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Social Safeguard Measures in Geothermal Exploration: Fulfilling Requirements for the Geothermal Resource Risk Mitigation Program

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ABSTRACT

Geothermal exploration in Indonesia plays a critical role in achieving the national target for renewable energy development. However, the early exploration phase often faces challenges related to social safeguards, primarily attributed to a communication gap between geothermal developer companies and local communities. To secure funding from lenders, potential borrowers must fulfil specific requirements to demonstrate their commitment to social safeguard measures. Failure to understand and address these requirements can lead to project delays and pose significant risks to the project's success.

In this context, the Geothermal Resource Risk Mitigation Program (GREM), a geothermal exploration funding program by The World Bank and The Ministry of Finance, aims to support geothermal exploration projects in Indonesia. This program highlights the urgency to accelerate geothermal exploration activities and emphasizes the significance of effective communication and stakeholder engagement in managing social impacts. The GREM program also sets forth specific requirements that potential borrowers must fulfil to showcase their adherence to social safeguard standards.

This paper examines the social safeguard issues that arise during geothermal exploration in Indonesia and explores the necessary measures to fulfil GREM's requirements. Drawing on case studies and best practices, it presents a comprehensive approach to address social safeguard concerns, encompassing social impact assessments, stakeholder engagement plans, resettlement and livelihood restoration measures, indigenous peoples' rights protection, health and safety protocols, local employment opportunities, and sustainable community development initiatives.

By understanding and fulfilling GREM's social safeguard requirements, geothermal developers can enhance their eligibility for funding and demonstrate their commitment to responsible and sustainable practices. The paper underscores the critical role of proactive planning, effective communication, and robust monitoring and reporting mechanisms to ensure successful geothermal exploration projects aligned with national targets while safeguarding the interests of local communities and the environment.

1. INTRODUCTION

1.1. Background

Geothermal exploration projects in Indonesia play an important role in achieving national targets for renewable energy development. However, it is often the case that geothermal exploration projects in Indonesia face the crucial challenge of protests and even rejection from some local community that against the presence of geothermal projects. Some local community in geothermal manifestation areas have already know that natural heat can be used for a number of practical applications and that geothermal projects can also provide important benefits to the region and communities in the project area. However, there are some people who are concerned about the impact that large projects (especially for power generation) can have on the environment and economy of the area. Therefore, different positions are formed in public opinion in areas where geothermal projects are to be initiated, with some people being supportive, others conditionally encouraging, and others opposing the implementation of projects in their area.

According to Cataldi (2001) different positions on the acceptance of geothermal exploration projects depend on several local factors, including socio-economic conditions, cultural background, and individual or group interests. Most frequently, though, when news spread on the possibility to have a geothermal project initiated in a given area, many of its residents eulogize natural heat with terms like clean, cheap, friendly, benign, green, sustainable, and the like, thus creating a favorable climate for the implementation of the project. However, individual and collective attitude towards geothermal development usually changes with time as the project reaches the drilling stage and works begin for installation of equipment and plants. Indeed, undesirable effects may result from these activities on i) ecosystem (air, land, flora, fauna, and superficial and underground water); ii) human health (from water pollution, noise, and gas emission); and iii) economy (detrimental impact on some production activities and tourism, and damages to crops and private properties). Moreover, iv) reaction often grows against landscape modifications and alteration of natural features of cultural or religious interest, caused by civil and industrial works, and by changes in the use of public areas resulting from project activities. In short, people's opinion on the impact that geothermal development may have in a given area is a matter of economic and social aspects (Cataldi: 2001).

There have actually been quite a number of studies from experts that discuss the importance of social acceptance and building public trust in geothermal exploration projects, such as the study conducted by Fadhillah et al. (2022 and 2023), Cataldi (2001), and Kubota, (2013). From the previous studies the experts have consider that in achieving social acceptance requires trust between the developers and the local communities, which can be achieved through the implementation of certain strategies. According to Ferdino R. Fadhillah et all (2022 and 2023) social acceptance issues as non-technical issues for geothermal project that need to be solved to prevent the social risk will lead to project delay/stop that lead to cost overrun, and loss of reputation. Fadhilah recommends several actions could be considered to obtain acceptance, such as comprehensive community development program, excellent project planning and implementation to shape the good reputation of geothermal industry corporates, and clear communication to all stakeholders to keep the commitment and maintain communication to local stakeholders and in mitigating community rejection issues.

Whilst according to Raffaele Cataldi (2001) social acceptance is an important requisite for the smooth implementation of geothermal projects. The three main conditions to win project acceptance by communities residing in the work area are: i) minimization of environmental impact; ii) avoidance of adverse effects on people's health; and iii) creation of direct benefits for local populations. Cataldi take into account to meet these conditions, the project owner should be prepared to bear specific burdens in the form of external costs, whose amounts (depending on the site, type, and size of the project) range, on the average, between 1-2% and 2-4 % of the total construction cost, for direct use projects and multi-purpose projects, respectively.

Last but not least is the opinions of Hiromi Kubota (2013) where from his research shows that the societal acceptance of geothermal power by local stakeholders is the fundamental barrier as it affects almost all other barriers, such as financial, technical, and political risks. Therefore, the project managers and local government officials should always strongly be concerned about the adverse impacts of geothermal projects and improving the risk management of geothermal projects.

