 was disclosed in May 17, 2021 and uploaded in https://ptsmi.co.id/environmental-social-safeguard and https://www.geodipa.co.id/environmental-social-standard/.

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8.2 Stakeholder Engagement and Consultation on Geothermal Sub-Project

203. The EMU Safeguards Team shall lead the preparation of UKL-UPL, ESIA, ESMP (including other relevant sub-plans), LARAP and IPP. In drafting the TOR for these works, it will provide detailed stakeholder consultation activities to be carried out by the consultant(s). EMU Safeguards Team, along with technical people from MEMR (EBTKE and BG), will lead public consultation(s) with support from the consultant and local government. This will ensure that PT GDE has the necessary technical information and support to carry out consultations, as well as local buy-in and support for the plans, which are prepared to mitigate project impacts.

8.2.1 Stakeholder Identification

204. PT GDE Corporate Sustainability and EMU Safeguard Team shall identify and prepare a Stakeholder Engagement Plan early in project feasibility and at the basic screening step, which will be further developed through the detailed screening step. EMU will assign ESSC to undertake a stakeholder analysis before the consultation process. ESSC will prepare a Stakeholder Engagement Plan specific to each sub-project and will work closely with the EMU and PT GDE Corporate Sustainability throughout the preparation of SEP to ensure it meets the WB requirements and tailored to the scale and risks of each specific sub-project. It will include methods and procedures for the following:

- Stakeholder analysis – who will be consulted, how, when, by whom, how often, which language to use;
- How women and vulnerable community members will be consulted;
- Roles and responsibilities for coordinating, undertaking and following up on consultation feedback, safeguards consultants, and local government);
- Key messages;
- Timeframes / programme;
- public communications (see below) including how the public can get in touch with the EMU and how to use the GRM process;
- Disclosure plan – what will be disclosed, when, and how;
- How feedback will be managed;
- List of materials and tools that will be used.

8.3 Public Consultation Tools

205. Communication during sub-project development will involve seeking and imparting information, and reaching agreements through dialogue. The following table summarizes some of the most commonly used techniques for conveying information to the public and their respective advantages and disadvantages. The safeguards consultant may use any of these techniques in developing the Consultation Plan.

Table 8 Techniques for Conveying Information to the Public

Technique	Key points	Advantages	Disadvantages	Time Frame
Printed materials	Information bulletins, brochures, reports: Text should be simple and non-technical and relevant to the reader Provide clear instructions on how to obtain more information	Direct Can impart detailed information Cost-effective Yields a permanent record of communication	Demands specialized skills and resources Not effective for illiterate stakeholders	During ESIA preparation phase
Displays and exhibits	Can serve both to inform and to collect comments Should be located where the target audience gathers or passes regularly	May reach previously unknown parties Minimal demands the public	Costs of preparation and staffing Insufficient without supporting techniques	During ESIA preparation phase
Print media	Newspapers, press releases, and press conferences can all disseminate a large amount and wide variety of information Identify newspapers likely to be interested in the	Offers both national and local coverage Can reach most literate adults Can provide detailed information	Loss of control of presentation Media relationships are demanding Excludes illiterates and the poor	During ESIA preparation phase

Technique	Key points	Advantages	Disadvantages	Time Frame
	project and to reach the target audience			
Electronic Media	Radio, internet, social media, and video: Determine the coverage (social media, internet, or radio), the types of viewer; the perceived objectivity, and the type of broadcast offered. Determine how to disseminate the social media hashtag / web address etc. to the audience.	May be considered authoritative Many people have access to radio and cell phones Social media is cheap	Disadvantages those without cell phones / internet access	During ESIA preparation phase
Advertising	Useful for announcing public meetings or other activities Effectiveness depends on good preparation and targeting	Retain control of presentation	May engender suspicion	During ESIA preparation phase
Formal information sessions	*Targeted briefing:* Can be arranged by project sponsor or by request, for a particular community group, NGO etc.	Useful for groups with specific concerns Allow detailed discussion of specific issues	May raise unrealistic expectations	At the latest 2 weeks before ESIA preparation phase for project plan dissemination; During ESIA preparation phase for potential

Technique	Key points	Advantages	Disadvantages	Time Frame
				impact discussion
Informal information sessions	*Open House, Site Visits, and Field Offices*: A selected audience can obtain first-hand information or interact with project staff. Visits should be supported with more detailed written material or additional briefings or consultations.	Provide detailed information Useful for comparing alternatives Immediate and direct Useful when the project is complex Local concerns are communicated to staff May help reach non-resident stakeholders	Attendance is difficult to predict, resulting in limited consensus-building value May demand considerable planning Field offices can be costly to operate Only reach a small group of people	At the latest 2 weeks before ESIA preparation phase for project plan dissemination; During ESIA preparation phase for potential impact discussion

Source: World Bank Environmental Assessment Sourcebook, Number 26

Table 9 Techniques for Listening to the Public

Technique	Key points	Advantages	Disadvantages	Time Frame
Survey techniques	Interviews, formal surveys, polls and questionnaires can rapidly show who is interested and why May be structured (using a fixed questionnaire) or non-structured Experienced interviewers or surveyors familiar with the project should be used	Shows how groups want to be involved Allows direct communication with the public Helps access the views of the majority Less vulnerable to the influence of vocal groups Identifies concerns linked to social grouping	Poor interviewing is counter-productive High cost Requires specialists to deliver and analyse Trade-off between openness and statistical validity	During ESIA preparation phase

Technique	Key points	Advantages	Disadvantages	Time Frame
	Pre-test the questions Open-ended questions are best	Statistically representative results Can reach people who are not in organized groups		
Small Meetings	Public seminars, or focus groups create formal information exchanges between the sponsor and the public; may consist of randomly selected individuals or target group members; experts may be invited to serve as a resource.	Allows detailed and focused discussion Can exchange information and debate Rapid, low-cost monitor of public mood A way to reach marginal groups	Complex to organize and run Can be diverted by special interest groups Not objective or statistically valid May be unduly influenced by moderators	At the latest 2 weeks before ESIA preparation phase for project plan dissemination; During ESIA preparation phase for potential impact discussion
Large Meetings	Public meetings allow the public to respond directly to formal presentations by project sponsors. Effective meetings need a strong chairman, a clear agenda, and good presenters or resource people.	Useful for medium-sized audiences Allow immediate response and feedback Acquaint different interest groups	Not suitable for detailed discussions Not good for building consensus Can be diverted by special interest groups Attendance is difficult to predict	At the latest 2 weeks before ESIA preparation phase for project plan dissemination; During ESIA preparation phase for potential impact discussion
Community organizers/ advocates	These work closely with a selected group to facilitate informal contacts, visit homes or work places, or simply be	Mobilize difficult-to-reach groups.	Potential conflicts between employers and clients Time needed to get feedback	At the latest 2 weeks before ESIA preparation phase for

Technique	Key points	Advantages	Disadvantages	Time Frame
	available to the public.			project plan dissemination; During ESIA preparation phase for potential impact discussion

Source: World Bank Environmental Assessment Sourcebook, Number 26

8.4 Public Consultation During COVID-19 Pandemic

206. PT GDE should review the country COVID-19 spread situation in the sub-project area, and the restrictions put in place by the government to contain virus spread. Subject to the COVID-19 situation in the country and sub-project area, it is necessary to anticipate any potential health risks with provision for the protocol to prevent the risks. PT GDE should also consider International guidelines and any available guidelines issued by Government (National and Local Government).

207. For managing public consultation and stakeholder engagement during the sub-project, the measures should be considered into two phase, i.e under sub-project preparation and under sub-project implementation.

8.4.1 COVID-19 Prevention Under Sub-Project Preparation

208. The preparation stage will include the sub-project E&S planning process, stakeholder consultation and engagement. Subject to the coronavirus in the country, and restrictions put in place by governments, PT GDE EMU and tasks team should:

- Be sure that all task team and PT GDE EMU members articulate and express their understandings on social behavior and good hygiene practices, and that any stakeholder engagement events be preceded with the procedure of articulating such hygienic practices;
- Avoid public gatherings (taking into account national restrictions), including public hearings, workshops and community meetings, and minimize direct interaction between project agencies and beneficiaries/affected people;
- If smaller meetings are permitted, conduct consultations in small-group sessions, such as focus group meetings. If not permitted, make all reasonable efforts to conduct meetings through online channels, including webex, zoom and skype meetings;
- Diversify means of communication and rely more on social media and online channels;

- Employ traditional channels of communications (TV, newspaper, radio, dedicated phone-lines, public announcements and mail) when stakeholders do not have access to online channels or do not use them frequently. Such channels can also be highly effective in conveying relevant information to stakeholders, and allow them to provide their feedback and suggestions;

- Employ online communication tools to design virtual workshops in situations where large meetings and workshops are essential, given the preparatory stage of the project. Webex, Skype, and in low Information and Communications Technology (ICT) capacity situations, audio meetings, can be effective tools to design virtual workshops.

- In situations where it is determined that meaningful consultations that are critical to the conduct of a specific project activity cannot be conducted in spite of all reasonable efforts on the part of PT GDE EMU supported by the Bank, the proposed project activities could be postponed by a few weeks in view of the virus spread risks. This would depend on the COVID-19 situation in the country, and the government policy requirements to contain the virus spread.

8.4.2 COVID-19 Under Sub-Project Implementation

209. Sub-projects under implementation are likely to have public consultation and stakeholder engagement activities planned and committed as part of project design. Commonly planned avenues of such engagement are public hearings, community meetings, focus group discussions, field surveys and individual interviews. With growing concern about the risk of virus spread, there is an urgent need to adjust the approach and methodology for continuing stakeholder consultation and engagement.

210. Taking into account the importance of confirming compliance with national law requirements, below are some measures for consideration:

- Identify and review planned activities under the sub-project requiring stakeholder engagement and public consultations.

- Assess the level of proposed direct engagement with stakeholders, including location and size of proposed gatherings, frequency of engagement, categories of stakeholders (international, national, local) etc.

- Assess the level of risks of the virus transmission for these engagements, and how restrictions that are in effect in the country/sub-project area would affect these engagements.

- Identify sub-project activities for which consultation/engagement is critical and cannot be postponed without having significant impact on project timelines. For example, selection of resettlement options by affected people during project implementation. Reflecting the specific activity, consider viable means of achieving the necessary input from stakeholders;

- Assess the level of ICT penetration among key stakeholder groups, to identify the type of communication channels that can be effectively used in the project context.

8.5 Disclosure

211. The first version ESMF, incorporating the RPF and IPPF, was disclosed on the PT SMI website, www.ptsmi.co.id, on August 16, 2016 and on the World Bank website, www.worldbank.org, on July 1, 2016.

212. The second version ESMF August 2020 has been finalized and sent to stakeholders via e-mail on July 28, 2020 and disclosed on PT GDE website www.geodipa.co.id, PT SMI website www.ptsmi.co.id and the World Bank website, www.worldbank.org, on August 28, 2020.

213. The third version ESMF May 2021 has been disclosed on PT GDE website www.geodipa.co.id, PT SMI website www.ptsmi.co.id and the World Bank website, www.worldbank.org, on May 17, 2021.

214. The current version of ESMF (fourth revision) and all safeguards instruments prepared for GEUDP sub-projects will be finalized and sent to stakeholders via e-mail and disclosed on PT GDE website www.geodipa.co.id, PT SMI website www.ptsmi.co.id and the World Bank website, www.worldbank.org.

9 INSTITUTIONAL ARRANGEMENTS AND CAPACITY BUILDING

215. The successful implementation of the ESMF, RPF and IPPF depends on project stakeholders. This chapter provides an overview of the GEUDP's institutional arrangements, and the responsibilities of each stakeholder for operationalizing the safeguards instruments. It also provides an analysis of the PT GDE's capacity as the Implementing Agency with key safeguard responsibilities and a plan for capacity building.

9.1 Institutional Roles and Responsibilities

216. After restructuring has been completed, PT GDE will be the Implementing Agency (IA) of the GEUDP. PT GDE will take over the role of technical, procurement, and environmental and social safeguards for all GEUDP sub-projects. PT GDE scope of works will include specifying, procuring and managing any additional scientific work, land acquisition, civil works and infrastructure, drilling and well testing, permitting, environmental assessment, monitoring and management and community relations. PT SMI will play role in financing management of the program. In addition, as the official holder of project assignment from MoF, PT SMI with the World Bank team will jointly review and clear the safeguards documentation prepared by PT GDE.

217. The overall process for project implementation, and the key roles of PT GDE and partners, is shown in figure 5. PT GDE will set up an EMU that will include the Exploration Management Team (EMT). The overall process for decision making in this project is shown in figure 6.

Figure 5 GEUDP Institutional Framework

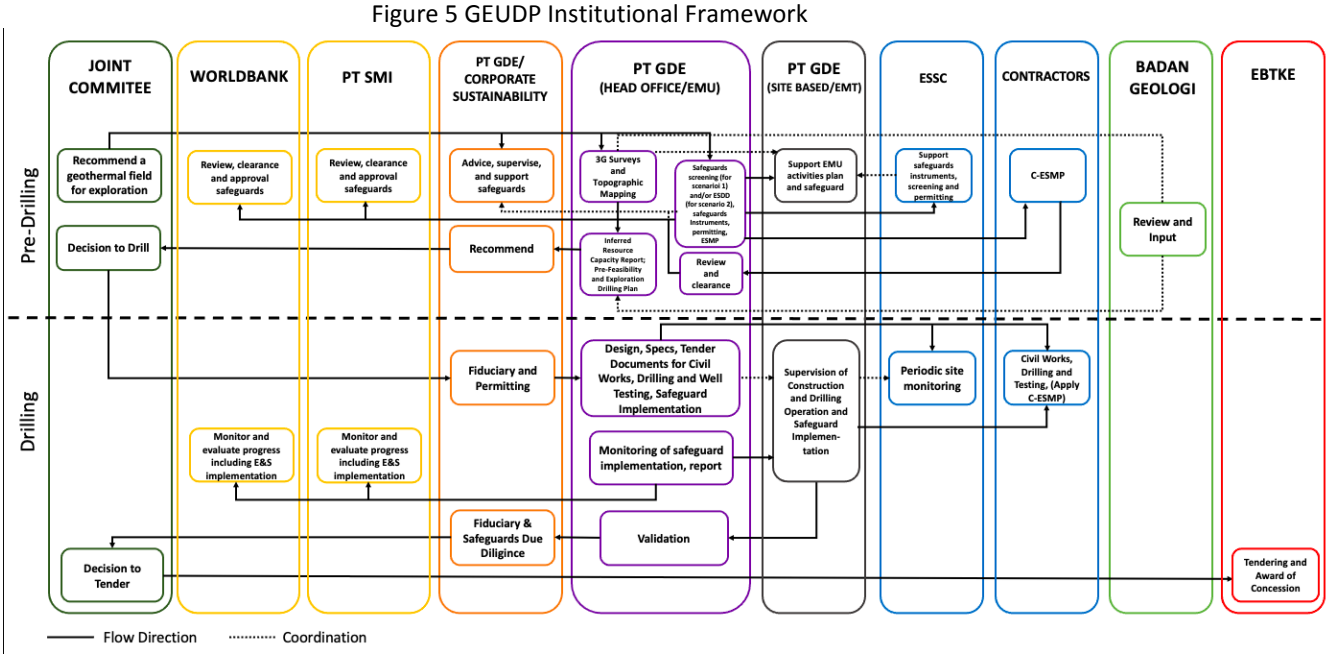
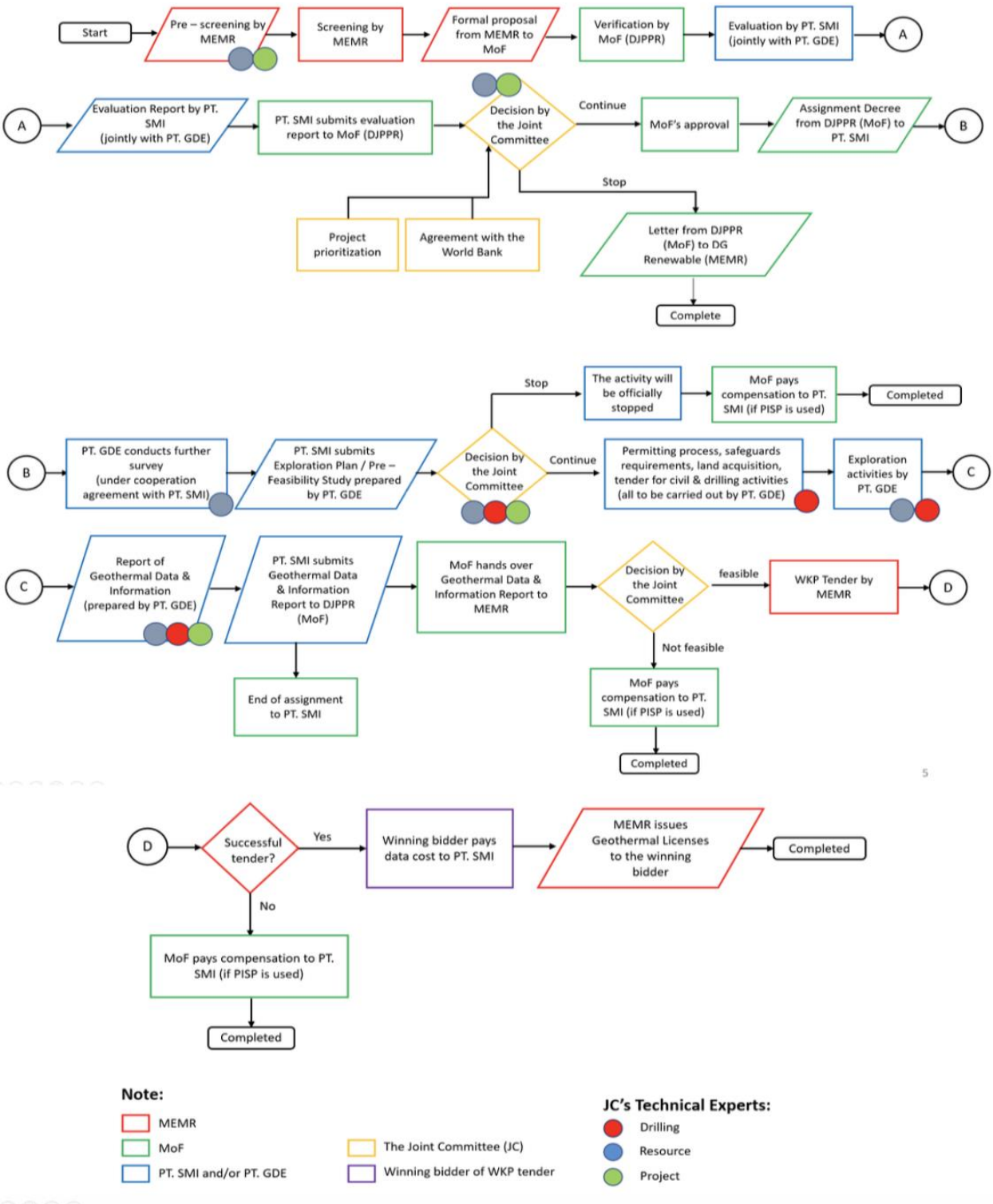


Figure 6 Project Decision-Making Process Flow Chart



218. PT GDE General Affairs will coordinate with the EMU Safeguard Team to continue the land acquisition process for Waesano sub-project that has been started by PT SMI including obtain agreement with the local government for all current land acquisition and future land acquisition required for enlargement and extension of the access road of Wae Sano. PT GDE will also be responsible to carry out all land acquisition process for the remaining sub-projects as required with the support from the EMT.