If we consider the opinions from the experts above, the development of geothermal exploration projects in many parts of the world shows the potential to cause significant social impacts and social risks. If these social impacts and social risks are not addressed promptly from the very beginning in an appropriate and measurable manner, they can lead to project delays/terminations that lead to cost overruns and loss of company reputation. As a way to prevent and mitigate these risks, the social safeguard management measures must be a top priority.

1.2. Objective

This study in particular is expected to raise awareness of the importance of implementing appropriate measures in preventing social risks and at the same time to achieve public trust in geothermal exploration project through the implementation of social safeguards. Specifically, this study will discuss the social safeguards instruments supported by the GREM (Geothermal Resource Risk Mitigation) Project to guide investors in their efforts to avoid, minimize, or mitigate adverse social impacts and risks arising from geothermal exploration projects.

By understanding and fulfilling the social safeguards requirements under the GREM, geothermal developers are expected not only to improve their eligibility for funding from the GREM scheme, but also importantly to ensure the success of geothermal exploration projects in accordance with national targets, and international social safeguards performance standards, while maintaining the sustainability of local communities and the environment.

1.3. Research Questions and Research Methodology

This study aims to provide awareness related to the importance of implementing appropriate measures in preventing and managing social risks in geothermal project exploration through the implementation of social safeguard management measures by providing the analysis related to the question below:

1. What is the potential social impact and risk of geothermal exploration projects in Indonesia?
2. What are the factors that cause social impacts and risks in geothermal exploration projects in Indonesia?
3. How can the social safeguards instruments support the project to prevent and mitigate the social impacts and risks of geothermal exploration projects?

In conducting this study, the author conducted a literature study by collecting and analyzing available data related to published cases of social impacts and social risks, especially based on previous research studies conducted by geothermal experts towards geothermal exploration projects in Indonesia. In addition, the author also used data and information obtained directly from field observations of the implementation of several geothermal exploration projects in Indonesia, especially those in the GREM project implementation.

2. SOCIETAL CHALLENGES IN GEOTHERMAL EXPLORATION PROJECTS IN INDONESIA

2.1. Negative Stigma Towards Geothermal Exploration Projects

There are several factors that contribute to the emergence of a negative stigma towards geothermal exploration projects in Indonesia, including the first factor is the spatial characteristics of geothermal exploration project locations. Most geothermal potential in Indonesia is in or close to forest areas. This has raised societal concerns about environmental and social impacts, especially in forests that play an important role in supplying fresh water, harbor endangered wildlife, or have high cultural or religious values. Environmental and social impacts and risks associated with geothermal power development are complex and significant and the degree to which these risks and impacts vary between geothermal power projects is not well understood (Ampaire: 2020). In addition, the location of geothermal project exploration near to community's plantations, residential areas, or tourism areas, as well as in the territory of indigenous communities or

cultural heritage sites. The existence of these factors will certainly lead to high sensitivity to environmental, community health and safety, community's livelihood, and socio-cultural aspects of local communities.

The second factor is that in making project designs, developers sometimes do not involve the social and environmental safeguard team, which makes project designs pay less attention to the existence of sensitive conditions of the physical and social environment aspects in the project plan area. The existence of spatial characteristics that have the potential to cause high social sensitivity in geothermal exploration projects as described above is also exacerbated by the third factor, namely the absence of earnest social and environmental safeguard management by developers. Although efforts to manage social and environmental safeguards in geothermal exploration projects is one of the main requirements that must be carried out by developers, for example through the obligations of UKL-UPL, AMDAL, or ESIA, but mostly it is still done as an ornament to simply fulfilling obligations from the government or lenders. Another crucial social safeguard aspect that is often neglected by geothermal exploration projects is the reluctance to involve affected communities and other project's interest parties as early as possible in the preparation of the project plan.

The fourth factor is, as explained earlier, the limited understanding of the community and perhaps other stakeholders at the regional/local level about geothermal energy projects. Some people think that geothermal projects are like "mining" projects that can be detrimental because they can degrade natural ecosystems and are harmful to human life. As a result of this perception, some environmental activists have raised the issue that the exploration of geothermal projects could lead to an escalation of disasters that cannot be predicted and mitigated effectively in the field.

2.2. Geothermal Exploration Projects Impact and Societal Challenges

The existence of several factors that contribute to the negative stigma as mentioned above has eventually in some cases made the presence of a geothermal exploration project difficult to gain support and acceptance from the local community. According to Fadhillah et all (2022 and 2023) the project impact and community concern in geothermal exploration project can be triggered at the following stages of project implementation below:

1. **Preliminary and 3G survey**
   According to ESMAP (2012), this phase usually includes field activity such as field mapping, geological-geochemistry samples collection, geophysics equipment stationing, and geohazard identification. The preliminary infrastructure survey is conducted by observing access road conditions. The field team could conduct the informal interview with the community to gather general views and responses to the geothermal project during this phase.
   The local community has been involved in the project's early phase as guides and field assistants. Furthermore, the locals also could facilitate accommodation, transportation, and supplies for the team during survey activities. The activities affect the community since the field team would trespass the local land to obtain field data. The manifestation fluid sampling could disturb local daily activities since it may associate with water resources, local tourism destination, and scarce or sacred places.
2. **Infrastructure preparation and drilling**
   The infrastructure preparation also performs the land acquisition process where the project owner is willing to buy the local land that would be used as drilling infrastructure. The land acquisition led to changes of local occupation since most locals worked as farmers and planters on their land before the project owner acquired it to be prepared for drilling infrastructure (Purba et al., 2021). The community concern could arise related to the loss of their occupation as their primary economic income and assumed the project has low benefit to the community since no sustainable occupation option. Drilling infrastructure involves mass land clearing activities and deforestation to prepare the access road, well pad, and basecamp area. This condition would trigger the concern of the community related to fear of wild animals' entrance to villages and endangering the ecosystem (Ibrohim, Prasetyo, & Rekinagara, 2019). The large-scale civil work that includes heavy equipment mobilization and massive soil material needs to be executed to develop and improve the infrastructure. Those activities impact the community since it induces soil contamination on water flow lines, dirty roads, and dust.
   While on the drilling activities, public concern is related to using extensive local water sources for drilling operations. The community feared that activity would induce contamination and loss of water sources for the local community. Furthermore, the community is concerned about drilling risks such as H2S gas and blowout events (Adityatama, Purba, & Kristianto, 2018). This phase involves large workers consisting of local and non-local workers. It raises local concerns about the different cultures and social values between local and non-local workers in daily interaction.

Based on data available from Fadhillah et al. (2022 and 2023) there are identified 14 geothermal working area that have experienced with societal challenges, which are: Gn. Lawu, Baturaden, Gn. Talang, Gn. Rajabasa, Kaldera Danau Banten, Wae Sano, Tabanan, Dieng, Gn. Ciremai, Sorik Marapi, Sokoria, Bittuang, and Tampomas. With reference to the analysis of typical geothermal challenges in Indonesia from Fadhillah et al. (2022 and 2023), it is acknowledged that in term of societal challenges there are two barriers or limitations that slow down the process of geothermal development in Indonesia. The limitations related to social issues including; local communities' rejection and high cost of land indemnification. One of the renowned cases is in Mount Lawu, there are any community's rejection because of lack of understanding of geothermal energy that supported by misinformation related to negative impact of geothermal project. As the results, the project was stopped until nowadays and government pull out this area from geothermal development roadmap. Other case of community rejection also occurred in the Waesano geothermal exploration project due to the assumption from some local people that the location of the drilling point is in the living space of community, ranging from settlements, farmlands, water sources, traditional houses, churches, and schools so that it is feared that it will threaten the safety of Waesano community.

Table 1: Typical Geothermal Challenges in Indonesia (extracted and Adapted from Fadhillah et all , 2022 and 2023)

Categories	Challenges	Remarks
Upstream challenges	Land acquisition issues	In general, the local community uses the flat area in Indonesia's volcanic area for agriculture or housing. Providing the acquisition cost for a family's livelihood in rural Indonesia is often tricky, especially if the land is their only asset. One mitigation strategy is allowing enough time for the landowner to move from one source of livelihood to another. Negotiation is frequently tough if the property buyer (geothermal developer or local government) demands a strict timeline for the landowner to leave the land they have worked on for years (Purba, 2021b).
Additional challenges	Lack of public understanding on geothermal energy	The public's lack of understanding of the importance of geothermal projects frequently leads to rejection, resulting in delays in geothermal development initiatives. This circumstance is most common when geothermal projects are still in the discovery stage and local governments, development corporations, and local communities still recognize each other and have not yet created trust between each side—social dynamic condition and public acceptance issues that can be stopper of geothermal project.

3. SOCIAL SAFEGUARD IN SUPPORTING GEOTHERMAL EXPLORATION PROJECT

3.1. Social Safeguard as Instruments to Prevent and Mitigate Undue Harm to Communities During the Development Process.

Social safeguard policies are an important tool developed by international financial institutions to prevent and mitigate undue harm to communities during the development process. When project proponents identify and design projects, safeguards for affected communities should be undertaken after an assessment of all potential risks and social impacts (positive or negative) associated with development interventions. Social safeguards should help define measures and processes to effectively manage risks and enhance positive project impacts. Social safeguard policies aim to prevent and mitigate undue harm to people and their environment in the development process, to compensate affected people and to restore livelihoods to at least the level prior to development intervention. Through the implementation of social safeguard policies, it is expected to serve not only as a tool to improve the quality of project proposals, but also as an opportunity for affected community members and other stakeholders to engage in the implementation of the development process and increase their sense of ownership of the project whatever of the source of financing.

Most International Financing Institutions (IFIs) require the application of safeguards to approve projects, and while protocols and formats vary, the issues considered are common. In addition, an increasing number of countries are enacting the application of safeguards through a range of investment planning, policies and regulations aimed at achieving more sustainable development. Safeguard policies frequently rely on internationally agreed standards and guidance in an effort to not create duplication of efforts or conflicting requirements for project sponsors.