219. EMU Safeguards Team will be responsible for ensuring compliance with the ESMF, IPPF and RPF, including review and clearance of the Contractor's-ESMP. The EMT Safeguards Team is responsible for the day-to-day oversight of the Contractor's CESMP implementation, and the overall safeguards management and monitoring implementation at site, identifying risks and near misses and responding to incidents, grievances etc. PT SMI and World Bank will oversee and monitor safeguards implementation. PT SMI and World Bank will review all safeguards instruments that are provided by the EMU.

9.2 Safeguards Roles and Responsibilities

220. PT GDE has a Corporate Sustainability team, which will be involved in the fulfillment of safeguards requirements under the GEUDP with the following main roles and responsibilities: i) providing capacity building for the GEUDP projects team related to implementation of ESMF requirements (and applicable WB Safeguard Policies) ii) reviewing and providing feedback on environmental and social management plan, safeguard instruments and procedures, and iii) advising the EMU safeguards team for continual improvement of GEUDP project environmental, health, safety and social risks and impacts management. In addition, PT GDE's Corporate Health, Safety and Environment (HSE) will provide advice to EMU Safeguards Team on environmental issues and HSE implementation for all sub-projects.

221. PT GDE has set up an EMU to implement the Project, which will include a Safeguards Team consisting of Social Staff, Environment Staff, Health, Safety, and Environment (HSE) Staff, and Government Relations Staff under an Assistant Manager. This team will be responsible for safeguards screening, safeguards document preparation, review, and clearance of the Contractor's-ESMP, and the oversight of safeguards implementation for each sub-project with advice from PT GDE Corporate Sustainability.

222. The site-based EMT will include a Safeguards Team that consists of HSE and social-community liaison personnel and will monitor and report the implementation of Contractor's ESMP (C-ESMP). The team personnel will also assist with land acquisition implementation and be responsible for community liaison, complaints and grievance redress and environmental and social monitoring.

223. The EMU and EMT safeguards teams will be assisted by the ESSC, which will provide a full range of technical services in support of the evaluation of prospect area, undertaking of environmental

and social preliminary screening of prospect areas, environmental and social studies and related reports, permitting and land acquisition.

224. For all sub-projects, PT GDE as the Developer will own or lease the land and be responsible for paying entitlements, support and other compensation under the LARAP. These activities will be conducted by PT GDE Land Acquisition Team in coordination with the local government.

Table 10 Safeguards Roles and Responsibilities

Institution	**Roles and Responsibilities**
PT GDE as an Implementing Agency	
PT GDE Corporate Sustainability	Advice, supervise and support the EMU on the social management plan and safeguard instruments and the implementation of ESMF, LARAP, SEP, and IPP. Provide capacity building for GEUDP projects team.
PT SMI Safeguard	Together with World Bank Safeguard Specialists to review and providing clearance on safeguard instruments prepared by PT GDE, including ESDD and CAP. Supervise the implementation of GEUDP ESMF and sub-project safeguards instruments through document reviews, site visits and communications with the EMU Safeguards Team.
EMU	Provide sufficient resources (staff and budget) for safeguards personnel and consultants to undertake their roles and responsibilities.
EMU Safeguards Team	Implement GEUDP ESMF and sub-projects safeguards instruments. Oversee preparation of sub-projects' safeguards implementation, including the review and clearance for Contractor-ESMP (CESMP), in compliance with GEUDP ESMF and in quality acceptable by the World Bank. Coordinate with PT GDE Corporate Sustainability to provide training to EMU and EMT on safeguards instruments, environmental and social screening, impact assessment and management, and other aspects of World Bank safeguards policies. In coordination with PT SMI and the World Bank to provide technical training where relevant. Preparation of safeguard instrument, safeguards implementation and monitoring for all works in all sub-projects Manage safeguards via a management plan, keeping track of resources, tasks, timeframes etc. for each sub-project. Basic screening checklists for each geothermal exploration sub-projects.

Institution	Roles and Responsibilities
	Detailed screening checklists, including the management of consultants' outputs, for each geothermal exploration sub-project. Oversee and provide screening reports to BG and EMU. Prepare TOR for sub-project safeguard instruments, estimate budgets and manage the procurement of safeguards consultants. Manage the preparation of instruments by the consultants, review draft safeguard instruments and provide comments. Clear safeguards instruments for disclosure and approval processes. Lead sub-project consultation, in partnership with safeguards consultants and local government. Implement the sub-project ESMP and UPL / UKL, including managing that is not the responsibility of the Contractor. Review TOR for Contractors for inclusion of safeguards aspects, draft technical specifications, bid documents, Contractors contracts and provide comment. Review draft pre-feasibility reports and provide comment. Responsible for developing Stakeholder Engagement Plans. Supervise implementation of the LARAP. Implement the IPP together with EMT Safeguards Team. Supervise project implementation and review monitoring report related to implementation of ESMP, IPPF (if required) and RPF documents. Audit HSE EMT supervision reports on a regular basis, including site visits and audits of reports. Manage the grievance redress mechanism (GRM), including coordination with Contractors' GRM, EMT grievance redress and PT GDE Corporate GRM system. Follow up and close out incidents, complaints and non-conformances. Provide safeguards input and recommendations to Ministry of Energy and Mineral Resources for tendering geothermal prospects. The team must be willing to present information to the wider team that may conflict with the technical and economic assessment of feasibility, in order to prevent potentially significant impacts from geothermal development. Prepare quarterly safeguards implementation reports to World Bank and other stakeholders. Maintain and update framework documents as required.

Institution	Roles and Responsibilities
	Carry out ESDD, gap analysis, and proposed CAP (for scenario 2 requirements). Implement CAP or other required safeguard instrument (if required).
Exploration Management Team (EMT)	Supervise contractors' activity include construction and drilling operation in accordance with ESMP and C-ESMP. Support activities plan and safeguards during pre-drilling stage, such as 3G survey, civil design, topographic mapping, etc. Ensure the site activities will be progressed consistently by following occupational health and safety procedures.
EMT Safeguards Team	Supervision of Contractors' ESMP, HSMP, compliance management, non-conformance management, and issuance of penalties on a day-to-day basis, with reports to the EMU Safeguards Team. Provide training to Contractors as required on technical matters of environmental and social impact mitigation (e.g. sediment and erosion control). Provide technical training to Contractors on GRM, complaints management, community engagement and other aspects of environmental and social impact mitigation where necessary, or recruit consultants to perform training. Manage local stakeholder engagement and community liaison, and respond to complaints and grievances. Environmental and social monitoring.
Other Stakeholders – MEMR, World Bank, ESSC and Contractors	
GoI Entity (i.e. MEMR)	The Proponent of the GEUDP Coordination with MoF, MoEF, other relevant Central Government Institutions and Local Government Provide support on the safeguard permitting process and the implementation of safeguard instruments To involve in the resolve of social issues and other related issues
ESSC	As required, under the supervision of the EMU Safeguards Team: Prepare detailed safeguard screening. Prepare safeguards instruments – ESIA, ESMP, UKL/UPL, IPP, LARAP. Prepare Stakeholder Engagement Plans and assist PT GDE with consultation.

Institution	Roles and Responsibilities
	Provide environmental and social monitoring services as part of ESMP, UPL / UKL Provide TA for projects such as IPP implementation or biodiversity management and forest partnership agreements under ESMP. Provide GRM monitoring services. Provide specialist training on Contractors ESMP, mitigation and management of impacts during drilling, road construction etc., safeguards management systems, consultation and other topics as required. Provide independent monitoring of LARAP implementation and voluntary land transactions. Support PT GDE to conduct ESDD and proposed CAP.
Contractors (civil and drilling)	Full compliance with the ESMP and UPL / UKL throughout the contract. Provision of Safeguards Managers and Officers on site throughout the Contract. Prepare a comprehensive Contractors ESMP and HSMP before works begin. Implement the Contractors ESMP and HSMP throughout the Contract, including community engagement, avoidance and management of impacts, monitoring, GRM, incident management, training and other tasks. Construct, maintain and decommission ponds in accordance with designs and specifications provided by qualified and experienced engineers. Comply with the laws of Indonesia and obtain any permits as necessary (hazardous waste, blasting and explosives, etc.). Provide reports to EMT Safeguards Team. Undergo training as required. Ensure all staff are suitably trained, and have suitable protective equipment at all times.

The overview of the tasks and responsibilities are demonstrated in the following figures.

Figure 7 Environmental and Social Safeguards Organization Chart of PT GDE for Waesano

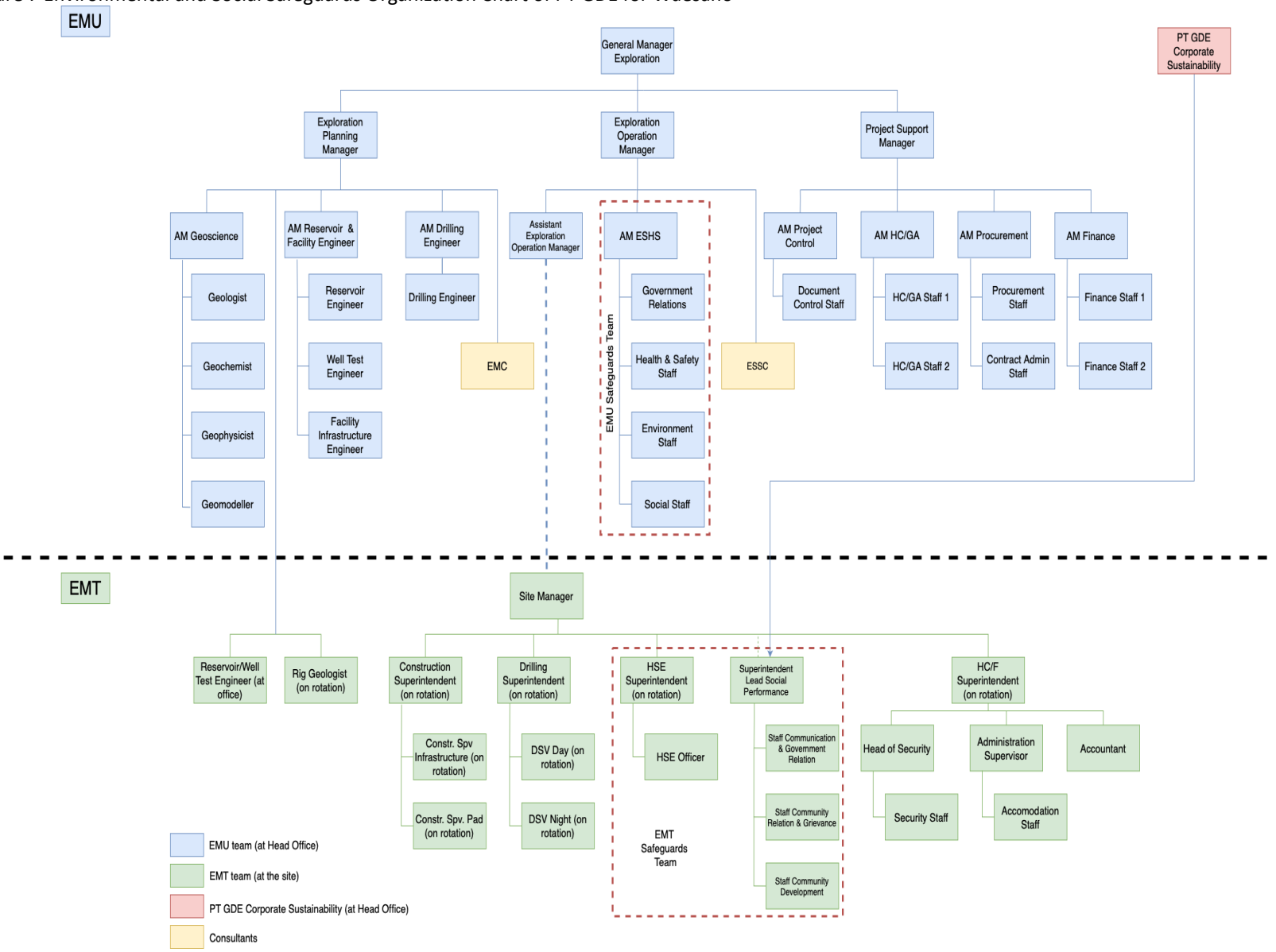
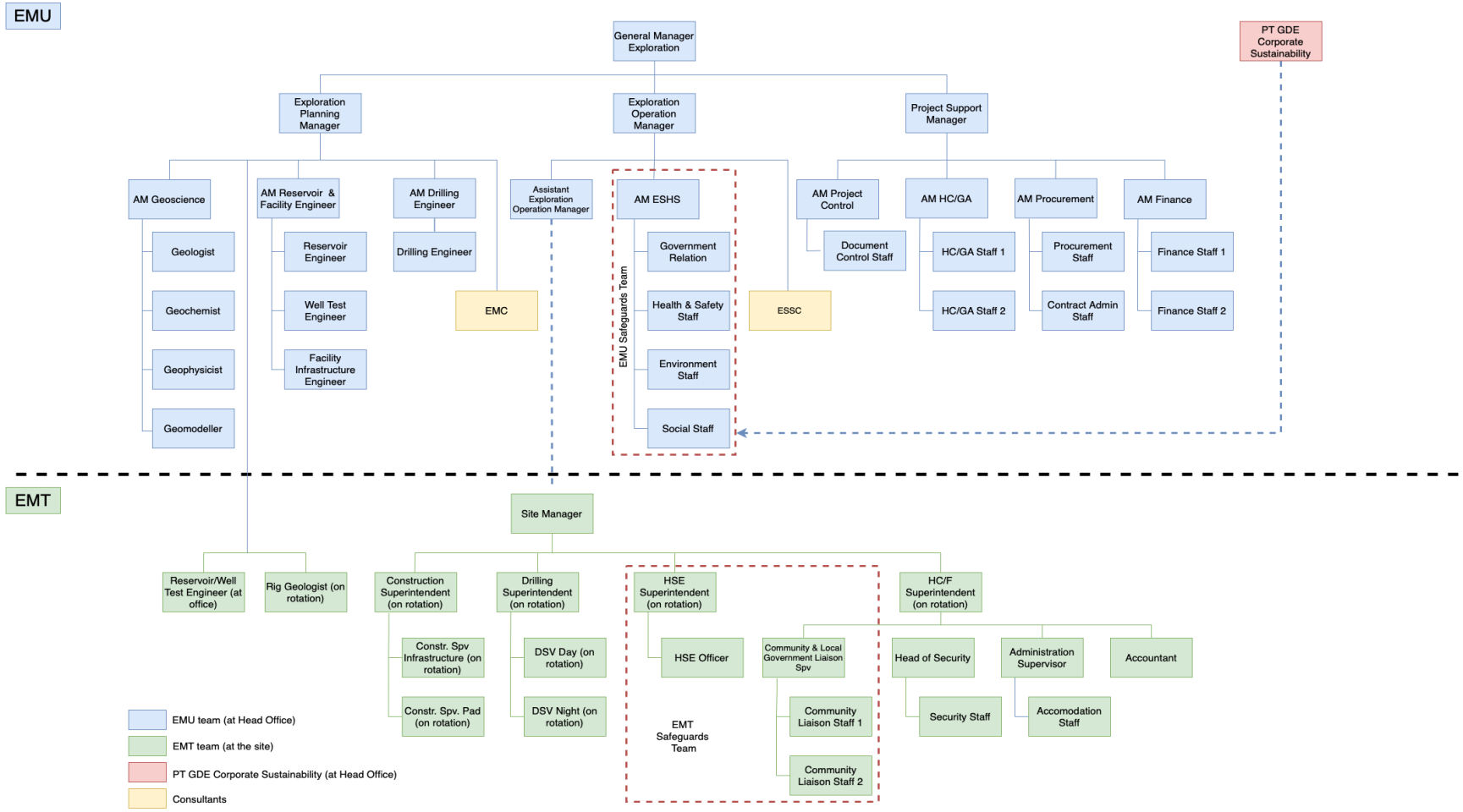


Figure 8 Environmental and Social Safeguards Organization Chart of PT GDE for other sub-projects [21]



[21] The Environmental and Social Safeguards Organization Chart in Figure 7 is specifically applied only in Waesano. Meanwhile, the Environmental and Social Safeguards Organization Chart for other sub-projects is shown in Figure 8. However, it does not rule out the possibility that the organization chart for Waesano will be applied in other sub-projects. It will be adjusted accordingly to the needs of the project.