The World Bank itself has provisions contained in Environmental and Social Policies that aim to ensure that the community and the environment can be protected from potential adverse impacts that may be caused by the implementation of a development project. In principle, the Environmental and Social Policies of the World Bank seek to identify, avoid, and minimize all forms of potential harm that may arise because of the implementation of a development project on humans and the environment. Through this policy, the World Bank requires borrowing governments to address certain environmental and social risks to obtain support from the World Bank for investment projects. To this end, environmental and social management systems will be incorporated into project design and implementation in order to improve the effectiveness, benefits, and sustainability of development outcomes.

In August 2016, the World Bank has adopted a new set of environmental and social policies called the Environmental and Social Framework (ESF). Starting October 1, 2018, the ESF applies to all new investment project financing funded by the World Bank. The new World Bank's Safeguard framework provides broad coverage of environmental and social issues, including important developments related to transparency, non-discrimination, social engagement, public participation, and accountability. The ESF also places greater emphasis on building the capacity of borrower governments themselves to address environmental and social issues. The World Bank's environmental and social policies aim to ensure that communities and the environment are protected from the potential adverse impacts of the projects it finances. The policy helps identify, avoid, and minimize harm to communities and the environment. The policy also requires borrowing governments to address certain environmental and social risks in order to receive World Bank support for investment projects.

In brief, the objectives of the World Bank Safeguard Policies are as follows:

- Safeguard policies are a way to integrate environmental and social issues into decision making.
- Support participatory approaches and transparency.
- Effective implementation of Safeguard Policies is essential to achieve Sustainable Development
- Provide a set of specialized tools to support development process.
- Ensure that environmental and social issues are thoroughly evaluated in project preparation and supervision.
- Avoid, minimize, mitigate and/or compensate for adverse environmental and social impacts of Bank-supported projects.
- Provide a mechanism for consultation with project affected peoples (PAPs) and civil society (including NGOs);

- Fully disclose relevant project information to PAPs and public stakeholders; and
- Supervise safeguards compliance and outcomes during project implementation.

3.2. GREM Facility

Indonesia is one of the world's largest producers of geothermal energy, with significant untapped potential for further development. Meanwhile, Indonesia continues to rely heavily on fossil-fired power generation. In 2018, the total installed capacity was 57 gigawatts (GW) of which 88 percent from fossil fuels and 12 percent renewable sources, to meet a peak demand of 40 GW. Important policy goals have been formulated by the National Energy Council to re-establish Indonesia's energy independence through (i) re-directing energy resources from export to domestic market and (ii) rebalancing the energy mix towards indigenous energy supplies. The policy implies transforming the energy mix by minimizing oil consumption and raising the share of renewable energy in the country's energy mix and consumption of coal and optimizing the production of gas.

The Government of Indonesia (GoI) has set the renewable energy target of 23 percent by 2025. The World Bank is assisting the Government of Indonesia in establishing a Geothermal Resource Risk Mitigation (GREM) Facility ("the Facility") to support exploration drilling by state-owned and private sector developers. The main objective is to scale up investment in geothermal energy development in Indonesia. This will be achieved through providing about US$ 375 million for upstream resource development (i.e., exploration and delineation drilling) – the riskiest phase of geothermal development. The Facility will be managed by PT Sarana Multi Infrastruktur (Persero) ("PT SMI") as the financial intermediary, and it consists of two facilities: (i) Public Sector Window and (ii) Private Sector Window. The GREM Project supports the GoI in reaching this target by scaling up investments in geothermal energy development and reducing greenhouse gas emissions in the country. As a climate co-benefit, the Project is expected to avoid over 112 MtCO2e over the 30-year lifetime. It is also expected that the proposed Project will also bring employment for skilled and unskilled workers engaged in drilling, civil works, infrastructure construction, and auxiliary services.

PT SMI through the Facility will provide geothermal developers with a debt package for exploration drilling, with the possibility of another package for delineation drilling. The financing support will confirm whether there is sufficient productive steam resource for power generation. After the resource is largely confirmed, the developer can use project finance for exploitation drilling and power plant development.

For the public sector window, there will be a de-risking component using funding from the Government of Indonesia under the Dana Pembiayaan Infrastruktur Panas Bumi ("PISP Fund") if the resources are not confirmed, or the exploration comes to an unfeasible result (please see the Ministry of Finance ("MoF") Regulation No. 80/KMK.08/2022). Meanwhile, for the private sector window, the debt package will be evenly split between a loan financed by the World Bank and a financial instrument funded by the Green Climate Fund and/or the Clean Technology Fund. The financial instrument will be based on so-called the fair-market value of the Special Purpose Vehicle at the time the Sponsor chooses to buy back the financial instrument, thus creating a risk-sharing mechanism.

The GREM facility comprises the following components:

Component 1 – Geothermal Resource Risk Mitigation (US$455 million for Phase 1)[1]
Component 1 will support the establishment of a geothermal resource risk mitigation facility (the Facility), which will provide financing to mitigate the risk of resource confirmation (including exploration and delineation drilling) of eligible public sector entities, and eligible private sector developers (each a Developer, and typically, a special purpose vehicle (SPV) established by their owner (Sponsor) for the development of a specific geothermal site).
Component 2 – Technical Assistance and Capacity Building (US$6.25 million for Phase 1)[2]
Component 2 will finance support to PT SMI in the set up and management of the Facility. This include PT SMI's incremental operating costs as well as procurement of highly specialized (geotechnical, legal, and financial) consulting services to support the rigorous evaluation of sub-financing proposals, validation of complex geoscientific data, supervision of environmental and social safeguards compliance by the sub-borrowers.