Figure 9 Sub-project Preparation Phase

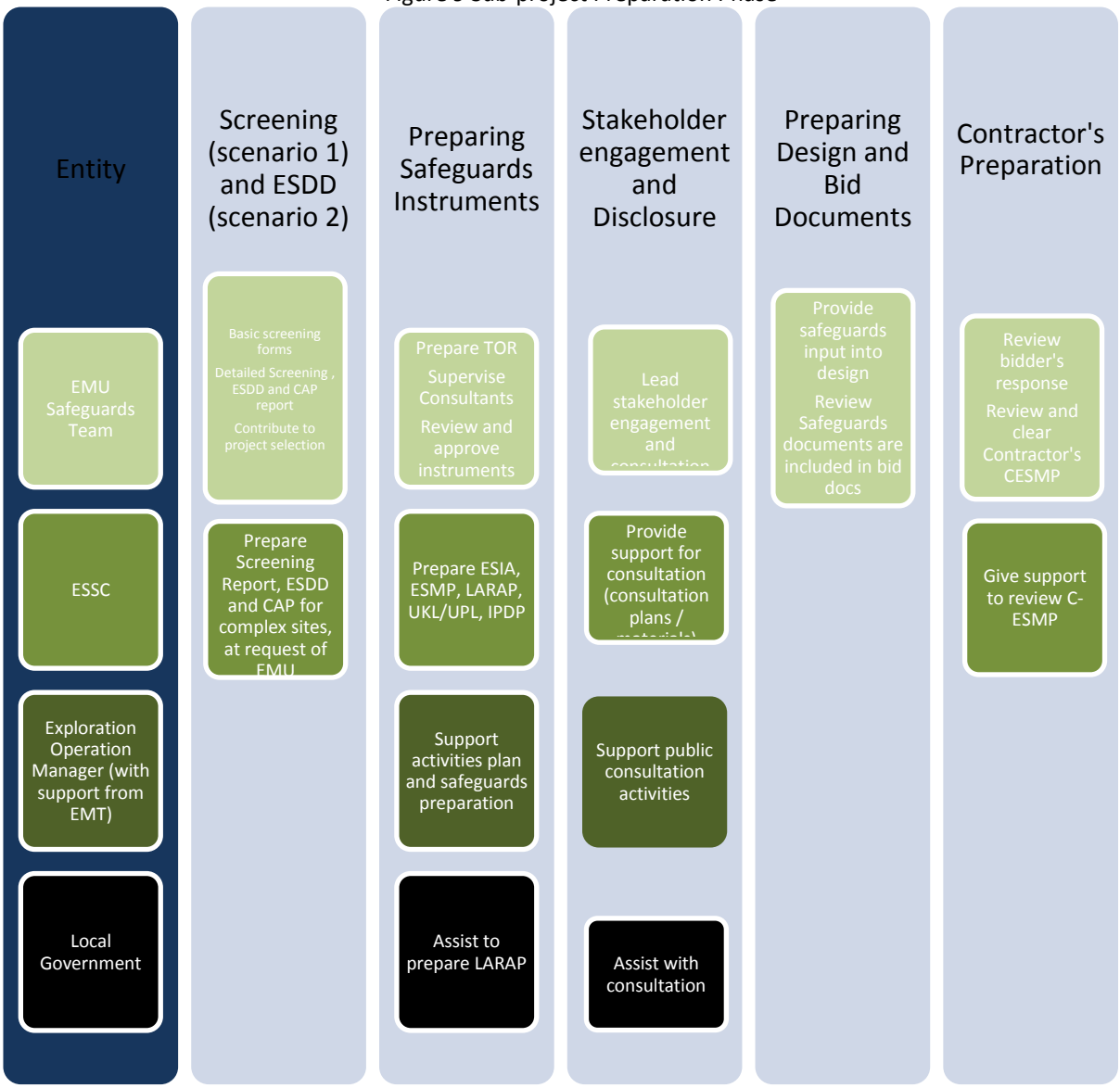
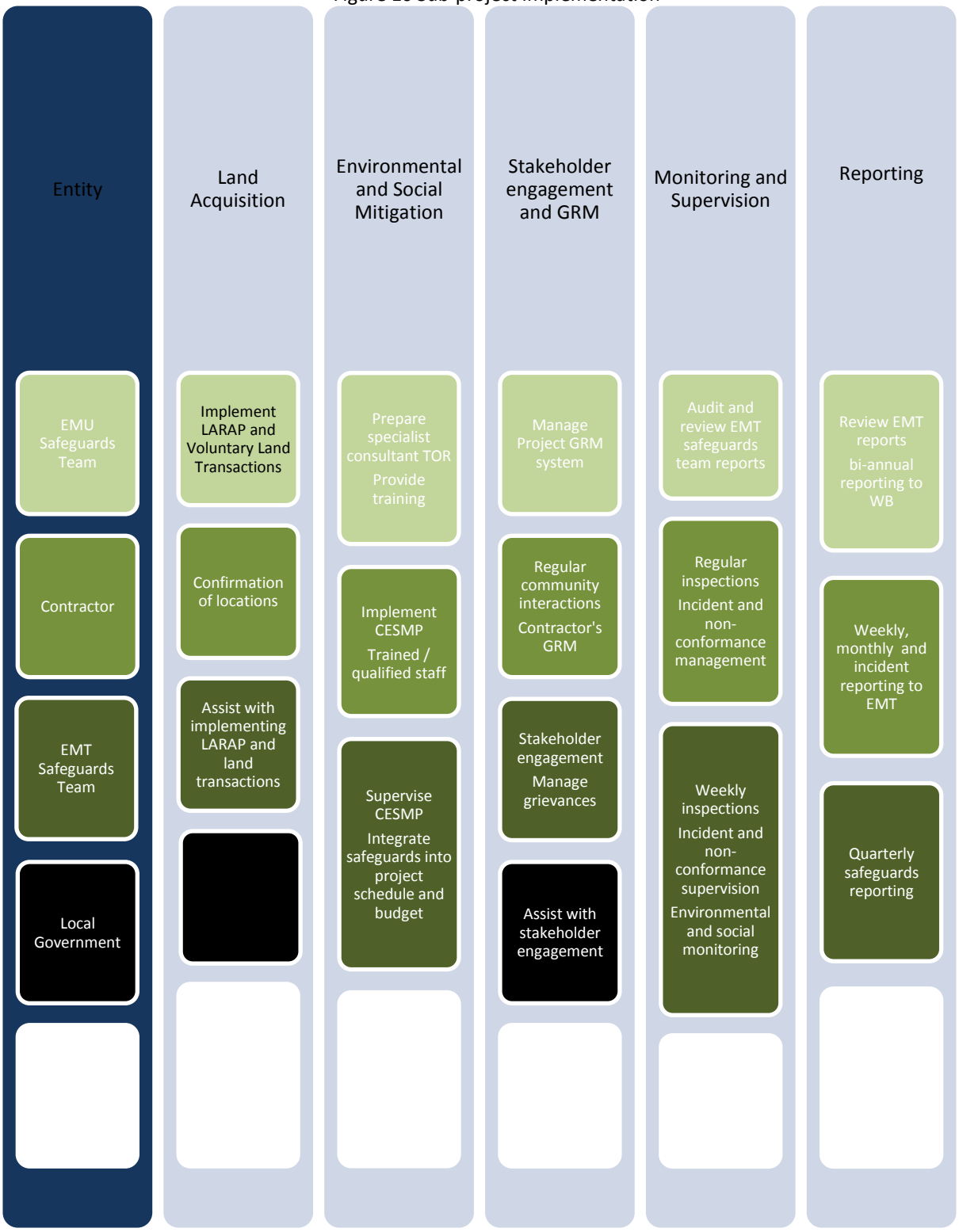


Figure 10 Sub-project Implementation



9.3 PT GDE and PT SMI Environmental and Social Management System

A. PT GDE

225. PT Geo Dipa Energi (Persero) - PT GDE was established in 2002 as a joint venture of Pertamina and PLN to manage geothermal field. In 2011, PT GDE was designated as state-owned enterprise (SOE) established as a special mission vehicle to implement the GoI's objective to accelerate the development of geothermal resources in Indonesia. Owned by 93% MoF and 7% PLN (the state utulity company). PT GDE has core experience in managing geothermal energy projects for the operation stage. Currently it is embarking on its first project to start exploration drilling activities in Candradimuka field. PT GDE has in-house technical capacity for geoscience, drilling and safeguards management. As such, PT GDE serves and plays active role in geothermal activities in Indonesia.

226. PT GDE has not developed a specific Operations Manual and Environmental and Social Management System (ESMS) on corporation level but has been available on the unit operation level. In order to support this project, PT GDE will going to make ESMS based on the country system (i.e. Indonesian regulations), IFC performance standards, World Bank Safeguards Policies and other development partners' safeguards policies and will be heavily weighted to environmental management (with gaps in terms of social impact management, land acquisition, and health and safety).

227. Supervising and supporting the EMU Safeguards Team on the ESMS establishment and the implementation of the ESMF, RPF and IPPF will performed by:
    a. Health safety environment (HSE) for environmental issues.
    b. General Affair (GA) for land issues.
    c. PT GDE Corporate Sustainability for social issues.

B. PT SMI

228. PT SMI has extensive experience in managing World Bank's and other donors' safeguards policies under the Investment Guarantee Fund (IGF), Indonesia Infrastructure Facility Fund (IIFF) and the Regional Infrastructure Development Fund (RIDF). PT SMI is an infrastructure financing company established in 2009 as a state-owned enterprise (SOE) wholly owned by the GoI through the Ministry of Finance (MOF). PT SMI plays active role in facilitating infrastructure financing, as well as preparing projects and serving in an advisory role for infrastructure projects in Indonesia. PT SMI supports the government's infrastructure development agenda through public-private partnerships with private and multilateral financial institutions. As such, PT SMI serves as a catalyst in accelerating infrastructure development in Indonesia.

229. PT SMI has developed a specific Operations Manual and Environmental and Social Management System (ESMS) for use on its programs supporting local government investments through

various infrastructure funds. PT SMI's Environmental and Social Management System (ESMS) is based on the country system (i.e. Indonesian regulations), and heavily weighted to environmental management (with gaps in terms of social impact management, land acquisition, and health and safety).

230. The ESMS has processes to screen proposed projects, determine environmental and social risk level, and carry out due diligence assessment, all of which will determine the gaps of meeting the requirements specified in the ESMS. A third party project proponent seeking financing via a PT SMI-administered fund is required to prepare a corrective action plan (CAP) to address the gaps identified in the due diligence assessment and meet the requirements specified in the ESMS.

231. The ESMS is overseen by ESS Division of PT SMI, headed by an experienced team head, that consist of environmental and social specialists. Considering the heavy workload of the ESS Division, PT SMI could mobilize external environmental and social specialists as consultants.

232. PT SMI will oversee and support PT GDE and the EMU Safeguards Team on the implementation of the ESMF, RPF and IPPF.

9.4 Capacity Building

233. The GEUDP project design includes capacity building for safeguards in the geothermal industry in Indonesia (TA Component 2).

234. Currently, the EMU has twenty-one personnel in Jakarta office, including two personnel of Safeguards Team. PT GDE will recruit two additional personnel to fill the EMU Safeguards Team. In Waesano, the EMT Safeguards Team consists of one HSE personnel and three Social personnel. PT GDE Corporate Sustainability has three personnel and two advisors. PT GDE also has Corporate HSE and General Affair that will provide advice to prepare and implement safeguards. If further needed, the consultant(s) might be hired to support the EMU Safeguards Team's responsibilities, particularly for doing specialist study work and preparing safeguards instruments.

235. PT GDE Corporate Sustainability together with EMU safeguards team will provide safeguards trainings to all project personnel, including training on, among others GEUDP ESMF, RPF and IPPF, and sub-project ESMPs. Safeguards training sessions will be held at least annually for new team members, to update stakeholders on external changes (legal requirements, safeguards, etc.), for operational experience-sharing, and to communicate revisions carried out in the ESMF. Refresher trainings will be carried out periodically throughout project implementation.

236. All staff and consultants working on the GEUDP, including the EMT, will take part in these trainings at the beginning of project implementation, to ensure that all parties understand their roles and obtain the required skills. It will cover the sub-project cycle and the milestones for safeguards tasks, supervision, communication and reporting expectations, clear assignment of roles and responsibilities, and where gaps may require filling through employment of additional staff or consultants. Attendees will include PT GDE EMU managers and safeguards staff, EMT, MEMR, and MoF staff.

237. Topics will include:

- Environment and social issues linked to geothermal development in Indonesia;
- Indonesian governance framework and legal requirements applicable to GEUDP projects;
- Environment and social safeguards frameworks and management systems;
- ESMF structure and objectives (including RPF and IPPF);
- Operationalization of ESMF, RPF and IPPF, comprising assessment processes integrated in project cycle through case studies (screening, identifying legal requirements, impact assessment, identifying mitigation measures, categorization);
- Responsibilities for land transactions and implementation of RPF and LARAP;
- Monitoring of projects – What to monitor/measure, why and how often;
- Impact assessment of projects (environmental and social);
- Internal and external audit (objectives, protocol, reporting, corrective actions);
- Document management (update to framework documents based on external and internal changes, revisions in formats for recording information).

238. Safeguards training is also planned as follows:

Capacity Building	**Audience / Participants**	**Trainer**	**Program**
Supervision of ESIA and LARAP consultants On the job training and mentoring	EMU Safeguards Team	PT GDE Corporate Sustainability with support from World Bank Safeguard Specialists	Throughout the project.
Supervision of Construction Safeguards, including Contractors ESMP and management of non-conformances and incidents.	EMT Safeguards Team	PT GDE Corporate Sustainability and Corporate HSE with support from World Bank Safeguard Specialists	Once prior to preparation of first sub-project bid documents.

Capacity Building	Audience / Participants	Trainer	Program
Workshop / interactive learning environment.			
Preparing and implementing a Contractors' ESMP.	Contractor	PT GDE Corporate Sustainability and Corporate HSE with support from World Bank Safeguard Specialists	After contract negotiation prior to preparation of Contractor's ESMP and start of drilling works. At least once per sub-project
Technical training on aspects of safeguards management	Contractor	PT GDE Corporate Sustainability with support from Consultant, Industry training organization.	As required through the project, for specific aspects identified through the ESMP, non-conformance or incident.

239. EMU Safeguards Team will maintain records of the training programs, including details such as agenda, duration, trainers and trainers' qualifications for conducting training, and participants' attendance sheet. EMU Safeguards Team will maintain an annual plan for training.

240. The successful implementation of the ESMF, RPF and IPPF depends on project stakeholders. This chapter provides an overview of the GEUDP's institutional arrangements, and the responsibilities of each stakeholder for operationalizing the safeguards instruments. It also provides an analysis of the PT GDE's capacity as the Implementing Agency with key safeguard responsibilities and a plan for capacity building.

10 BUDGET

Table 11 GEUDP Safeguards Budget Estimate

Task	**Cost Estimate $US**	**Notes**
Recruitment of staff in PT GDE E&S Unit	NA	PT GDE cost
Safeguards screening and preparation of ESIA and other safeguards delivering (e.g. ESMP, LARAP, IPP) (consultants)	$700,000	This will be financed from GEF grant.
Independent monitoring of land transactions	$70,000	This will be financed from GEF grant.
Estimate of land transactions and associated compensation for project affected people (both 'willing buyer willing seller' land acquisition and LARAP implementation).	$400,000	This will be financed from CTF Grant
Internal ESMF, RPF and IPPF workshops for GEUDP staff (x4)	$5,000	This will be fully financed from GEF grant.
Mentoring of EMU Safeguards Team and EMT Safeguards Team and on the job training by World Bank safeguards team	NA	WB Supervision budget
Construction safeguards supervision workshops (x4)	$60,000	This will be fully financed from GEF grant.
Assistance preparing Contractors ESMP	$40,000	This will be fully financed from GEF grant.
Technical / thematic training for Contractors and Supervisors	$50,000	This will be fully financed from GEF grant.
Due Dilligence and CAP Report	$50,000	This will be financed from GEF grant.

11 MONITORING AND REPORTING

241. PT GDE EMU shall be responsible for the monitoring and reporting on the efficacy of the environmental and social safeguards implementation. It will be part of an overall project monitoring and reporting system outlined in the GEUDP ESMF and Project Implementation Manual. Safeguards monitoring will include:

(a) EMU Safeguards Team will undertake periodic monitoring of the implementation of the framework documents as part of collecting and analyzing data and information for quarterly project reporting. This includes analyzing the effectiveness of screening and other tools in the frameworks, type and number of training events and people trained, GRM and complaints management, management of quality and timeliness of deliverables from consultants, availability of resources (staff, budget) to undertake framework responsibilities, compliance/non-compliance with frameworks, World Bank safeguard policies and Indonesian laws and regulations.

(b) EMU Safeguards Team will engage an independent monitoring agency to review and audit the implementation of land acquisition if deemed necessary.

(c) The World Bank safeguards team together with PT SMI's safeguards team will undertake supervision missions to monitor compliance and efficacy with the ESMF and compliance with the Bank Safeguard Policies more broadly. Recommendations for improvements will be documented in mission aide memoire.

242. Each sub-project ESMP will contain a specific monitoring program that will document social and environmental impact monitoring and the monitoring of the efficacy of the ESMP, Contractor's ESMP and supervision tasks. This information will contribute to the framework monitoring and reporting. LARAP and IPP will also contain specific monitoring programs for impact monitoring and auditing of procedures for compensation, livelihood restoration and any other community development programs.

243. A matrix of reporting is provided below:

Table 12 Matrix of Safeguards Reporting

Report Type and Content	**Program**	**Responsibility:**	**Reporting to:**
ESMF, RPF and IPPF implementation: Screening reports, Sub-project activities and progress including ESIA, ESDD, and CAP (instrument preparation, implementation, closure)	Quarterly	EMU Safeguards Team	PT SMI and the World Bank simultaneously.

Report Type and Content	Program	Responsibility:	Reporting to:
Monitoring and audit outputs *Complaints/GRM summary* *Incident reports* *Training and capacity building activities.* 1.1.1.1			
Drilling Safeguards Supervision Reporting *Project progress* *Monitoring and audit outputs* *Training* *Complaints / GRM Summary* *Incidents*[22] *Framework updates*	Monthly	EMT Safeguards Team	EMU Safeguards Team
Sub-project ESMP, C-ESMP, UKL/UPL Environmental and Social Monitoring Report	Quarterly	EMT Safeguards Team	EMU Safeguards Team
Sub-project LARAP Independent Monitoring Report	Per semester (Depend on the project's risk and impact)	Consultant	EMU Safeguards Team

[22] Incident reporting will be determined between EMT, Contractor and the EMU Safeguards Team. Very high risk incidents are reported immediately, and low risk incidents a reported weekly.

12 GRIEVANCE REDRESS MECHANISM

12.1 Introduction

244. A grievance mechanism is a process for systematically receiving, investigating, responding to stakeholder complaints. PT GDE promotes transparency and accountability for sustainable infrastructure development in Indonesia, not only from the environmental and social safeguards perspectives but also from the technical, financial, economic and political viewpoints. In this light, PT GDE for all sub-project locations is open to constructive inputs and aspirations from the public and stakeholders of the GEUDP project. The GRM of GEUDP sub-projects shall refer to GRM guidance of PT SMI and the World Bank. Currently, PT GDE already has Grievance Redress Mechanism (GRM) in the unit operation level that already accordance with international standard for exploration project.

12.2 Approach to Grievance Redress

A. PT GDE

245. PT GDE will construct GRM by reflecting to existing PT GDE's GRM in unit operation level to manage GEUDP sub-project grievances. Based on the GRM operation level, the person filing the complaint can seek redress in three levels: (i) at the site through the designated contact person at the site office (i.e. PR staff), the EMT, or the Contractor, (ii) through the GRC (Grievance Redress Committee) that will be built (iii) the appropriate courts of law. Affected person complaining can seek redress through the legal system of the Government of Indonesia at any point in the GRM process. The levels to file a complaint is as follows:

1) **Level 1 – Site Office through the designated contact person (**i.e. PR staff)**.** Complaint to be resolved at the Site Office level (i.e., environment safeguard staff or social safeguard staff, PMC, Contractor) within five working days and advise the Complainant accordingly.

2) **Level 2 – GRC.** When a complaint is not resolved at Level 1, Complainant can submit the complaint to the GRC. The GRC will convene, review the submission and make a decision within 30 days from the date of receipt. The Complainant will be informed of the decision in person or by mail. The Complainant shall be consulted by the GRC when identifying grievance redress options. The GRC may collaborate with relevant agencies (i.e district land office and TP4P/TP4D for land acquisition and involuntary resettlement, District agency of environment) to resolve the complaint.

3) **Third level – Appropriate Courts of Law.** When the complaint remains unresolved, the Complainant will be referred by the GRC to the appropriate courts of law.

246. PT GDE shall ensure that (i) an efficient grievance redress mechanism is in place and functional to assist the affected persons and other stakeholders in resolving queries, conflicts and complaints, if any, in a timely manner; (ii) all complaints are registered, investigated and resolved in a manner consistent with the provisions of GRM detailed in the RP and IEE/EMP; (iii) the complainants/aggrieved persons are kept informed about status of their grievances and remedies available to them; and (iv) adequate staff and resources are available for supervising and monitoring the mechanism.

247. PT GDE will keep a record of the following: (i) contact details of complainant, (ii) date the complaint was received, (iii) nature of complaint and agreed resolution/corrective action, (iv) status of the complaint handling, (v) date the resolution/corrective action was implemented, and (vi) the final outcome. The complaints was not only for complaints regarding the preparation and implementation of LARAP and IPP, but also for handling complaints of any types of issues (including environmental and other social safeguards issues) related to GEUDP projects.

B. PT SMI

248. PT SMI will use their corporate GRM guidance and ensure the GEUDP sub-project implement the GRM system. PT SMI and World Bank will review GRM system that is prepared by GEUDP sub-projects and oversee the implementation of GRM system.

249. The ESS and/or Corporate Secretary Divisions of PT SMI are responsible for the corporate GRM system implementation. It is under and reporting directly to the Director of Risk Management of PT SMI. The ESS and/or Corporate Secretary Divisions will receive all the inputs, complaints, aspirations, ideas that are addressed to PT SMI and will store them in the database. The ESS and/or Corporate Secretary Divisions will then pass them on to the relevant divisions for response.

250. Affected members of the public, stakeholders, IPs communities or individuals, and Project Affected People will be able to file complaints and to receive satisfying responses in a timely manner. The system will record and consolidate complaints and their follow-ups. This system will be designed not only for complaints regarding the preparation and implementation of LARAP and IPP, but also for handling complaints of any types of issues (including environmental and other social safeguards issues) related to GEUDP projects.

251. The purpose of both GRM is to :

- Be responsive to the needs of people impacted by the sub-project and to address and resolve their grievances;
- Serve as a conduit for soliciting inquiries, inviting suggestions, and increasing community participation;
- Collect information that can be used to improve operational performance;

- Enhance the project's legitimacy among stakeholders;
- Promote transparency and accountability; and
- Deter fraud and corruption and mitigate project risks.

12.3 The GEUDP Grievance Redress Mechanisms

252. The GEUDP GRM will be the following:

Step 1: Access point / complaint uptake:

(a) An easily accessible and well publicized focal point or user-facing 'help desk' will be set up within PT GDE and with each drilling Contractor.

(b) Uptake channels will include email, SMS, webpage, and face-to-face. The uptake channels will be publicized and advertised via local media and via the Contractor.

(c) Staff members who receive complaints verbally will put them in writing to be considered. Many complaints may be resolved 'on the spot' and informally by the Contractor or EMT Safeguards staff. Resolutions should be logged to (i) encourage responsiveness; and (ii) ensure that repeated or low-level grievances are being noted in the system.

(d) The Contractor's GRM system will be coordinated with the project GRM so that all complaints are captured within the PT GDE GRM system.

(e) The GRM will have the ability to handle anonymous complaints.

(f) The complainant will be provided with a receipt and 'roadmap' telling him/her how the complaint process works and when to expect further information.

Step 2: Grievance log

(g) All complaints will be logged in writing and maintained in a simple database.

(h) Complaints received will be assigned a number that will help the complainant track progress via the database.

(i) Complainants will be handed a receipt and a flyer that describes the GRM procedures and timeline (staff should be trained to read this orally for illiterate complainants).

(j) Where possible, the grievance log will capture complaints being made via informal or traditional systems, such as village councils or elders.

(k) This will often require training local people and putting in place a formal link between the traditional systems and the GEUDP GRM (this could take the form of a verbal agreement or a written MoU).

(l) At a minimum, the database will track and report publicly the complaints received, complaints resolved and the complaints that have gone to mediation. The database will also show the issues raised and location of complaints circle around.

Step 3: Procedure, Assessment, acknowledgment, and response

(m) Eligibility will be a procedural step to ensure that the issue being raised is relevant to the project.

(n) Complaints that cannot be resolved on the spot will be directed to the grievance focal point within EMU Safeguards team to assess the issue and provide a written response to the complainant, acknowledging receipt and detailing the next steps it will take.

(o) Grievances will be categorized according to the type of issue raised and the effect on the environment/claimant if the impacts raised in the complaint were to occur. Based on this categorization, the complaint will be prioritized based on risk and assigned for appropriate follow up.

(p) Assessment of the issue will consider the following:

i. **Who is responsible for responding to this grievance? Is it the Contractor, EMT, EMU Safeguards Team, or someone else?** It is anticipated that the majority of issues raised during the sub-project preparation will be informational in nature or feedback that requires small course corrections; these should generally be handled by the EMT. During infrastructure and drilling operations, the majority of complaints will be the responsibility of the Contractor.

ii. **What is the risk-level of this complaint?** Is it low risk, medium risk, or high risk? Complaints that constitute a higher-risk issue for the project should be overseen by the Exploration Operation Manager.

iii. **Is the complaint already being addressed elsewhere?** If an issue is already being handled, for example by a local court or mediation body, or within the World Bank, then the issue will be excluded from the grievance redress process in order to avoid duplication and confusion on the part of the complainant.

(q) *Resolution:* Once the above issues have been considered, the complainant will be offered option(s) for resolution of their issue. The option offered is likely to fall into one of the following three categories:

i. The complaint falls under the mandate of EMT or the Contractor and resolution can be offered immediately according to the request made by the complainant. The response

will describe how and when resolution will be provided by the client and the name and contact information of the staff member responsible for it.

ii. The complaint falls under the mandate of Operation Exploration Manager and EMT or the Contractor but various options for resolution can be considered and/or extraordinary resources are required. The focal point will invite the complainant to a meeting to discuss these options.

iii. The complaint does not fall or only partially falls under the mandate of EMU. The focal point will indicate that the complaint has been referred to the appropriate body, which will continue communications with the complainant.

Step 4: Appeals

(r) Where an agreement has not been reached, the complainant will be offered an appeals process. This will be through the national courts, unless the complainant requests facilitation or mediation via a third party.

i. If the complainant accepts the option, and an agreement is reached, implementation will be monitored by the independent monitoring agency and a memo will be signed signalling the complaint has been resolved.

ii. If the complainant does not accept these options or if he/she does but an agreement is not reached, the case will be closed. The complainant may seek redress through courts or other mechanisms available at the country level.

Step 5: Resolve and follow-up

(s) Where there is an agreement between the complainant and EMU or Contractor on how the complaint will be resolved, a memo will be drafted and signed by both parties. After due implementation of it, a new memo will be signed stating that the complaint has been resolved.

(t) All supporting documents of meetings needed to achieve resolution will be part of the file related to the complaint. This will include meetings that have been escalated to an appeals level or are handled by a third party.

(u) EMU Safeguards Team will provide quarterly reports to the public that track the complaints received, resolved, not resolved, and referred to a third party. The World Bank project team will receive either the raw grievance data or the quarterly reports, in order to support the EMU in early identification of developing risks.

(v) The GRM data will be available to feed into World Bank reports to demonstrate responsiveness and early resolution of issues (and help Bank teams identify outstanding complaints in need of attention).

12.4 GRM Assessments for Sub-projects

253. The approach to redress grievance at the sub-project level will involve the following:

(a) Assessment of risks and potential grievances and disputes for each sub-project: The EMU Safeguards Team must understand the issues that are – or are likely to be – at the heart of disputes related to each sub-project, such as clarity over land rights or labor issues. For this, the ESIA consultant must conduct a rapid review of contentious issues, stakeholders, and institutional capacity for each sub-project during the ESIA preparation, strongly relying on existing information from civil society and other non-state institutions. The review must map who the key stakeholders to these issues are and what the nature of the debate is (informed, polarized, etc.). Attention must be paid to the local dispute resolution culture and particularly to the capacity and track-record of stakeholders to settle disputes through mediation or constructive negotiation.

(b) Capacity Assessment: The review must also cover the availability, credibility and capabilities of local institutions to address the issues related to geothermal drilling and exploration activities. For each of the institutions that are expected to deal with these issues, a credibility assessment must be undertaken, based on the following criteria:

i. Legitimacy: is its governance structure widely perceived as sufficiently independent from the parties to a particular grievance?

ii. Accessibility: does it provide sufficient assistance to those who face barriers such as language, literacy, awareness, cost, or fear of reprisal?

iii. Predictability: does it offer a clear procedure with a time frame for each stage and clarity on the types of results it can (and cannot) deliver?

iv. Fairness: are its procedures widely perceived as fair, especially in terms of access to information and opportunities for meaningful participation in the final decision?

v. Rights compatibility: are its outcomes consistent with applicable national and international standards? Does it restrict access to other redress mechanisms?

vi. Transparency: are its procedures and outcomes transparent enough to meet the public interest concerns at stake?

vii. Capability: does it have the necessary technical, human and financial resources to deal with the issues at stake?

254. Action Plan: Action plans must be sub-project-specific, but should focus on tangible steps that can be taken during preparation and implementation to strengthen grievance redress capacity.

APPENDIX A. BASIC SCREENING CHECKLIST

For Scenario 1

Instructions:

Step 1 of the Safeguards Screening Process is to contribute to the early identification of suitable sites for geothermal feasibility studies and exploration development. Complete the basic screening checklist using google earth, maps, technical reports and other published data. Document the data collected to date, and describe the sub-project in basic terms (type of infrastructure that may be required, nature of activities).

The basic screening will also identify potential risks from the exploitation phase.

Provide a short report to accompany the filled in checklist, detailing significant findings and providing recommendations for the feasibility study and the detailed screening process. Attach relevant maps and supporting data. Provide a separate analysis of potential risks from the exploitation phase, noting any new risks or risks that may have more significant impacts.

Sub-project Name:_____

Location:_____

_

Province:_____

Description of Proposed Activities (test well drilling, access roads, workers camps etc.):_____

_____

_____

_____

Description of downstream exploitation project activities that are relevant:

_____

_____

_____

_____

_____

Data collected (tick all that apply, and explain where necessary):	
Topographic maps	
Geothermal prospect and resource data (from technical team)	

Data collected (tick all that apply, and explain where necessary):	
Google earth images	
Land tenure maps / data (forest maps, land ownership maps, land use maps etc.)	
District and Provincial Spatial Plans	
District and Provincial bylaws, policies etc.:	
Demographic data / census data	
Meteorological data	
Published documents or data (list):	

Basic Screening Checklist

Screening Question for Geothermal Exploration Area of Influence* *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	**Answer**		**Relevant Policy**
	Yes? **Unknown but possible?** **Yes, associated with exploitation?** **Rank Significant**, **Moderate** or **Minor Risk** of potential impacts Provide details on map or in checklist and make recommendations for 1) the detailed screening phase and 2) feasibility report	**No?** **Unknown but unlikely?** Low risk. Proceed to the next screening question. Make recommendations for the detailed screening phase for any unknown risks.	
Are there unique or remarkable landscapes or geothermal or geological features in the area?			*OP 4.01 Environmental Assessment*
Are there economic or subsistence livelihoods that rely heavily on natural resources in the proposed area (ecotourism, subsistence agriculture or fisheries, logging, irrigation)?			*OP 4.01 Environmental Assessment* *OP4.36 Forests*
Are there forests, lakes, wetlands, peatlands, coastal areas, rivers in the area?			*OP4.04 Natural habitat* *OP4.36 Forests*

Screening Question for Geothermal Exploration Area of Influence* *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	**Answer**		**Relevant Policy**
	Yes? **Unknown but possible?** **Yes, associated with exploitation?** **Rank Significant**, **Moderate** or **Minor Risk** of potential impacts Provide details on map or in checklist and make recommendations for 1) the detailed screening phase and 2) feasibility report	**No?** **Unknown but unlikely?** Low risk. Proceed to the next screening question. Make recommendations for the detailed screening phase for any unknown risks.	
Are there any endangered or critically endangered species likely to be in the area?			*OP4.04 Natural habitats*
Are there any protected areas (such as national parks, conservation areas etc.) in the area?			*OP4.04 Natural habitats* *OP4.36 Forests*
Are there any nationally or internationally significant cultural sites, archaeological sites, spiritual sites, or other PCR in the area?			*OP4.09 Physical Cultural Resources*

Screening Question for Geothermal Exploration Area of Influence* *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	**Answer**		**Relevant Policy**
	Yes? **Unknown but possible?** **Yes, associated with exploitation?** **Rank Significant**, **Moderate** or **Minor Risk** of potential impacts Provide details on map or in checklist and make recommendations for 1) the detailed screening phase and 2) feasibility report	**No?** **Unknown but unlikely?** Low risk. Proceed to the next screening question. Make recommendations for the detailed screening phase for any unknown risks.	
Is there a possibility that Indigenous People[23] will be present in the area so that specific consultation and a Social Assessment is required?			*OP4.10 Indigenous Peoples*
Is there communally owned land or resources in the area so that land acquisition may be complicated?			*OP4.12 Involuntary Resettlement*
Is there private land or forestry land where land acquisition can be negotiated? (Note that 'yes' is a positive aspect of the project).			*OP4.12 Involuntary Resettlement*

[23] Ethnic communities, minorities, indigenous communities, as per the defining characteristics listed in section 7.

Screening Question for Geothermal Exploration Area of Influence* *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	**Answer**		**Relevant Policy**
	Yes? **Unknown but possible?** **Yes, associated with exploitation?** **Rank Significant**, **Moderate** or **Minor Risk** of potential impacts Provide details on map or in checklist and make recommendations for 1) the detailed screening phase and 2) feasibility report	**No?** **Unknown but unlikely?** Low risk. Proceed to the next screening question. Make recommendations for the detailed screening phase for any unknown risks.	
Is it likely that people will be restricted from accessing protected areas for livelihood purposes?			*OP4.12 Involuntary Resettlement*
Other risks or benefits identified not on the list:			

For Scenario 2

Instructions:

Step 1 of the Safeguards Screening Process is to contribute to the early identification of suitable sites for geothermal feasibility studies and exploration development. Complete the basic screening checklist using google earth, maps, technical reports and other published data. Document the data collected to date, and describe the sub-project in basic terms (type of infrastructure that may be required, nature of activities).

The basic screening will also identify potential risks from the exploitation phase.

Provide a short report to accompany the filled in checklist, detailing significant findings and providing recommendations for the feasibility study and the detailed screening process. Attach relevant maps and supporting data. Provide a separate analysis of potential risks from the exploitation phase, noting any new risks or risks that may have more significant impacts.