The GREM Facility is another initiative to complement the previous Geothermal Energy Upstream Development Project (GEUDP) which also supported by The World Bank and funded by Clean Technology Fund (CTF) and Global Environment Facility (GEF). Under the GREM Project, PT SMI (the project implementing agency) provides sub-borrowers with debt financing for resource confirmation drilling, through provision of loan and de-risking facility with total amount of up to US$ 30 million for each exploration subproject. The eligible expenses include site preparation, construction of drilling infrastructures (road, well pad), drilling works, well testing, site support services, and update of pre-feasibility study post-exploration drilling. The developers who are interested to apply for the facility shall submit a proposal to PT SMI which consists of company information, technical documents, and safeguards documents, with detail as described in the GREM's operations manual. A Gender Action Plan (GAP) is also required to be submitted by the developers.

[1] Consisting of US$150 million from IBRD, US$97.5 million from the GCF, US$72.5 million from the Clean Technology Fund (CTF), US$75 million from GoI's PISP , which will leverage US$60 million in private developers' equity.
[2] Consisting of US$2.5 million from GCF, US$2.5 million from CTF, and US$1.25 million from the Global Infrastructure Facility (GIF).

3.3. The World Bank Social Safeguard Policies Triggered by the Geothermal Exploration Project

3.3.1. OP/BP 4.10 Indigenous People (IPs)

The criteria for Indigenous Peoples have the following characteristics:

1. The existence of awareness and self-recognition as a social group that has the same historical background, origins, and ancestors, and is recognized by other parties around it.
2. There is a collective attachment to a certain territory, which geographically becomes a separate habitat from other groups.
3. Have cultural, social, economic, political and legal values and institutions that distinguish them from other groups.
4. Has a language, or at least a dialect of its own.

Indigenous Peoples have specific rights over land or natural resources, as defined in Operation Policy 4.10. To respect these rights, there are more stringent requirements related to engaging Indigenous People, which often means using forms of engagement that give greater decision-making authority to representatives of these communities, including Free, Prior and Informed Consultation (FPIC). The FPIC is as an effective process ensures that Indigenous Peoples are meaningfully engaged and have sufficient information about the project and sufficient time to be involved in decisions. The implementation of FPIC is based on the principle of respect and self-determination. Respect principle means Indigenous Project-Affected People are treated with full respect and recognizing the project is in their home and they must live with all impacts. Accordingly, the indigenous culture should permeate Project-IP interactions. Whilst self-determination means affected the indigenous communities will be granted their right to collaborate with other project stakeholders to determine their own indigenous development trajectory. Therefore, the Indigenous People can freely make decisions without coercion, intimidation, or manipulation from external parties.

The FPIC shall be applied if:

- The project impacts on customary lands or resources.

- The project causes relocation of Indigenous People from traditional or customary land.

- Cultural heritage was significantly affected by the project.

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 minimize impacts and provide culturally appropriate benefits and mitigation measures. 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).

3.3.2. OP/BP 4.11 Physical Cultural Resources (PCR)

Physical Cultural Resources (PCR) can be defined as Movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. The presence of a project in an area will potentially have an impact on disturbance, degradation, desecration of cultural sites or artefacts because of land disturbances, land acquisition, impacts on geothermal features or landscapes.

OP/BP 4.11 is a requirement of the World Bank to avoid or mitigate adverse impacts resulting from project development on cultural resources. It is possible that PCR will be found near geothermal exploration projects. In some cases, in Indonesia, local communities consider geothermal energy manifestations as sacred. The ESMF includes requirements for preparing a PCR Management Plan (PCRMP), which will be developed as part of the ESIA and ESMP processes, as well as requirements for chance discovery procedures that will be attached to each ESMP.

Considering the physical cultural resources may not be known or visible; therefore, it is important that a project's potential impacts on physical cultural resources be considered at the earliest possible stage of the project planning cycle. The project to determine the existence of Physical Cultural Resources within project area within Environmental Assessment and develop risks mitigation measure.

The Physical Cultural Resources management shall be applied if:

- Project carries out excavations, demolition, changes to the surface of the earth, or similar activities that will change other physical environments.
- Located in a protected/conservation area or its buffer zone.
- Located in a cultural heritage area and/or strongly suspected of being a cultural heritage area.
- Projects that are planned as protected/conservation areas and/or cultural heritage areas.

Basically the project should avoid this cultural heritage area. If this is not possible, then the project must carry out studies to find opportunities to manage its impacts:

- Relocating and/or modifying the project's physical footprint.
- Carry out conservation and rehabilitation in place (in situ);
- Relocation of cultural heritage objects.
- Doing documentation.
- Strengthen the capacity of the government responsible for managing cultural heritage.

- Building a monitoring system for managing cultural heritage.
- Arrange the management schedule and the costs needed to carry out the management.
- Registering the findings of the said cultural heritage.
- Develop a Cultural Heritage Management Plan.

If a project activity may affect cultural heritage, the project proponent will consult with affected communities that have cultural heritage as part of their longstanding culture. The project proponent will consult with affected communities to identify important cultural heritage, and include in the project proponent's decision-making process the views of affected communities. This consultation will also involve relevant national and local governments authorized to protect such cultural heritage.

3.3.3. OP/BP 4.12 Involuntary Resettlement (IR)

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.
(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 so chosen so as to avoid these impacts altogether or to minimize them to the extent possible.

The OP/BP 4.12 mechanism shall be applied if:

- Acquisition of land / property which displaces people physically and / or economically.
- The presence of the project causes involuntary restriction of access to areas that are important to the community such as agricultural land, water sources, parks, forests, and others which may lead to adverse impacts on livelihoods.

The objective of Involuntary Resettlement policy is to avoid or minimize involuntary resettlement, if this is not possible; assist displaced persons in improving or restoring their livelihoods and living standards relative to pre-displaced levels or to levels before the commencement of the project, whichever is higher. The policy will cover loss of shelter, assets and access to assets, loss of income sources or means of livelihood, whether people must move.

The basic principles:

- Avoid, and if not possible minimize, land acquisition and resettlement/relocation through adjustment of technical design of the Project Activity or change of project location.
- Where these cannot be avoided, the policy requires the preparation of either or both 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.
- Carry out socialization of detailed information to PAPs concerning activity plan and possible required land acquisition and/or resettlement/relocation.
- Conduct survey to identify the PAPs and their land/assets affected by Project Activity, and identification on loss of income source or economic activity of PAPs due to Project Activity.
- Conduct consultation with PAPs to determine any available schemes for land acquisition and resettlement, and estimation of land acquisition and resettlement schedule.
- Provide procedures for the handling of grievances and complaints of PAPs.
- All mutual agreements made in the formulation of Comprehensive LARAP or Abbreviated LARAP. The comprehensive LARAP shall be implemented with criteria (1): Total Residents Relocated is more than 200 people/40 families and or (2) PAPs loses total Asset/ Productive Income more than 10%. The Abbreviated LARAP shall be implemented whenever the impact resulting from the project's land acquisition is less than 200 people/40 families or PAPs loses total asset/productive income less than 10%.
- Contains procedures for monitoring of the implementation of Comprehensive LARAP or Abbreviated LARAP.

Specific Principles:

- Each PAP is entitled to receive compensation for the loss of their land and all assets attached to it, regardless of the status of land rights.
- Each PAP that experiences a loss of income and source of livelihood is entitled to receive assistance to restore their income and livelihood and be given assistance during the transition period to recover their living conditions.

Special consideration shall be applied if project conduct land acquisition on traditional or customary land. If the Sub Borrower proposes to acquire traditional or customary land and adverse impacts can be expected, the Borrower will take the following steps and obtain their FPIC:

a) Document efforts to avoid and otherwise minimize the area of land proposed for the project.
b) Document efforts to avoid and otherwise minimize impacts on natural resources subject to traditional ownership or customary use or occupation.
c) Conduct a culturally appropriate social impact assessment to assess the project's potential impacts, both positive and adverse, on Indigenous Peoples.
d) Ensure that affected Indigenous Peoples are informed of:
   - their land rights under national law, including any national law recognizing customary use rights.
   - the scope and nature of the project; and

- the potential impacts of the project.

e) Conduct meaningful consultations, to increase the effective participation of Indigenous Peoples.
f) Addressing intergenerational issues among Indigenous Peoples, including the special needs of women, youth and children within indigenous communities.
g) Provide grievance handling mechanisms that is culturally appropriate, gender sensitive, and directly accessible to the affected Indigenous Peoples without incurring costs and without retribution.

3.4. Social Related Safeguard Instrument

3.4.1. Stakeholder Engagement and Information Disclosure

Stakeholder engagement is an inclusive process that is conducted throughout the program and/or activity cycle (planning stage, implementation stage to program closure stage). Stakeholder engagement at the beginning of the activity development process is a key step and is considered the most effective because it determines the assessment, management, evaluation and monitoring of potential impacts arising from the implementation of activities. The frequency and intensity of stakeholder engagement efforts will be adjusted to the scale, level of risk and impact of the project. The greater the scale, level of risk and impact of the project will demand a higher frequency and intensity of stakeholder engagement efforts from the project proponent.

The expected objectives of the stakeholder relationship building exercise are:

- Enable the project to obtain and receive inputs on project design, implementation risks, impacts, and appropriate mitigation measures from various stakeholders.
- Assists the project in developing strong, constructive, and responsive relationships with interested parties and project-affected people.
- Can support project oversight and help identify potential environmental and social issues that the project could potentially cause early on.
- Can support the long-term environmental and social sustainability of the project, increase community acceptance of the project, and contribute to the successful design and implementation of the project.

The stakeholder engagement process includes:

1. Identification and analysis of stakeholders

The project proponent identifies stakeholders consisting of (i) potentially affected communities, namely disadvantaged communities and vulnerable groups; (ii) parties related to the implementation of activities; and (iii) parties who have an interest in the ongoing activities.