Sub-project Name:_____

Location:_____

_

Province:_____

Description of Proposed Activities (test well drilling, access roads, workers camps etc.):_____

_____

_____

_____

Description of Existing Activities completed or still underway :

_____

_____

_____

Description of Existing Environmental and Social Instruments, permits, and other secondary information available:

_____

_____

_____

_____

Description of downstream exploitation project activities that are relevant:

_____

_____

_____

_____

_____

Data collected (tick all that apply, and explain where necessary):	
Topographic maps	
Geothermal prospect and resource data (from technical team)	
Google earth images	
Land tenure maps / data (forest maps, land ownership maps, land use maps etc.)	
District and Provincial Spatial Plans	
District and Provincial bylaws, policies etc.:	
Layout map of existing activities	
Demographic data / census data	
Meteorological data	
Published documents or data (list):	

Basic Screening Checklist

Screening Question for Geothermal Exploration Area of Influence* *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	**Answer**		**Relevant Policy**
	Yes? **Unknown but possible?** **Yes, associated with exploitation?** **Rank Significant**, **Moderate** or **Minor Risk** of potential impacts Provide details on map or in checklist and make recommendations for 1) the detailed screening phase and 2) feasibility report	**No?** **Unknown but unlikely?** Low risk. Proceed to the next screening question. Make recommendations for the detailed screening phase for any unknown risks.	
Are there unique or remarkable landscapes or geothermal or geological features in the proposed area?			*OP 4.01 Environmental Assessment*
Are there economic or subsistence livelihoods that rely heavily on natural resources in the proposed area and existing activities (ecotourism, subsistence agriculture or fisheries, logging, irrigation)?			*OP 4.01 Environmental Assessment* *OP4.36 Forests*

Screening Question for Geothermal Exploration Area of Influence* *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	**Answer**		**Relevant Policy**
	Yes? **Unknown but possible?** **Yes, associated with exploitation?** **Rank Significant**, **Moderate** or **Minor Risk** of potential impacts Provide details on map or in checklist and make recommendations for 1) the detailed screening phase and 2) feasibility report	**No?** **Unknown but unlikely?** Low risk. Proceed to the next screening question. Make recommendations for the detailed screening phase for any unknown risks.	
Are there forests, lakes, wetlands, peatlands, coastal areas, rivers in the proposed area or existing activities?			*OP4.04 Natural habitat* *OP4.36 Forests*
Are there any endangered or critically endangered species likely to be in the proposed area and existing activities?			*OP4.04 Natural habitats*
Are there any protected areas (such as national parks, conservation areas etc.) in the proposed area or existing activities?			*OP4.04 Natural habitats* *OP4.36 Forests*

Screening Question for Geothermal Exploration Area of Influence* *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	Answer		Relevant Policy
	Yes? **Unknown but possible?** **Yes, associated with exploitation?** **Rank Significant**, **Moderate** or **Minor Risk** of potential impacts Provide details on map or in checklist and make recommendations for 1) the detailed screening phase and 2) feasibility report	**No?** **Unknown but unlikely?** Low risk. Proceed to the next screening question. Make recommendations for the detailed screening phase for any unknown risks.	
Are there any nationally or internationally significant cultural sites, archaeological sites, spiritual sites, or other PCR in the proposed area and existing activities?			*OP4.09 Physical Cultural Resources*
Is there a possibility that Indigenous People[24] will be present in the proposed area and existing activities so that specific consultation and a Social Assessment is required?			*OP4.10 Indigenous Peoples*

[24] Ethnic communities, minorities, indigenous communities, as per the defining characteristics listed in section 7.

Screening Question for Geothermal Exploration Area of Influence* *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	**Answer**		**Relevant Policy**
	Yes? **Unknown but possible?** **Yes, associated with exploitation?** **Rank Significant**, **Moderate** or **Minor Risk** of potential impacts Provide details on map or in checklist and make recommendations for 1) the detailed screening phase and 2) feasibility report	**No?** **Unknown but unlikely?** Low risk. Proceed to the next screening question. Make recommendations for the detailed screening phase for any unknown risks.	
Is there communally owned land or resources in the proposed area and existing activities so that land acquisition may be complicated?			*OP4.12 Involuntary Resettlement*
Is there private land or forestry land where land acquisition can be negotiated in the proposed area and existing activities? (Note that 'yes' is a positive aspect of the project).			*OP4.12 Involuntary Resettlement*
Is it likely that people will be restricted from accessing protected areas for livelihood purposes in the proposed area and existing activities?			*OP4.12 Involuntary Resettlement*

Screening Question for Geothermal Exploration Area of Influence* *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	**Answer**		**Relevant Policy**
	Yes? **Unknown but possible?** **Yes, associated with exploitation?** **Rank Significant**, **Moderate** or **Minor Risk** of potential impacts Provide details on map or in checklist and make recommendations for 1) the detailed screening phase and 2) feasibility report	**No?** **Unknown but unlikely?** Low risk. Proceed to the next screening question. Make recommendations for the detailed screening phase for any unknown risks.	
Other risks or benefits identified not on the list:			

APPENDIX B. DETAILED SCREENING CHECKLISTS

For Scenario 1

Instructions:

Competent environmental and social specialists will be engaged to complete the detailed screening.

Using the feasibility study and other technical information on the geothermal resource and exploration potential, and the results of the basic screening process, undertake a safeguard screening process to identify environmental and social risks, World Bank policies triggered, and safeguards instruments required. Use the checklist as a prompt and for documenting results.

Screening Activities:

a. Review published data, carry out field visits, gather primary data, and consult with the local environmental and planning agencies to discuss their spatial plans and bylaws, assess institutional capacity and consult with key informants / stakeholders.
b. Map the potential area of influence of geothermal exploration activities, based on technical data on the location of well sites and key infrastructure (roads, camps, wharf upgrades etc.).
c. Map the potential area of influence that would include associated, linked, or downstream activities (e.g. exploitation activities: power plant, production wells, and transmission or distribution lines).
d. Identify sensitive receptors in the project area of influence such as: forests, natural habitats (terrestrial and aquatic), protected areas (national parks, conservation areas), sites of ecological importance, communities, community assets, land owners, indigenous people and/or their lands / domain, communal land / resources, physical cultural resources, geothermal features, landscapes and geological forms.
e. Identify land tenure and land uses. Identify water users and uses. Identify applicable local laws and planning frameworks.
f. Identify stakeholders and their sentiment about geothermal development.
g. Using professional opinion and experience assess potentially significant impacts on sensitive receptors from the exploration activities. Address and answer each question in the checklist.
h. Policy trigger: From the checklist, identify the policies triggered by the sub-project (including linked activities).
i. Category Screening: Classify the sub-project as Category A if any one of the answers in the checklist triggers an A, otherwise classify the sub-project as Category B. If any of the aspects of the linked activities triggers an A sub-project will be classified as Category A.
j. Safeguard instruments: List all of the relevant instruments as per the screening checklist. Note where specific tasks for the ESIA are required, such as Social Assessment for Indigenous Peoples.

Reporting:

k. Provide a full report with the details as listed above, supporting data and maps, and the completed checklist as described in Section 5.3.5.

Sub-project Details

Sub-project Name:_____

Location:_____

Province:_____

Description of Proposed Activities:_____

_____

_____

_____

Significant Sensitive Receptors:_____

_____

_____

_____

Description of Linked Activities:_____

_____

_____

_____

Significant Sensitive Receptors of Linked Activities_____

_____

_____

_____

Safeguard Screening, Policy Triggering and Safeguard Instrument Checklist

Question *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	**Answer**		**If Yes** **Policy triggered**	**Category and Safeguard Instrument**
	Yes Significant, Moderate, Minor	No		
Are the sub-project impacts likely to have significant adverse **environmental** impacts that are sensitive,[25] diverse or unprecedented?[26] Provide brief description:			*OP 4.01 Environmental Assessment*	If "No": Category B If "Yes": Category A ESIA, ESMP, UKL/UPL
Are the project impacts likely to have significant adverse **social** impacts that are sensitive, diverse or unprecedented? Provide a brief description.			*OP 4.01 Environmental Assessment*	If "No": Category B If "Yes": Category A ESIA, ESMP, UKL/UPL
Do the impacts affect an area broader than the sites or facilities subject to physical works and are the significant adverse environmental impacts irreversible? Provide brief description:			*OP 4.01 Environmental Assessment*	If "No": Category B If "Yes": Category A ESIA, ESMP, UKL/UPL

[25] Sensitive (i.e., a potential impact is considered sensitive if it may be irreversible, e.g., permanently affect significant landscape features.

[26] Large scale induced slash and burn agricultural development into forested areas.

Question *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	Answer		If Yes Policy triggered	Category and Safeguard Instrument
	Yes Significant, Moderate, Minor	No		
Will the project have positive environmental or social benefits? Provide brief description:			*OP 4.01 Environmental Assessment*	If "No": Category B If "Yes": Category A ESIA, ESMP, UKL/UPL
Will the project adversely impact physical cultural resources?[27] Please provide a brief justification.			*OP 4.11 Physical Cultural Resources*	If "Yes / Significant": Category A Prepare PCR Management Plan as part of ESMP. If Yes / Moderate or Yes / Minor: Category B If 'No': Use chance to find procedures.
Will the project involve the conversion or degradation of non-critical natural habitats? Please provide a brief justification.			*OP 4.04 Natural Habitats*	If 'No': Refer to the next screening question. If "Yes / Significant": Category A If "Yes / Moderate or Yes / Minor': Category B

[27] Examples of physical cultural resources are archaeological or historical sites, religious or spiritual sites, particularly sites recognized by the government.

Question *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	Answer		If Yes Policy triggered	Category and Safeguard Instrument
	Yes Significant, Moderate, Minor	No		
Will the project involve the conversion or degradation of critical natural habitats?[28]			*OP 4.04 Natural Habitats*	If "No": Refer to next screening question. If "Yes/Significant": not eligible for project financing as would be inconsistent with the Policy. If "Yes / Moderate or Yes Minor": Category A
Does the sub-project involve involuntary land acquisition? Significant >200 people displaced or 10% households' assets affected. Moderate <200 people or 10% of households' assets affected.			*OP 4.12 Involuntary Resettlement*	If "No": Refer to next screening question. If "Yes / Significant": Category A, LARAP If "Yes / Moderate": Category B, Abbreviated LARAP

[28]Sub-projects that significantly convert or degrade critical natural habitats such as legally protected, officially proposed for protection, identified by authoritative sources for their high conservation value, or recognized as protected by traditional local communities, are ineligible for Bank financing.

Question *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	Answer		If Yes Policy triggered	Category and Safeguard Instrument
	Yes Significant, Moderate, Minor	No		
Does the sub-project involve loss of assets or access to assets, or loss of income sources or means of livelihood as a result of involuntary land acquisition? Please provide brief justification			*OP 4.12 Involuntary Resettlement*	If "No": Refer to next screening question. If "Yes / Significant": Cat A, LARAP If "Yes / Moderate or Minor": Cat B, Abbreviated LARAP
Does the sub-project involve loss of assets but not as a result of involuntary land acquisition?			*OP4.01 Environmental Assessment*	If "No": Refer to next screening question. If "Yes": Category B Manage compensation at replacement value under ESMP.

Question *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	Answer		If Yes Policy triggered	Category and Safeguard Instrument
	Yes Significant, Moderate, Minor	No		
Are there Indigenous People present in the project area?: Self-identify as part of a distinct social and cultural group, and Maintain cultural, economic, social and political intuitions distinct from the dominant society and culture?, and Speak a distinct language or dialect?, and Been historically, socially and/or economically marginalized, disempowered, excluded and/or discriminated against?			*OP4.10 Indigenous Peoples*	If "No": Refer to next screening question. If "Yes": Category A Refer IPF for requirements for Social Assessment in the ESIA and IPP.

Question *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	Answer		If Yes Policy triggered	Category and Safeguard Instrument
	Yes Significant, Moderate, Minor	No		
Will the project directly or indirectly benefit or target Indigenous Peoples?			*OP4.10 Indigenous Peoples*	If there is no IP in the project area, or this question is otherwise not relevant, put NA in each column. If "No benefit or target" or "Yes benefit or target": Category A Address in Social Assessment and IPP preparation.
Will the project directly or indirectly affect Indigenous Peoples traditional socio-cultural and belief practices? (E.g. child-rearing, health, education, arts, and governance)?			*OP4.10 Indigenous Peoples*	If "No": Refer to next screening question. If "Yes": Category A Refer IPF for requirements for Social Assessment in the ESIA and IPP.
Will the project affect the livelihood systems of Indigenous Peoples? (e.g., food production system, natural resource management, crafts and trade, employment status)?			*OP4.10 Indigenous Peoples*	If "No": Refer to next screening question. If "Yes": Category A Refer IPF for requirements for Social Assessment in the ESIA and IPP.

Question *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	Answer		If Yes Policy triggered	Category and Safeguard Instrument
	Yes Significant, Moderate, Minor	No		
Will the project be in an area (land or territory) occupied, owned, or used by Indigenous Peoples, and/or claimed as ancestral domain?			*OP 4.10 Indigenous Peoples*	If "No": Refer to next screening question. If "Yes": Category A Refer IPF for requirements for Social Assessment in the ESIA and IPP.

For Scenario 2

Instructions:

Competent environmental and social specialists will be engaged to complete the detailed screening.

Using the feasibility study and other technical information on the geothermal resource and exploration potential, and the results of the basic screening process, undertake a safeguard screening process to identify environmental and social risks, World Bank policies triggered, and safeguards instruments required. Use the checklist as a prompt and for documenting results.

Screening Activities:

a. Review published data, carry out field visits, gather primary data, and consult with the local environmental and planning agencies to discuss their spatial plans and bylaws, assess institutional capacity and consult with key informants / stakeholders.
b. Review existing environmental and social instruments and its implementation (based on existing monitoring report and site visit)
c. Identify existing completed activities related to drilling, or activities that are currently underway and the environmental and social risks (land acquisition, drilling, associated facilities, civil works, stakeholder engagement etc.).
d. Map the potential area of influence of the proposed new geothermal exploration activities, based on technical data on the location of well sites and key infrastructure (roads, camps, wharf upgrades etc.).
e. Map the potential area of influence that would include associated, linked, or downstream activities (e.g. exploitation activities: power plant, production wells, and transmission or distribution lines).
f. Identify sensitive receptors in the project area of influence such as: forests, natural habitats (terrestrial and aquatic), protected areas (national parks, conservation areas), sites of ecological importance, communities, community assets, land owners, indigenous people and/or their lands / domain, communal land / resources, physical cultural resources, geothermal features, landscapes and geological forms.
g. Identify land tenure and land uses. Identify water users and uses. Identify applicable local laws and planning frameworks.
h. Identify stakeholders and their sentiment about geothermal development.
i. Using professional opinion and experience assess potentially significant impacts on sensitive receptors from the exploration activities. Address and answer each question in the checklist.
j. Policy trigger: From the checklist, identify the policies triggered by the sub-project (including linked activities).
k. Category Screening: Classify the sub-project as Category A if any one of the answers in the checklist triggers an A, otherwise classify the sub-project as Category B. If any of the aspects of the linked activities triggers an A sub-project will be classified as Category A.
l. Safeguard instruments: List all of the relevant instruments as per the screening checklist. Note where specific tasks for the ESIA are required, such as Social Assessment for Indigenous Peoples.

Reporting:

m. Provide a full report with the details as listed above, supporting data and maps, and the completed checklist as described in Section 5.3.5.

Sub-project Details

Sub-project Name:_____

Location:_____

Province:_____

Description of Proposed Activities:_____

_____

_____

_____

Significant Sensitive Receptors:_____

_____

_____

_____

Description of Existing Activities Completed or Underway (additional for scenario 2):_____

_____

_____

_____

Significant E&S Risks related to Current or Previous Activities:_____

_____

_____

_____

Description of Linked Activities:_____

_____

_____

_____

Significant Sensitive Receptors of Linked Activities_____

_____

_____

_____

Safeguard Screening, Policy Triggering and Safeguard Instrument Checklist

Question *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	**Answer**		**If Yes** **Policy triggered**	**Category and Safeguard Instrument**
	Yes Significant, Moderate, Minor	No		
Are the proposed sub-project and/or existing activities impacts likely to have significant adverse **environmental** impacts that are sensitive,[29] diverse or unprecedented?[30] Provide brief description:			*OP 4.01 Environmental Assessment*	If "No": Category B If "Yes": Category A ESIA, ESMP, UKL/UPL
Are the proposed sub-project and/or existing activities impacts likely to have significant adverse **social** impacts that are sensitive, diverse or unprecedented? Provide a brief description.			*OP 4.01 Environmental Assessment*	If "No": Category B If "Yes": Category A ESIA, ESMP, UKL/UPL

[29] Sensitive (i.e., a potential impact is considered sensitive if it may be irreversible, e.g., permanently affect significant landscape features.

[30] Large scale induced slash and burn agricultural development into forested areas.

Question *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	Answer		If Yes Policy triggered	Category and Safeguard Instrument
	Yes Significant, Moderate, Minor	No		
Do the impacts by the proposed sub-project and/or existing activities affect an area broader than the sites or facilities subject to physical works and are the significant adverse environmental impacts irreversible? Provide brief description:			*OP 4.01 Environmental Assessment*	If "No": Category B If "Yes": Category A ESIA, ESMP, UKL/UPL
Will the proposed sub-project and/or existing activities have positive environmental or social benefits? Provide brief description:			*OP 4.01 Environmental Assessment*	If "No": Category B If "Yes": Category A ESIA, ESMP, UKL/UPL

Question *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	Answer		If Yes Policy triggered	Category and Safeguard Instrument
	Yes Significant, Moderate, Minor	No		
Will the proposed sub-project and/or existing activities adversely impact physical cultural resources?[31] Please provide a brief justification.			*OP 4.11 Physical Cultural Resources*	If "Yes / Significant": Category A Prepare PCR Management Plan as part of ESMP. If Yes / Moderate or Yes / Minor: Category B If 'No': Use chance to find procedures.
Will the proposed sub-project and/or existing activities involve the conversion or degradation of non-critical natural habitats? Please provide a brief justification.			*OP 4.04 Natural Habitats*	If 'No': Refer to the next screening question. If "Yes / Significant": Category A If "Yes / Moderate or Yes / Minor': Category B

[31] Examples of physical cultural resources are archaeological or historical sites, religious or spiritual sites, particularly sites recognized by the government.

Question *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	Answer		If Yes Policy triggered	Category and Safeguard Instrument
	Yes Significant, Moderate, Minor	No		
Will the proposed sub-project and/or existing activities involve the conversion or degradation of critical natural habitats?[32]			*OP 4.04 Natural Habitats*	If "No": Refer to next screening question. If "Yes/Significant": not eligible for project financing as would be inconsistent with the Policy. If "Yes / Moderate or Yes Minor": Category A
Does the proposed sub-project and/or existing activities involve involuntary land acquisition? Significant >200 people displaced or 10% households' assets affected. Moderate <200 people or 10% of households' assets affected.			*OP 4.12 Involuntary Resettlement*	If "No": Refer to next screening question. If "Yes / Significant": Category A, LARAP If "Yes / Moderate": Category B, Abbreviated LARAP

[32]Sub-projects that significantly convert or degrade critical natural habitats such as legally protected, officially proposed for protection, identified by authoritative sources for their high conservation value, or recognized as protected by traditional local communities, are ineligible for Bank financing.

Question *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	**Answer**		**If Yes** **Policy triggered**	**Category and Safeguard Instrument**
	Yes Significant, Moderate, Minor	No		
Does the proposed sub-project and/or existing activities involve loss of assets or access to assets, or loss of income sources or means of livelihood as a result of involuntary land acquisition? Please provide brief justification			*OP 4.12 Involuntary Resettlement*	If "No": Refer to next screening question. If "Yes / Significant": Cat A, LARAP If "Yes / Moderate or Minor": Cat B, Abbreviated LARAP
Does the proposed sub-project and/or existing activities involve loss of assets but not as a result of involuntary land acquisition?			*OP4.01 Environmental Assessment*	If "No": Refer to next screening question. If "Yes": Category B Manage compensation at replacement value under ESMP.

Question *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	Answer		If Yes Policy triggered	Category and Safeguard Instrument
	Yes Significant, Moderate, Minor	No		
Are there Indigenous People present in the proposed sub-project and/or existing activities area?: Self-identify as part of a distinct social and cultural group, and Maintain cultural, economic, social and political intuitions distinct from the dominant society and culture?, and Speak a distinct language or dialect?, and Been historically, socially and/or economically marginalized, disempowered, excluded and/or discriminated against?			*OP4.10 Indigenous Peoples*	If "No": Refer to next screening question. If "Yes": Category A Refer IPF for requirements for Social Assessment in the ESIA and IPP.

Question *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	Answer		If Yes Policy triggered	Category and Safeguard Instrument
	Yes Significant, Moderate, Minor	No		
Will the proposed sub-project and/or existing activities directly or indirectly benefit or target Indigenous Peoples?			*OP4.10 Indigenous Peoples*	If there is no IP in the project area, or this question is otherwise not relevant, put NA in each column. If "No benefit or target" or "Yes benefit or target": Category A Address in Social Assessment and IPP preparation.
Will the proposed sub-project and/or existing activities directly or indirectly affect Indigenous Peoples traditional socio-cultural and belief practices? (E.g. child-rearing, health, education, arts, and governance)?			*OP4.10 Indigenous Peoples*	If "No": Refer to next screening question. If "Yes": Category A Refer IPF for requirements for Social Assessment in the ESIA and IPP.
Will the proposed sub-project and/or existing activities affect the livelihood systems of Indigenous Peoples? (e.g., food production system, natural resource management, crafts and trade, employment status)?			*OP4.10 Indigenous Peoples*	If "No": Refer to next screening question. If "Yes": Category A Refer IPF for requirements for Social Assessment in the ESIA and IPP.

Question *Note on the checklist or in an attached report where issues may relate only to downstream exploitation	**Answer**		**If Yes** **Policy triggered**	**Category and Safeguard Instrument**
	Yes Significant, Moderate, Minor	No		
Will the proposed sub-project and/or existing activities be in an area (land or territory) occupied, owned, or used by Indigenous Peoples, and/or claimed as ancestral domain?			*OP 4.10 Indigenous Peoples*	If "No": Refer to next screening question. If "Yes": Category A Refer IPF for requirements for Social Assessment in the ESIA and IPP.

APPENDIX C. ESDD OUTLINE FOR SCENARIO 2 SUB-PROJECTS

ESDD Outline

1 Introduction
1.1 Overview
1.2 Definition of Terms
1.3 Objectives
1.4 Project scope for the ESDD
1.5 Project description

2 Methodology
2.1 Compliance Framework
2.1.1 National Requirements
2.1.2 ESMF Requirements
2.2 Methodology Assessment
2.3 Stakeholder Engagement

3 Environmental and Social Compliance Review
3.1 Assessment of Potential Risks and Impacts (include Risks Ranking)
3.2 Compliance Review/Gap Analysis

4 Conclusion and Recommendation
4.1 Corrective Action Plan

Corrective Action Plan Template

Action No.	Reference Framework	Gaps Identified	Action Description	Documentation/Indicator of Completion	Required Completion Date	Responsibility
1	OP/ 4.01	...	...	...	...	...
2	...	...	...	...	...	...
3	OP/BP 4.36	...	...	...	...	...
4	...	...	...	...	...	...
5	OP/BP 4.11	...	...	...	...	...
6	...	...	...	...	...	...
7	OP/BP 4.10	...	...	...	...	...
8	...	...	...	...	...	...
9	OP/BP 4.12	...	...	...	...	...
10	....	...	...	...	...	...
11	OP/BP 4.37	...	...	...	...	...
...	...	...	...	...	...	...

APPENDIX D. ESIA REPORT OUTLINE FOR CATEGORY A SUB-PROJECTS

With reference to Annex B to OP 4.01 - Content of an Environmental Assessment Report for a Category A Project.

An ESIA report for a Category A project focuses on the significant environmental issues of a project. The report's scope and level of detail should be commensurate with the project's potential impacts. The report submitted to the Bank is prepared in English and the executive summary in English.

The ESIA report should include the following items (not necessarily in the order shown):

(a) *Executive summary*. Concisely discusses significant findings and recommended actions.

(b) *Policy, legal, and administrative framework*. Discusses the policy, legal, and administrative framework within which the EA is carried out. Explains the environmental requirements of any co-financiers. Identifies relevant international environmental agreements to which the country is a party.

(c) *Project description*. Concisely describes the proposed project and its geographic, ecological, social, and temporal context, including any offsite investments that may be required (e.g., dedicated pipelines, access roads, power plants, water supply, housing, and raw material and product storage facilities). Indicates the need for any resettlement plan or Indigenous Peoples development plan (see also sub-para. (h)(v) below). Normally includes a map showing the project site and the project's area of influence.

(d) *Baseline data*. Assesses the dimensions of the study area and describes relevant physical, biological, and socioeconomic conditions, including any changes anticipated before the project commences. Also takes into account current and proposed development activities within the project area but not directly connected to the project. Data should be relevant to decisions about project location, design, operation, or mitigation measures. The section indicates the accuracy, reliability, and sources of the data.

(e) *Social Assessment.* Assessment of the social context, including the presence of Indigenous Peoples, in accordance with OP4.10. It will include a description of the sub-project and potential issues or impacts relating to communities (and identifying where some communities or sub-groups may be affected differently); identification of relevant communities and other key stakeholders to be consulted; baseline information on the demographic, social, cultural, economic and political characteristics of relevant communities; assessment of the potential adverse impacts and benefits likely to be associated with the project based on consultation; and summary of preferences and concerns of communities relating to project objectives, access and cultural

appropriateness of project benefits, mitigation of any adverse impacts, and project implementation arrangements.

(f) *Environmental and social impacts*. Predicts and assesses the project's likely positive and negative impacts, in quantitative terms to the extent possible. Identifies mitigation measures and any residual negative impacts that cannot be mitigated. Explores opportunities for environmental enhancement and improvement of the welfare and livelihoods of affected people. Identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions, and specifies topics that do not require further attention.

(g) *Analysis of alternatives*. Systematically compares feasible alternatives to the proposed project site, technology, design, and operation—including the "without project" situation--in terms of their potential environmental impacts; the feasibility of mitigating these impacts; their capital and recurrent costs; their suitability under local conditions; and their institutional, training, and monitoring requirements. For each of the alternatives, quantifies the environmental impacts to the extent possible, and attaches economic values where feasible. States the basis for selecting the particular project design proposed and justifies recommended emission levels and approaches to pollution prevention and abatement.

(h) *Environmental and social management plan (ESMP)*. Covers mitigation measures, monitoring, and institutional strengthening; see outline in Appendix D.

(i) Appendixes

- List of EA report preparers--individuals and organizations.
- References--written materials both published and unpublished, used in study preparation.
- Record of interagency and consultation meetings, including consultations for obtaining the informed views of the affected people and local non-governmental organizations (NGOs). The record specifies any means other than consultations (e.g., surveys) that were used to obtain the views of affected groups and local NGOs.
- Tables presenting the relevant data referred to or summarized in the main text.
- List of associated reports (e.g., resettlement plan or indigenous people development plan).

APPENDIX E. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN TEMPLATE

With reference to Annex C to World Bank Safeguard Policy OP 4.01 - Environmental Management Plan

A sub-project's environmental and social management plan (ESMP) consists of the set of mitigation, monitoring, and institutional measures to be taken during implementation and operation to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. The plan also includes the actions needed to implement these measures. To prepare an ESMP, PT GDE will (a) identify the set of responses to potentially adverse impacts; (b) determine requirements for ensuring that those responses are made effectively and in a timely manner; and (c) describe the means for meeting those requirements. More specifically, the ESMP will include the following components.

Mitigation

The ESMP identifies feasible and cost-effective measures that may reduce potentially significant adverse environmental impacts to acceptable levels. The plan includes compensatory measures if mitigation measures are not feasible, cost-effective, or sufficient. Specifically, the ESMP:

a. identifies and summarizes all anticipated significant adverse environmental impacts (including those involving indigenous people or involuntary resettlement);
b. describes--with technical details--each mitigation measure, including the type of impact to which it relates and the conditions under which it is required (e.g., continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate;
c. estimates any potential environmental impacts of these measures; and
d. provides linkage with any other mitigation plans (e.g., for involuntary resettlement, Indigenous Peoples, or cultural property) required for the project.

Monitoring

Environmental monitoring during project implementation provides information about key environmental aspects of the project, particularly the environmental impacts of the project and the effectiveness of mitigation measures. Such information enables the borrower and the Bank to evaluate the success of mitigation as part of project supervision, and allows corrective action to be taken when needed. Therefore, the ESMP identifies monitoring objectives and specifies the type of monitoring, with linkages to the impacts assessed in the ESIA report and the mitigation measures described in the ESMP. Specifically, the monitoring section of the ESMP provides:

a. a specific description, and technical details, of monitoring measures, including the parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions; and

b. monitoring and reporting procedures to (i) ensure early detection of conditions that necessitate particular mitigation measures, and (ii) furnish information on the progress and results of mitigation.

Capacity Development and Training

To support timely and effective implementation of environmental project components and mitigation measures, the ESMP draws on the ESIA's assessment of the existence, role, and capability of environmental units on site or at the agency and ministry level. If necessary, the ESMP recommends the establishment or expansion of such units, and the training of staff, to allow implementation of ESIA recommendations. Specifically, the ESMP provides a specific description of institutional arrangements--who is responsible for carrying out the mitigation and monitoring measures (e.g., for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training). To strengthen environmental management capability in the agencies responsible for implementation, most ESMPs cover one or more of the following additional topics: (a) technical assistance programs, (b) procurement of equipment and supplies, and (c) organizational changes.

Implementation Schedule and Cost Estimates

For all three aspects (mitigation, monitoring, and capacity development), the ESMP provides (a) an implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans; and (b) the capital and recurrent cost estimates and sources of funds for implementing the ESMP. These figures are also integrated into the total project cost tables.

Integration of ESMP with Project

The borrower's decision to proceed with a project, and the Bank's decision to support it, are predicated in part on the expectation that the EMP will be executed effectively. Consequently, the Bank expects the plan to be specific in its description of the individual mitigation and monitoring measures and its assignment of institutional responsibilities, and it must be integrated into the project's overall planning, design, budget, and implementation. Such integration is achieved by establishing the ESMP within the project so that the plan will receive funding and supervision along with the other components.

The following tables are the suggested template for summary of the mitigation and monitoring plans for the exploration and development phase of geothermal activities.

A. TEMPLATE MITIGATION PLAN FOR EXPLORATION

			Cost to:		Institutional Responsibility to:		Comments (e.g. secondary or cumulative impacts)
Phase	**Impact**	**Mitigating Measure**	**Install**	**Operate**	**Install**	**Operate**	
Exploration phase							
Decommissioning Phase							

B. TEMPLATE MONITORING PLAN FOR EXPLORATION

						Cost to:		Institutional Responsibility to:	
Phase	**What (parameter)**	**Where**	**How (equipment)**	**When (frequency)**	**Why**	**Install**	**Operate**	**Install**	**Operate**
Exploration phase									
Decommissioning Phase									

C. ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN IMPLEMENTATION

In addition to the requirements of UKL-UPL Implementation Report to comply with the applicable MoEF Regulation, the following table is suggested template as a minimum requirement for the environmental and social management and monitoring plan implementation report to be prepared by PT GDE EMU that shall include information on the activity plan with related sub-project activity and consist of some sub-plans to be mitigated and monitored. The activity plan should be relevant with each nature of activities, e.g civil & infrastructure construction, well drilling, well testing activities.

Activity Plan/Potential Impacts	Mitigation Implementation	Implementation Progress	Forward Plan/Next Steps	Monitoring Implementation
Air Quality Management				
Please detail the potential impacts and the related activity	Implementation of each impact mitigation plan	Progress of each impact mitigation plan	For the next 6 months	Please specify the monitoring implementation including the parameters
Noise Management				
Water Management (drilling and domestic water resources)				
Waste Management (including Green Waste; Domestic Waste (Solid and Liquid Waste); Hazardous & Toxic Waste including waste related COVID-19 prevention measures; Non-Hazardous & Toxic Waste; Drilling Mud and Cuttings)				
Top Soil Management including landslide and erosion management				
Revegetation Plan				

Activity Plan/Potential Impacts	Mitigation Implementation	Implementation Progress	Forward Plan/Next Steps	Monitoring Implementation
Biodiversity Management (Terrestrial Flora and Fauna)				
Vehicle and Traffic Management				
Pipe Leakage Response Plan (Brine and Condensate)				
Emergency Response Plan (security, H_2S leakage, earthquake or natural disaster, land & forest fire, explosion, etc)				
Spill Response Plan (Oil, Hazardous and Toxic Wastes and Cutting)				
Drilling Fluid Spill Response Plan (drilling mud, additives)				
Labor Management Plan (including company regulation, workforce code of conduct, recruitment/termination process and related issues)				

D. OCCUPATIONAL HEALTH AND SAFETY PLAN IMPLEMENTATION

The implementation and monitoring report of the occupational health and safety plan shall include but not limited to the following report:

- Number of employees including contractor's workers;
- Workdays;
- Permanent Partial Disability;
- Permanent Total Disability;
- Lost Workdays Case;
- Restricted Work Case;
- Medical Treatment Case;
- First Aid Case;
- Incident, accident and near miss;
- Occupational disease;
- Environmental damage;
- Property damage;
- Lost Time Injury.

E. TEMPLATE GRIEVANCE REDRESS MECHANISM IMPLEMENTATION

Date	Complainant	Address	Contact	Complaint	Complaint validity	Level of Complaint	Expected Result	Follow up	Closure

APPENDIX F. FORMAT OF UKL/UPL

The following form is the Format for the Environmental Management Effort (UKL) and Environmental Monitoring Effort (UPL). It describes the impact of the planned activities on the environment and how it will be managed. As an integral part of the UKL/UPL, the Statement of Assurance for Implementation of UKL/UPL also included. This format complies with the new Government of Indonesia Regulation No. 22 of 2021 on the Administration of Environmental Protection and Management, Appendix III. During this ESMF preparation, the implementing regulations (MoEF regulations) have not been issued yet.