2. Planning of stakeholder engagement methods

The project proponent develops a Stakeholder Engagement Plan that includes strategies and steps that will be implemented to capture all stakeholder participation, concerns, and needs for the planning and implementation of activities, especially gender, vulnerable groups and communities that are potentially disadvantaged by the implementation of activities. The stakeholder engagement plan also includes timelines, methods and approaches, and types of information needed in the stakeholder engagement process as well as disclosure of information to stakeholders during the stakeholder engagement process throughout the program and/or activity cycle. The stakeholder engagement plan and implementation must also consider the involvement of gender or vulnerable groups at 30% as affirmative action in the overall program implementation. The stakeholder engagement plan is developed by considering the interests and characteristics of stakeholders as well as the level of involvement in the implementation of activities.

3. Public information disclosure

The project proponent will disclose the activity plan to stakeholders as early as possible to provide access to information in a transparent, equitable manner and in accordance with socially and culturally acceptable norms and language, especially to gender and vulnerable groups, related to the potential risks and impacts caused by the implementation of programs and / or activities as well as plans for managing and monitoring these potential impacts.

In general, the disclosure of such information at least includes: (i) the purpose, nature and scale of activities; (ii) the period and timeframe for the implementation of activities; (iii) the types of sub-activities and the level of risk that may cause impacts on the community, and mitigation plans and monitoring of potential environmental and social impacts; (iv) the proposed stakeholder engagement plan and aspects required from stakeholders; (v) the time, agenda, approach and method of consultation, disclosure of information and provision of access to information related to public consultations / similar meetings, minutes of meeting results and reporting; and (vi) disclosure of information related to the complaint handling mechanism and the procedure for complaints to be followed up.

In ensuring access to information, the activity proponent discloses information in relevant local languages and in a manner that is accessible to all communities based on their respective cultures and considers the special needs of vulnerable groups (such as, disability groups, groups with minimum language literacy, gender, communities with language differences and limited access).

4. Consultation with stakeholders

Meaningful consultation with stakeholders is carried out as early as possible to obtain stakeholders' initial views on the activity plan. This consultation is expected to get input, criticism and suggestions from stakeholders to identify risks and potential impacts as well as environmental and social management suggestions. The consultation process is expected to take place on an ongoing basis along with the emergence of impacts on the implementation of activities.

In carrying out consultation with stakeholders, the activity proponent discloses information related to the activity plan that is relevant, transparent, objective, meaningful and easily accessible within a period that allows and in accordance with the culture, approach and language that can be understood by stakeholders.

5. Stakeholder engagement during activity implementation

The process of consultation and stakeholder engagement is carried out until the end of the program and/or activity implementation by referring to the stakeholder engagement plan. The project proponent will request input and suggestions from stakeholders on the performance of environmental and social protection implemented by the project proponent and the mitigation measures implemented as stated in the Environmental and Social Protection Commitment. If there are impacts that have not been listed in (i) environmental and social management and monitoring documents; and (ii) the activity's Environmental and Social Protection Commitment, the project proponent will consult with stakeholders regarding mitigation measures for additional impacts (direct impacts, derivative impacts, cumulative impacts or impacts arising from supporting facilities). Strategies and plans for the management and monitoring of such additional impacts will be included in the adjusted Environmental and Social Safeguards Commitment.

6. Grievance Redress Mechanism

The project proponent will establish a grievance redress mechanism to respond to complaints and reports related to the implementation of activities. This grievance redress mechanism is expected to handle any relevant reports quickly and effectively, transparently, easily accessible to all parties, at no cost/retribution and in accordance with the culture at the location of activity implementation.

The project proponent will also inform related reporting channels and procedures at the beginning of the activity implementation. Furthermore, the activity proponent will also inform affected parties regarding the grievance redress process and make available to the public a grievance log that includes responses to relevant grievances. The grievance redress process will be conducted in a culturally appropriate manner and will be objective, sensitive, and responsive to the needs and concerns of project-affected parties. The mechanism will also include anonymous reporting.

SEP Institutional Management

To be able to carry out the stakeholder engagement process effectively the project proponent is expected to be able to develop an institutional governance through the following strategies:

1. Execute the Program Implementation Plan to support stakeholder engagement activities within the company/Project.
2. Development of an organizational structure taking into account the management needs of stakeholders and social risks that have been identified along with a framework of roles and responsibilities of each related unit;
3. Periodic monitoring and evaluation include regular updating of databases and stakeholder issues, documentation of stakeholder engagement activities, as well as reviewing the effectiveness and improvement of stakeholder engagement strategies and social risk management.
4. Increasing organizational capacity through structuring stakeholder governance systems and existing HR training programs.
5. Effective and efficient funding support for implementation of stakeholder management strategies and social risk mitigation.

3.4.2. Gender Action Plan (GAP) and Gender Based Violence (GBV) Risk Mitigation

It is acknowledged that women and girls in World Bank-funded project areas have the potential to experience or be exposed to discrimination and gender-based violence. Gender inequality in society may be caused by the factors of sub-ordination, marginalization, multiple burdens, violence, and labelling (stereotyping). Therefore, through World Bank financed operations expected can contribute to the mitigation, prevention and response of discrimination and violence experienced by women and children.

Gender equity refers to situations where all people, women and men, girls and boys, are valued equally, have an equal position, and can share equally and fairly in the distribution of power, knowledge, resources and opportunities. With the realization of gender justice, it is hoped that everyone, both women and men will be free from a series of gender-based socio-cultural-economic-political systems which repress and oppress individuals or social groups.