Title of Chapter/Sub-Chapter	Content/Remarks
I. IDENTITY OF THE ACCOUNTABLE PERSON FOR THE PROJECT ACTIVITIES	
1.1 Identity of the institution and person who will be accountable for the Project activities	Brief information on the institution and person who will be accountable for the Project activities
1.2 Address, Number Phone and Fax, Website and Email	Clear address of the institution related to the Project Activities in accordance to the point 1.1 above.
II. DESCRIPTION OF THE PROPOSED PROJECT ACTIVITIES	
2.1 Project Activities Name	Name of Project Activities in a clear and complete manner.
2.2 Project Activities Location	a. Location of the Project Activities in a clear and complete manner: *Kelurahan*/Village, District/city, and Province where the Project Activities and its components take place. b. Location of the Project Activities should be drawn in a map using an adequate scale (for example, 1:50.000, accompanied with latitude and longitude of the location).
2.3 Scale of the Project Activities	The scale and type of the proposed Project Activities will be determined based on area, size, capacity or other relevant. This section shall include project site conformity with the Local Spatial Plan; description on the

Title of Chapter/Sub-Chapter	Content/Remarks
	technical approval of the proposed activities and the compliance with the environmental quality standard, hazardous management, traffic impact analysis from the relevant authority. The technical approval could be a standard that has been indicated in the information system of an environmental document or based on assessment results. Considering that those standards have not been indicated yet, the accountable person should request the institution authority.
2.4 Component of Project Activities in brief outline	A brief and clear explanation on any component of the Project Activities which have potential environmental impacts. Work components should be divided based on stages as follows: a. Pre-construction, for example: mobilization of workforce and materials, transportation, etc. b. Construction, for example the use of groundwater, laying out of utility pipes, etc. c. Operations and Maintenance: Post-construction, for example: clearing of excavated waste material, etc. Also, attach the flowchart/diagram to explain the flow of work to be done, if applicable.
III POTENTIAL ENVIRONMENTAL IMPACT, ENVIRONMENTAL MANAGEMENT AND MONITORING EFFORTS, ENVIRONMENTAL AND MONITORING STANDARDS (In matrix format)	
3.1 Impacts that will be caused by the Project activities	Explain in a brief and clear manner about any Project Activities with potential environmental impacts, type of impacts which might occur, magnitude of impacts, and other matters needed to describe any potential environmental impacts on the natural and social environment. Such descriptions can be presented in tabulation, with each column representing each of the aspects. A description of the size or magnitude of the impacts should be accompanied with measurement units based on applicable laws and regulations or specific scientific analysis.
3.2 Environmental Management Standard	a. The Environmental Management Standard consists of the plan itself, as well as the party in charge, frequency of interventions, implementation schedule, and types of mechanisms (e.g.: procedures

Title of Chapter/Sub-Chapter	Content/Remarks
	for management, methods, etc.) in order to mitigate the environmental impacts identified Section III above. b. The plan can be presented in a table format, which at minimum contains the following columns: type of impact, source, magnitude, threshold, management plan, and frequency of interventions, party in charge, and other remarks.
3.3 Environmental Monitoring Standard	a. The Environmental Monitoring Standard consists of the plan itself, party in charge, frequency of interventions, implementation schedule, and types of mechanisms (e.g.: procedures for monitoring, methods, etc.) in order to monitor the environmental management plan described in section 5.3 above. b. The plan can be presented in a table format, which at minimum contains the following columns: type of impact, source, magnitude, threshold, management plan, and frequency of interventions, party in charge, and other remarks. In this monitoring plan, the thresholds should comply with the prevailing laws and regulations which are applicable according to the environmental impacts as already identified in Section III above.
3.4 Environmental Management and Monitoring Institutions	The column of the institutions shall include information on the institutions that will be involved in the environmental management and monitoring (implementer, supervisor and report recipient).
V. COMMITMENT STATEMENT LETTER	The statement letter from the person who will be accountable to the Project activities to ensure that the Environmental Management Plan Effort (UKL) and Environmental Monitoring Plan Effort (UPL) will be implemented. This statement Letter should be signed on stamp duty.
VI. REFERENCE	Insert various references used in the preparation of UKL/UPL.
VII. ATTACHMENTS	Attach any relevant documents or information to the UKL/UPL, e.g. technical approval to the proposed activities; formal recommendation or confirmation to state project site conformity with the Local Spatial Plan; detail information concerning proposed activities, if necessary; maps to

Title of Chapter/Sub-Chapter	Content/Remarks
	follow cartography requirements to show the points of environmental management and monitoring; and other relevant data and information.

APPENDIX G. STATEMENT OF ASSURANCE FOR UKL/UPL

No:…….

In an effort to prevent, minimize and/or address the potential environmental impacts from the Construction Work of....., in the District/Province of..... as well as in accordance to the duty and authority of the *Dinas*....., of the District/Province of shall carry out an Environmental Management Effort (UKL) and Environmental Monitoring Effort (UPL) and include the recommendations from UKL/UPL into the Detailed Design.

For the next stage, which is the physical work, implementation of the recommendations from UKL/UPL shall be done by the party in charge of the physical work, which is "*Satker*..... of the District/Province....."

This statement is duly made, as confirmation to support the Environmental Management Plan (UKL) and Environmental Monitoring Plan (UPL) on the Construction Work for the Construction of ....., in the District/Province of.....

Location,....., Date……..

DINAS…….....

DISTRICT/PROVINCE OF .....

Satker

NAME .....

APPENDIX H. PCR CHANCE FIND PROCEDURE

Definition. A chance find is archaeological, historical, cultural, and remain material encountered unexpectedly during project construction or operation. A chance find procedure is a project-specific procedure which will be followed if previously unknown cultural heritage is encountered during project activities. Such procedure generally includes a requirement to notify relevant authorities of found objects or sites by cultural heritage experts; to fence off the area of finds or sites to avoid further disturbance; to conduct an assessment of found objects or sites by cultural heritage experts; to identify and implement actions consistent with the requirements of the World Bank and Indonesian law; and to train project personnel and project workers on chance find procedures.

Objectives.

- To protect physical cultural resources from the adverse impacts of project activities and support its preservation.
- To promote the equitable sharing of benefits from the use of PCR.

Procedure.

a. If PT GDE, their consultants or their Contractors discover archeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction, they shall:
b. Halt the construction activities in the area of the chance find;
c. Delineate and fence the discovered site or area;
d. Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities or the District/Provincial Department of Culture, or the local Institute of Archaeology if available to take over;
e. Forbid any take of the objects by the workers or other parties;
f. Notify all sub-project personnel of the finding and take the preliminary precaution of protection;
g. Record the chance find objects and the preliminary actions;
h. Notify the responsible local authorities and the relevant Institute of Archaeology immediately (within 24 hours or less);
i. Responsible local authorities would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by the local Institute of Archaeology. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values;
j. Decisions on how to handle the finding shall be taken by the responsible authorities. This could include changes in the sub-project layout (such as when finding an irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage;
k. Implementation for the authority decision concerning the management of the finding shall be communicated in writing by relevant local authorities;

l. The mitigation measures could include the change of sub-project design/layout, protection, conservation, restoration, and/or preservation of the sites and/or objects;
m. Construction work at the site could resume only after permission is given from the responsible local authorities concerning safeguard of the heritage; and
n. PT GDE, their consultants and their contractors, shall cooperate with the relevant local authorities to monitor all construction activities and ensure that the adequate preservation actions are taken and hence the heritage sites are protected.

APPENDIX I. SAMPLE OF GRIEVANCE FORM

Reference No	
Full Name	
Please mark how you wish to be contacted (mail, telephone, e-mail).	Please mark how you wish to be contacted
Province/District	
Date	
Category of the Grievance	
1. On abandonment (hospital, public housing)	
2. On assets/properties impacted by the project	
3. On infrastructure	
4. On decrease or complete loss of sources of income	
5. On environmental issues (ex. pollution)	
6. On employment	
7. On traffic, transportation and other risks	
8-Other (Please specify):	
Description of the Grievance What did happen? When did it happen? Where did it happen? What is the result of the problem?	
What would you like to see happen to resolve the problem?	

Signature: Date:

APPENDIX J. SAMPLE GRIEVANCE CLOSE OUT FORM

Grievance closeout number:	
Define immediate action required:	
Define long term action required (if necessary):	
Compensation Required?	[ ] YES [ ] NO

CONTROL OF THE REMEDIATE ACTION AND THE DECISION	
Stages of the Remediate Action	Deadline and Responsible Institutions
1.	
2.	
3.	
4.	
5.	

COMPENSATION AND FINAL STAGES

This part will be filled and signed by the complainant after s/he receives the compensation fees and his/her complaint has been remediated.

Notes:

Name-Surname and Signature

Date…./…../…..

Of the Complainant:

Representative of the Responsible Institution/Company

Title-Name-Surname and Signature

APPENDIX K. GENERIC CONTENTS OF INDIGENOUS PEOPLES PLAN

Background and Context

i. The project and project components

ii. Brief description of Indigenous Peoples/ethnic minorities (IP/EM) in the relevant project country

iii. Relevant legal framework

iv. Summary of the findings of the Social Assessment (part of ESIA), including among others:

a. Baseline data of IP/EM

b. Maps of the area of project influence and the areas inhabited by IP/EM

c. Analysis of the IP/EM social structure and income sources

d. Inventories of the resources used by IP/EM, and technical data on their production systems

e. Information on cultural practices and patterns

f. Relationships of IP/EM to other local/national groups

v. Key positive project impacts on IP/EM

vi. Key negative project impacts on IP/EM

Objectives of the IPP

i. Explain the purpose of the IPP

Development and/or Mitigation Activities

i. Describe detail of development activities

ii. Describe detail of mitigation activities

Strategy for IP/EM Participation

i. Describe mechanism for participation by IP/EM in planning, implementation, and evaluation

ii. Describe procedures for redress of grievances by IP/EM

Institutional Arrangements

i. Identify main tasks and responsibilities in planning, managing, and monitoring development, and/or mitigation activities

ii. Identify the role of NGOs or IP/EM organizations in implementing the development and/or mitigation activities.

Budget and Financing

i. Identify development and/or mitigation activity costs and funding resources

Supervision, Monitoring, and Evaluation

i. Specify arrangements for supervision, monitoring, and evaluation

ii. Implementation strategy and schedule

iii. Prepare a plan for internal monitoring of the targets of the major development and/or mitigation activities

APPENDIX L. CONTENT OF LAND ACQUISITION AND RESETTLEMENT ACTION PLAN (LARAP)

LARAP CONTENT

The scope and level of detail of the resettlement plan vary with the magnitude and complexity of involuntary resettlement. The plan is based on up-to-date and reliable information about (a) the proposed resettlement and its impacts on the displaced persons and other adversely affected groups, and (b) the legal issues involved in resettlement. The resettlement plan covers the elements below, as relevant.

1. *Description of the project*. General description of the project and identification of the project area.

2. *Potential impacts*. Identification of the project component or activities that give rise to resettlement; the zone of impact of such component or activities; the alternatives considered to avoid or minimize resettlement; and the mechanisms established to minimize resettlement, to the extent possible, during project implementation.

3. *Objectives*. The main objectives of the resettlement program.

4. *Socioeconomic studies*. The findings of socioeconomic studies to be conducted in the early stages of project preparation and with the involvement of potentially displaced people, including a. the results of a census survey covering

    a. current occupants of the affected area to establish a basis for the design of the resettlement program and to exclude subsequent inflows of people from eligibility for compensation and resettlement assistance;

    b. standard characteristics of displaced households, production systems, labour, and household organization; and baseline information on livelihoods (including, as relevant, production levels and income derived from both formal and informal economic activities) and standards of living (including health status) of the displaced population;

    c. the magnitude of the expected loss--total or partial--of assets, and the extent of displacement, physical or economic;

    d. Information on vulnerable groups or persons as provided for in OP 4.12, para. 8, for whom special provisions may have to be made; and

    e. Provisions to update information on the displaced people's livelihoods and standards of living at regular intervals so that the latest information is available at the time of their displacement.

5. Other studies describing the following

    a. land tenure and transfer systems, including an inventory of natural resources which are a common property, from which people derive their livelihoods and sustenance, non-title-based usufruct systems (including fishing, grazing, or use of forest areas) governed by local recognized land allocation mechanisms;

    b. the patterns of social interaction in the affected communities, including social networks and social support systems, and how they will be affected by the project;

    c. public infrastructure and social services that will be affected; and

    d. Social and cultural characteristics of displaced communities, including a description of formal and informal institutions (e.g., community organizations, ritual groups, nongovernmental organizations (NGOs)) that may be relevant to the consultation strategy and to designing and implementing the resettlement activities.

Legal framework. The findings of an analysis of the legal framework, covering

    a. the scope of the power of eminent domain and the nature of compensation associated with it, in terms of both the valuation methodology and the timing of payment;

    b. the applicable legal and administrative procedures, including a description of the remedies available to displaced persons in the judicial process and the normal timeframe for such procedures, and any available alternative dispute resolution mechanisms that may be relevant to resettlement under the project;

    c. relevant law (including customary and traditional law) governing land tenure, valuation of assets and losses, compensation, and natural resource usage rights; customary personal law related to displacement; and environmental laws and social welfare legislation;

    d. laws and regulations relating to the agencies responsible for implementing resettlement activities;

    e. gaps, if any, between local laws covering eminent domain and resettlement and the Bank's resettlement policy, and the mechanisms to bridge such gaps; and

    f. Any legal steps necessary to ensure the effective implementation of resettlement activities under the project, including, as appropriate, a process for recognizing claims to legal rights to land--including claims that derive from customary law and traditional usage (see OP 4.12, para.15 b).

g. Gaps, if any, between local laws covering eminent domain and resettlement and the Bank's resettlement policy, and the mechanisms to bridge such gaps; and

h. Any legal steps necessary to ensure the effective implementation of resettlement activities under the project, including, as appropriate, a process for recognizing claims to legal rights to land--including claims that derive from customary law and traditional usage (see OP 4.12, para.15 b).

Institutional Framework. The findings of an analysis of the institutional framework covering

a. the identification of agencies responsible for resettlement activities and NGOs that may have a role in project implementation;

b. an assessment of the institutional capacity of such agencies and NGOs; and

c. Any steps that are proposed to enhance the institutional capacity of agencies and NGOs responsible for resettlement implementation.

Eligibility. Definition of displaced persons and criteria for determining their eligibility for compensation and other resettlement assistance, including relevant cut-off dates.

Valuation of and compensation for losses. The methodology to be used in valuing losses to determine their replacement cost; and a description of the proposed types and levels of compensation under local law and such supplementary measures as are necessary to achieve replacement cost for lost assets.

Resettlement measures. A description of the packages of compensation and other resettlement measures that will assist each category of eligible displaced persons to achieve the objectives of the policy (see OP 4.12, para. 6). In addition to being technically and economically feasible, the resettlement packages should be compatible with the cultural preferences of the displaced persons, and prepared in consultation with them.

Site selection, site preparation, and relocation. Alternative relocation sites considered and explanation of those selected, covering

a. institutional and technical arrangements for identifying and preparing relocation sites, whether rural or urban, for which a combination of productive potential, locational advantages, and other factors is at least comparable to the advantages of the old sites, with an estimate of the time needed to acquire and transfer land and ancillary resources;

b. any measures necessary to prevent land speculation or influx of ineligible persons at the selected sites;

c. procedures for physical relocation under the project, including timetables for site preparation and transfer; and

d. Legal arrangements for regularizing tenure and transferring titles to resettles.

Housing, infrastructure, and social services. Plans to provide (or to finance resettlers' provision of) housing, infrastructure (e.g., water supply, feeder roads), and social services (e.g., schools, health services); plans to ensure comparable services to host populations; any necessary site development, engineering, and architectural designs for these facilities.

Environmental protection and management. A description of the boundaries of the relocation area; and an assessment of the environmental impacts of the proposed resettlement and measures to mitigate and manage these impacts (coordinated as appropriate with the environmental assessment of the main investment requiring the resettlement).

Community participation. Involvement of re-settlers and host communities,

a. a description of the strategy for consultation with and participation of re-settlers and hosts in the design and implementation of the resettlement activities;

b. a summary of the views expressed and how these views were taken into account in preparing the resettlement plan;

c. a review of the resettlement alternatives presented and the choices made by displaced persons regarding options available to them, including choices related to forms of compensation and resettlement assistance, to relocation of individuals as families or as parts of pre-existing communities or kinship groups, to sustaining existing patterns of group organization, and to retaining access to cultural property (e.g. places of worship, pilgrimage centers, cemeteries); and

d. Institutionalized arrangements by which displaced people can communicate their concerns to project authorities throughout planning and implementation, and measures to ensure that such vulnerable groups as indigenous people, ethnic minorities, the landless, and women are adequately represented.

Integration with host populations. Measures to mitigate the impact of resettlement on any host

1. consultations with host communities and local governments;

2. arrangements for prompt tendering of any payment due the hosts for land or other assets provided to resettlers;

3. arrangements for addressing any conflict that may arise between resettlers and host communities; and

4. Any measures necessary to augment services (e.g., education, water, health, and production services) in host communities to make them at least comparable to services available to resettlers.

Grievance procedures. Affordable and accessible procedures for third-party settlement of disputes arising from resettlement; such grievance mechanisms should take into account the availability of judicial recourse and community and traditional dispute settlement mechanisms.

Organizational responsibilities. The organizational framework for implementing resettlement, including identification of agencies responsible for delivery of resettlement measures and provision of services; arrangements to ensure appropriate coordination between agencies and jurisdictions involved in implementation; and any measures (including technical assistance) needed to strengthen the implementing agencies' capacity to design and carry out resettlement activities; provisions for the transfer to local authorities or resettlers themselves of responsibility for managing facilities and services provided under the project and for transferring other such responsibilities from the resettlement implementing agencies, when appropriate.

Implementation schedule. An implementation schedule covering all resettlement activities from preparation through implementation, including target dates for the achievement of expected benefits to resettlers and hosts and terminating the various forms of assistance. The schedule should indicate how the resettlement activities are linked to the implementation of the overall project.

Costs and budget. Tables showing itemized cost estimates for all resettlement activities, including allowances for inflation, population growth, and other contingencies; timetables for expenditures; sources of funds; and arrangements for timely flow of funds, and funding for resettlement, if any, in areas outside the jurisdiction of the implementing agencies.

Monitoring and evaluation. Arrangements for monitoring of resettlement activities by the Implementing Agency, supplemented by independent monitors as considered appropriate by the Bank, to ensure complete and objective information; performance monitoring indicators to measure inputs, outputs, and outcomes for resettlement activities; involvement of the displaced persons in the monitoring process; evaluation of the impact of resettlement for a reasonable period after all resettlement and related development activities have been completed; using the results of resettlement monitoring to guide subsequent implementation.