Nationwide data by the Geothermal Directorate under MEMR indicates that, from a survey of the 12 leading developers in the sector with a total number of employees is 1408, just 14 percent of these are female. Most of these employments are of administrative nature rather than managerial or technical positions. At the project sites, from MEMR sample, the number of women employed in technical and managerial roles was found to be smaller than men, with just a total of 15 women in these positions across all 12 companies. This data would suggest that this is predominantly male dominating sector.

To tackle this gender gap, all subproject to be financed under the GREM Facility are required to propose a GAP and GBV Risk Management as part of the sub-project funding proposal. The sub-borrowers will prepare and present the GAP and GBV Risk Management as part of the agreement to fund the sub-project. A Gender Action Plan (GAP) is an instrument that serves as a roadmap for proposing gender equality in the design and implementation of projects. The content of the GAP document will include mainly about the proposed percentage of women shall be employed by the project locally at site in technical roles. In addition, the project also expected to develop Standard operating procedures (SOP) developed for gender-informed geothermal workplace health and safety.

Whilst Gender-based violence (GBV) Risk Management refers to approach and plans to prevent and respond to the occurrence of harmful threats or actions directed at an individual or group based on their gender. GBV can include physical, psychological, sexual, economic,

legal, political, and social harm, as well as other forms of harm, abuse, and/or control. This type of violence is rooted in structural gender inequalities and power imbalances. It is both a symptom of gender inequality and a tool to reinforce this inequality.

During the project preparation, a gender assessment was prepared to analyze barriers and gaps associated to gender in the activities financed by the project and identify areas (frequently call gender entry points) to promote gender parity in the sector. In addition, there will be increased knowledge and sensitization of project operators on preventing and responding to incidents of violence based on gender and against children.

In implementing GAP and GBV action plan the sub borrower shall be assisted and coached by a gender expert provided by PT SMI and the World Bank. The main task of gender expert is to enhance the capacity of the developers to understand the implementation of gender informed approaches through provide intensive assistance to developers to ensure the submission of GAP and GBV Risk Mitigation Plan documents by developers to PT SMI as a condition for sub-loan approval or first disbursement of sub-loans can be fulfilled properly.

4. DISCUSSION

Social acceptance is an important requisite for the smooth implementation of geothermal projects, especially at the exploration phase. Based on the results of the study as previously mentioned, it is known that in several geothermal exploration projects in Indonesia are still facing Societal Challenges due to the presence of negative stigma towards geothermal exploration projects. There are several identified factors that contribute its condition mainly the spatial characteristics of geothermal exploration project locations that is in or close to forest areas, community's plantations, residential areas or tourism areas, as well as in the territory of indigenous communities or cultural heritage sites. The existence of these factors will certainly lead to high sensitivity to environmental, community health and safety, community's livelihood, and socio-cultural aspects of local communities. In addition, the project often pay less attention to the existence of sensitive receptors of the physical and social aspects in the project plan area, as well as less attention to the importance of social safeguard management, and reluctance to involve affected communities and other project's interest parties as early as possible of project implementation. There also the emergence of miss perception among community and perhaps other stakeholders at the regional/local level about geothermal energy projects which is perceived similar with "mining" projects that detrimental to natural ecosystems and are harmful to human life. As a result of these factors at the end has contributed to the negative stigma as mentioned above has eventually in some cases made the presence of a geothermal exploration project difficult to gain support and acceptance from the local community.

This study aims to provide awareness related to the importance of implementing appropriate measures in preventing and managing social risks in geothermal project exploration through the implementation of social safeguard management measures. Based on previous research studies conducted by geothermal experts and field observations on the implementation of several geothermal exploration projects in Indonesia, especially on the implementation of the GREM project, the author concludes that there are four main requirements for the project to be accepted by the community living in the working area, namely: i) preventing or minimizing environmental and social impacts, ii) avoiding negative impacts on public health and safety, iii) fostering good relationships as early as possible with stakeholders, and iv) providing direct benefits to the community.

To fulfill this condition, the project owner must prepare appropriate and measurable social safeguards instruments. In other site, PT SMI with supporting from the World Bank and the Government of Indonesia has establishing a Geothermal Resource Risk Mitigation (GREM) Facility ("the Facility") to support exploration drilling by state-owned and private sector developers. The main objective is to scale up investment in geothermal energy development in Indonesia. In implementing the GREM PT SMI imposes the social safeguard policies and safeguard instruments as an important tool developed by international financial institutions to prevent and mitigate undue harm to communities during the project development process.

The social safeguard policies aim to prevent and mitigate undue harm to people and their environment in the development process, to compensate affected people and to restore livelihoods to at least the level prior to development intervention. Through the implementation of social safeguard policies and safeguard instruments, it is expected to serve not only as a tool to improve the quality of project proposals, but also intended as an opportunity for the project proponent to prepare and implement social safeguard management measures. In addition, the safeguard policy and safeguard instrument will be benefit for affected community members and other stakeholders to engage in the implementation of the development process, and increase their sense on benefit and ownership of the project. In this way, it is hoped that the realization of a sustainable geothermal exploration project with broad community and stakeholders support can be achieved.

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