TEMPLATE LARAP IMPLEMENTATION

No	The provision of Compliance	Compliance	Compliance Status
1	Preparation of LARAP in consultation with, and disclosed to, the affected persons in accordance with the provisions of the LARF.	Yes/ No / Not satisfactory	Complied/ Partially complied/ Not complied
2	Submission of LARAP to World Bank for review and clearance prior to award of any civil works contract.		
3	Acquisition and timely transfer of all land and rights of way required by the Investment Program.		
4	All compensation and resettlement assistance be provided to affected persons prior to their displacement and dispossession.		
5	Efficient grievance redress mechanisms are in place in accordance with the LARAP to assist affected persons in resolving queries and complaints if any, in a timely manner.		
6	Availability of adequate staff and resources for supervising and monitoring implementation of the LARAP.		
7	An independent monitor acceptable to World Bank be engaged to carry out external monitoring and evaluation of the LARAP and to report the results to World Bank		
8	If during implementation of the LARAP, any changes to the location, land alignment of roads, or additional environmental and/or resettlement impacts are identified, the LARAP be updated and prior approval by World B and the relevant government agency be obtained before further implementation of the LARAP.		

LAND AUDIT FOR SCENARIO 2

1. *Executive Summary:* Concise summary of resettlement undertaken to date, need for any on-going resettlement, magnitude of displacement, activities undertaken, grievances and key issues addressed, outstanding and on-going monitoring and evaluation processes and key recommendations.
2. *Background:* A brief description of the monitoring process to date covering the project and impacted communities, magnitude of displacement, key resettlement and livelihood impacts, legal framework, eligibility criteria and entitlement framework, timing of the various components of physical and economic displacement undertaken, resettlement and/or livelihood restoration activities and compensation provided and major or outstanding issues or grievances.
3. *Review Objectives:* Outline of the main objectives of the resettlement and/or livelihood restoration plan and a summary of studies and activities undertaken in support of resettlement implementation and livelihood restoration (e.g., preliminary and on-going consultation, stakeholder mapping and census surveys, asset surveys, socio-economic baseline studies, participatory planning meetings, site selection studies, organizational structures for implementation), and assessment of the process and evaluation of the outcome (including any participatory monitoring and evaluation methodologies used).
4. *Key Findings:* Issues to be considered may include, among others:
    - Extent of public information and consultation in advance of land acquisition, and adequacy of ongoing consultation
    - Types of compensation provided and adequacy of that compensation (e.g., sufficient to cover replacement costs of lost assets, housing conditions, compensation/entitlements, income restoration and livelihood sustainability measures)
    - Livelihood condition identification, effectiveness of livelihood restoration measures, and vulnerability assessment
    - Measures taken to protect (affected) vulnerable persons and groups
    - Level of participation of affected people in decisions regarding compensation rates, location of new resettlement sites and options for livelihood restoration
    - Adequacy of replacement housing in terms of physical structure, location, and access to resources and services (such as health, education, water and sanitation, transportation, social and medical

security, agricultural and pastoral land, employment opportunities and training and community development initiatives);

- For resettled people, assess integration into host communities
- Impact on cultural property
- Adequacy of the grievance redress process and outcomes
- Monitoring and evaluation process and outcomes.

5. *Conclusion and Key Recommendations/Corrective Actions:* Concise summary of conclusions and recommendations, and for any gaps or outstanding issues, provide a proposed time bound Corrective Action Plan with Key Actions, dedicated Human Resources, proposed Timeline for close-out and a Budget.

APPENDIX M. CONTENTS OF AN ABBREVIATED LAND ACQUISITION AND RESETTLEMENT ACTION PLAN

1. *Description of the project:* General description of the project and identification of the project area

2. *Potential impacts:* Identification of (i) the sub-project component or activities requiring land acquisition, (ii) zone of impact of such components/activities

3. *Census of the Project Affected Persons (Project Affected People):* Results of the census and inventory of assets, including (i) a list of Project Affected People, distinguishing between those with land rights and those without, and (ii) an inventory of plots and structures affected.

4. *Legal Analysis:* Descriptions of legal steps to ensure the effective implementation of land acquisition under the sub-project, including, as appropriate, a process for recognizing claims to legal rights to land- including claims that derive from customary law and traditional usage

5. *Eligibility:* Identification of the Project Affected People who will be eligible for compensation and explanation of the criteria used to determine eligibility.

6. *Valuation of assets and calculation of compensation for losses:* A description of the procedures that will be followed to determine the form and amount of compensation to be offered to Project Affected People.

7. *Consultations with people who shall lose land and other assets:* A description of the activities carried out to (1) inform Project Affected People about the impacts of the project and the compensation procedures and options, and (2) give the Project Affected People opportunities to express their opinions

8. *Organizational responsibilities:* A brief description of the organizational framework for implementing land acquisition.

9. *Implementation schedule:* An implementation schedule covering land acquisition, including target dates for the delivery of compensation. The schedule should indicate how the land acquisition activities are linked to the implementation of the overall project.

10. *Costs and budget:* Cost estimates for land acquisition for the sub-project.

11. *Grievance procedure:* Affordable and accessible procedures for third-party settlement of disputes arising from land acquisition; such grievance mechanisms should take into account the availability of judicial recourse and community and traditional dispute settlement mechanisms.

12. *Monitoring:* Arrangements for monitoring land acquisition activities and the delivery of compensation to Project Affected People.

APPENDIX N. FEEDBACK FROM STAKEHOLDER CONSULTATION

Stakeholder Consultation – September 14th, 2016

The first stakeholder consultation meeting was held at InterContinental MidPlaza Hotel in Jakarta on September 14th, 2016. PT SMI invited the stakeholders, which included Government agencies, non-governmental organizations (NGOs), academic representatives, and The World Bank. The objectives of this consultation were to present the Geothermal Energy Upstream Development Project and the draft ESMF to key stakeholders and to gather some inputs from the audience to improve the draft. There were two sessions, one in the morning for Government agencies, and one in the afternoon for other parties.

The following table is the summary feedback from the audience and it is all has been integrated into the document or will be considered during project implementation.

A letter was received by PT SMI from several NGOs under the Coalition of Civil Society Indonesia saying they would decline the invitation to attend the meeting. They considered that there was insufficient time to prepare for the meeting and they didn't feel that there was time to effectively engage. PT SMI has taken this feedback on board and will adapt their approach to consultation to more effectively engage with the Coalition and the individual NGO's.

Below is a summary of feedback from Stakeholders during the consultation regarding the ESMF – GEUPD that was conducted on 14 September 2016.

Consultation on the draft of ESMF GEUDP to get feedback and inputs from the public at the national level, including government institutions, the World Bank, NGOs and academicians. The consultation was organized by PT SMI. The following points are the feedback from the participants:

- Local community should be involved as early as possible to ensure that the project will be well understood.

- Project needs to conduct screening regarding the presence of Indigenous Peoples in the project area.

- In the context of dispute management, the Project needs to prioritize benefits in the form of access, not monetary compensation.

- Understanding gender equality needs to be emphasized to stakeholders.

- Legal aspects need to be expanded, because regulations regarding work safety do not yet include in the existing legal regulations.

- PT SMI needs to make detailed procedures related to community livelihood around the project being financed.

- This ESMF document can become a reference for other geothermal projects, therefore, a verification mechanism to be set up in order to monitor the ESMF implementation.

The following list are consultation participants:

Government institutions:

- Ministry of Agrarian Affairs and Spatial Planning / National Land Agency
- Ministry of Energy and Mineral Resources
- Ministry of Environment and Forestry
- Ministry of Finance
- Ministry of National Development Planning

NGOs:

- AMAN (*Aliansi Masyarakat Adat Nusantara*)
- IESR (Institute for Essential Services Reform)
- JATAM (*Jaringan Advokasi Tambang*)
- Publish What You Pay
- Telapak
- The Samdhana Institute
- TUK (*Transparansi untuk Keadilan*)
- WWF-Indonesia
- *Yayasan Burung*
- *Yayasan Pusaka*

Donor funding organization:

- The World Bank

Detailed ESMF draft consultation activity reports are kept in the project archive. Stakeholders wish to obtain such information can submit a formal request to geudp.esmf@ptsmi.co.id

Stakeholder Consultation – July 28th, 2020

The stakeholder consultation of the revised draft Version 2 GEUDP ESMF was not an in-person event due to COVID-19 pandemic situation to prevent health risks. It was held by sending an email to stakeholders on Tuesday, July 28th, 2020 with an opportunity window for feedback in 14 working days.

The following is the institution and organization that were invited to provide feedback on draft of the Revised GEUDP ESMF (the email and detail stakeholders list are presented below):

National Government:

- Ministry of Energy and Mineral Resources
- Ministry of Finance
- National Development Planning Agency

Local Government:

- Local Government of West Manggarai Regency, East Nusa Tenggara Province
- Local Government of West Halmahera Regency, North Maluku Province

NGOs:

- Telapak
- Institute of Essential Services Reform (IESR)
- WWF-Indonesia
- *Yayasan Burung*

Donor Funding Organization:

- The World Bank

The consultation description written in the email is summarized below:

- To disclose and explain a minor change to the GEUDP ESMF (change in implementing agency responsible for environmental and social management, no change to agreed assessment and management actions in the previous ESMF);
- The PT SMI's role will be focus on management of the Infrastructure fund for the Geothermal Sector (IFGS) from the Government of Indonesia and management of the grant from the World Bank;

- PT GDE will be responsible as an implementing agency of the GEUDP that includes technical and procurement aspects as well as potential impacts management due to each sub-project activities of the GEUDP;
- To explain that the restructuring will involve changes in the implementation arrangement, results frameworks, procurement, financial management, disbursement arrangements, disbursement estimates, legal covenants, loan closing date, and implementation schedule but no change to the PDO, economic and financial analysis, technical analysis, social and environmental analysis;
- In following-up the current activities of the GEUDP Waesano, PT SMI will be responsible for the civil and infrastructure activities, whereas PT GDE will be responsible in relate to the overall implementation of well drilling activities in Wae Sano;
- Dissemination of the COVID-19 protocol for the implementation of Geothermal Energy Upstream Development Project (GEUDP)

The Revised Version 2 GEUDP ESMF was disclosed in the websites:

- https://ptsmi.co.id/wp-content/uploads/2020/07/July-2020-Draft-ESMF-GEUDP-Revision.pdf
- https://www.geodipa.co.id/environmental-social-standard/

During the 14 working days' period of consultation and disclosure, there is only a response received from the Ministry of Energy and Mineral Resources. The feedback is in relation to the rectification of total geothermal developed against existing geothermal resources until December 2019 which has been updated in page 8 (paragraph 3).

STAKEHOLDERS CONSULTATION BY EMAIL JULY 28th, 2020

Eviyanti PMU Geothermal

From: Geudp ESMF <geudp.esmf@ptsmi.co.id>
Sent: Tuesday, July 28, 2020 4:54 PM
To:

Cc:

Subject: Disclosure atas Revisi ESMF GEUDP
Attachments: July-2020-Draft-ESMF-GEUDP-Revision.pdf

Yth. Bapak dan Ibu,

Terima kasih atas dukungan dan kepercayaan yang telah diberikan selama ini.

Sebagai bagian dari transparansi proses, berikut kami sampaikan rancangan perubahan dokumen Rencana Kerja Pengelolaan Lingkungan dan Sosial (*Environmental and Social Management Framework* atau "ESMF") untuk Proyek Pengembangan Hulu Energi Panas Bumi (*Geothermal Exploration Upstream Development Project* atau "GEUDP"), yang selanjutnya disebut sebagai "ESMF GEUDP". Dokumen ini merupakan dokumen yang harus disusun oleh Institusi Pelaksana sebagai pedoman untuk pengelolaan dampak dan risiko lingkungan dan sosial dalam pelaksanaan GEUDP yang didanai oleh Bank Dunia dengan dana pendamping dari Pemerintah Republik Indonesia.

Pada Desember 2016, PT Sarana Multi Infrastruktur (Persero) ("PT SMI") yang merupakan Lembaga Keuangan Badan Usaha Milik Negara ("BUMN") di bawah Kementerian Keuangan, sebagai Institusi Pelaksana GEUDP bersama Bank Dunia telah menyusun dokumen ESMF GEUDP dan dipublikasikan pada laman PT SMI dan laman Bank Dunia. Dokumen tersebut menguraikan secara rinci kebijakan, prinsip, prosedur, pengaturan kelembagaan, dan alur kerja sebagai pedoman bagi institusi pelaksana untuk menghindari, meminimalkan dan melakukan mitigasi terhadap potensi dampak lingkungan dan sosial yang merugikan dari kegiatan GEUDP.

Saat ini, para pemangku kepentingan terkait termasuk Pemerintah Indonesia dan Bank Dunia melihat kebutuhan restrukturisasi dalam rangka perkuatan dan percepatan pelaksanaan GEUDP. Beberapa aspek yang direncanakan dalam restrukturisasi GEUDP ini adalah:

1. Pelibatan PT Geo Dipa Energi (Persero) ("PT GDE"), sebuah BUMN yang bergerak khusus dalam sektor energi panas bumi, sebagai Institusi Pelaksana dalam membantu PT SMI;
2. PT GDE akan bertanggung jawab untuk semua aspek teknis, pengadaan, dan pengelolaan dampak aktifitas GEUDP;
3. PT SMI akan fokus dalam perannya pada pengelolaan Pembiayaaan Infrastruktur Sektor Panas Bumi ("PISP") dari Pemerintah Indonesia dan pengelolaan dana hibah dari Bank Dunia;
4. Sebagai kelanjutan dari aktifitas GEUDP yang telah dilaksanakan, PT SMI akan melanjutkan pengelolaan kegiatan konstruksi sipil dan infrastruktur di Wae Sano (Kecamatan Sano Nggoang, Kabupaten Manggarai Barat, Provinsi

Nusa Tenggara Timur). Adapun PT GDE akan mengelola kegiatan yang berhubungan dengan pelaksanaan pengeboran sumur eksplorasi di daerah tersebut;

5. Terdapat beberapa perubahan-perubahan dalam hal pengaturan pelaksanaan GEUDP, kerangka kerja (*results frameworks*), pengadaan (*procurement*), pengelolaan keuangan (*financial management*) , pengaturan pengeluaran (*disbursement arrangements*), perkiraan pengeluaran (*disbursement estimates*), perjanjian (*legal covenant*), dan jadwal pelaksanaan namun tidak merubah tujuan kegiatan GEUDP (*Project Development Objective* atau "PDO"), analisis ekonomi dan finansial, analisis teknis, serta analisis sosial dan lingkungan;
6. Mencakup persyaratan dalam penerapan pencegahan pandemi COVID-19.

Adapun dalam analisis risiko, mitigasi risiko, serta dampak sosial dan lingkungan tidak dilakukan perubahan karena jenis kegiatan yang diusulkan dalam restrukturisasi GEUDP tidak merubah jenis kegiatan yang direncanakan.

Demikian rancangan perubahan ESMF GEUDP (terlampir atau dapat diakses melalui https://ptsmi.co.id/environmental-and-social-safeguard/) ini kami sampaikan untuk menjunjung asas transparansi dalam melakukan perubahan serta mengharapkan umpan balik dari Bapak dan Ibu.

Untuk kepentingan finalisasi dokumen ESMF GEUDP ini kami mohon saran, pendapat atau tanggapan Bapak dan Ibu yang kami harapkan dapat diterima sebelum hari **Jumat, 15 Agustus 2020**. Kami juga terbuka untuk merespon pertanyaan, tanggapan, atau usulan terkait dokumen dan kegiatan GEUDP secara keseluruhan kapan saja selama proyek berjalan, yang bisa disampaikan melalui balasan kepada email ini (**geudp.esmf@ptsmi.co.id**).

Demikian yang dapat kami sampaikan dan terima kasih atas pertanyaan, masukan, tanggapan, kerjasama, dan perhatian yang diberikan.

Salam Hormat,
GEUDP-ESMF

STAKEHOLDERS LIST

CONSULTATION ON THE REVISION OF GEUDP ESMF – JULY 28th, 2020

No.	Institution/Organization
I.	**Donor Funding Organization**
1.	World Bank
II.	**National Government**
2.1	**Ministry of Finance**
1	Director General Of Financing and Risk Management
2	Directorate General of State Asset Management
2.2	**Ministry of Energy and Mineral Resources**
1	Directorate General of Renewable Energy and Energy Conservation
2	Geological Agency
2.3	**National Development Planning Agency**
1	Directorate of Energy, Mineral and Mining Resources
III	**Local Government of West Manggarai Regency, East Nusa Tenggara Province**
1	2nd Assistant of Regent (Economic and Development Sector)
2	Environmental and Cleanliness Agency (*DLHK-Dinas Lingkungan Hidup dan Kebersihan*)
IV.	**Local Government of West Halmahera, North Maluku Province**
1	Workforce, Transmigration and Energy & Mineral Resources Agency
2	Investment and One Stop Services Integrated Agency
V.	**Non Government Organization**
1	Telapak
2	IESR (Institute of Essential Services Reform)
3	WWF
4	Yayasan Burung Indonesia
VI.	**Implementing Agency**
1	PT Geo Dipa Energi (Persero)
VII.	**Financial Management**
1	PT Sarana Multi Infrastruktur (Persero)

APPENDIX O. CAP IMPLEMENTATION PROGRESS MONITORING

Activity Title:

Name of assessor:

Description of Activity and progress (planned, underway, completed):

(*Insert a detailed description and attach supporting information such as maps, photos etc.)*

Site visit completed: (__-__-____)

List of documents reviewed:

List of interviews completed with:

Consultation meetings held:

Signed by:

Template for Corrective Action Plan Progress Monitoring

Action No.	Reference Framework	Action Description	Documentation/Indicator of Completion	Required Completion Date	Progress Status and Actual Completion Date	Remarks
1	OP/ 4.01	…	…	…	…	…
2	…	…	…	…	…	…
3	OP/BP 4.36	…	…	…	…	…
4	…	…	…	…	…	…
5	OP/BP 4.11	…	…	…	…	…
6	…	…	…	…	…	…
7	OP/BP 4.10	…	…	…	…	…
8	…	…	…	…	…	…
9	OP/BP 4.12	…	…	…	…	…
10	….	…	…	…	…	…
11	OP/BP 4.37	…	…	…	…	…
…	…	…	…	…	…	…