

## Inclusive Geothermal: Bridging ESG and Indigenous Rights

Sekar Arum Aniswari<sup>1</sup>, Muhamad Yusril Azra<sup>2</sup>, and Aldi Muhammad Alizar<sup>1</sup>

<sup>1</sup>PT Mitra Rekayasa Keberlanjutan, Jakarta, Indonesia

<sup>2</sup>Anwar Muhammad Foundation, Jakarta, Indonesia

E-mail address: sekaranis@mirekel.id

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### ABSTRACT

The development of renewable energy, particularly geothermal projects, plays a crucial role in Indonesia's transition toward a green economy. However, geothermal development often faces challenges in engaging Indigenous Peoples and Local Communities (IPLC), many of whom maintain strong traditional and cultural practices despite lacking formal recognition as Indigenous Peoples (referred to as Masyarakat Hukum Adat, MHA). These communities often perceive themselves as indigenous due to their deep-rooted ties to land, agriculture, and sacred natural sites. Concerns over environmental degradation, loss of livelihoods from land acquisition, inadequate transparency, and threats to cultural heritage remain critical issues. Vulnerable groups within these communities, including women, persons with disabilities, and marginalized groups, are disproportionately affected. Therefore, a fair and inclusive strategy is needed to ensure their meaningful involvement in geothermal projects while upholding Environmental, Social, and Governance (ESG) principles. This study adopts a qualitative approach through literature review and case study analysis of geothermal projects in Indonesia to explore how Free, Prior and Informed Consent (FPIC) and Gender Equality, Disability, and Social Inclusion (GEDSI) principles can be integrated into geothermal governance. The findings suggest that respecting the cultural values and social rights of IPLC is not only a moral and ethical imperative but also essential to secure a social license to operate. By adopting transparent ESG frameworks and embedding FPIC and GEDSI in project governance, geothermal projects can minimize conflict, enhance legitimacy, and ensure sustainability. This study concludes with recommendations for companies and the state to synergize in strengthening regulatory frameworks, implementing human rights audits, and fostering inclusive participation, positioning geothermal energy as a model for socially and culturally just energy transition in Indonesia.

### 1. INTRODUCTION

#### 1.1 Background

Geothermal energy is one of the most strategic renewable energy sources in Indonesia's national energy transition agenda toward a green economy. Geologically, Indonesia's location along the Ring of Fire and at the convergence of tectonic plates offers a significant advantage in the form of vast geothermal potential. According to the Handbook of Energy and Economic Statistics of Indonesia (2024), Indonesia possesses an estimated 23,741 Megawatts (MW) of geothermal potential, making it the second-largest producer of geothermal energy in the world, with approximately 40% of total global reserves. However, as of 2024, the installed capacity had reached only about 2,636.76 MW of this potential. To achieve a target of 34.3% renewables in energy mix by the end of 2034, the Indonesian government targets an increase in the capacity of new and renewable energy power plants by 42.6 GW with geothermal energy contribution of 5.2 GW (KESDM, 2025). Compared to fossil fuels, geothermal energy produces lower carbon emissions, ensures a stable supply regardless of seasonal variability, and supports locally based sustainability. It also offers a wide range of applications, including thermal systems for buildings, greenhouse agriculture, and long-term heat storage as thermal batteries. Through pro-investment policies such as competitive feed-in tariffs, the establishment of the Geothermal Fund Facility (GFF), and licensing deregulation including the legal separation of geothermal from mining activities under Law No. 21 of 2014, the government has opened legal pathways for geothermal exploration in protected and conservation areas that were previously off-limits.

Despite its economic potential and strong policy support, geothermal project development in Indonesia faces complex social challenges, particularly when projects are situated in areas that hold historical and cultural significance for Indigenous Peoples and Local Communities (IPLC), commonly referred to in Indonesia as Masyarakat Hukum Adat (MHA). Approximately 28 to 52 percent of Indonesia's geothermal reserves are located in protected and conservation forest areas, which also constitute the living spaces of IPLCs who rely heavily on surrounding land and natural resources for their livelihoods (Soltani et al., 2021). One notable example is the community's rejection of a geothermal project near Mount Slamet, which illustrates how social resistance can cause prolonged delays and significantly increase social costs (Savira, 2023). These challenges are not merely disagreements over spatial use but also stem from deeper structural issues, including the lack of formal recognition of indigenous communities, limited opportunities for meaningful participation during the planning stages, concerns over environmental degradation and livelihood loss, and the potential disruption of sacred sites (Fadhillah et al., 2022). These concerns particularly affect vulnerable groups within communities, such as women, persons with disabilities, and other social minorities, who often face barriers to adequate consultation and involvement in decision-making processes.

In the global context, increasing pressure to adopt ethical and responsible business practices has encouraged energy companies to move beyond merely fulfilling legal obligations, towards building strong social legitimacy through more equitable and inclusive approaches. The principles of Environmental, Social, and Governance (ESG) have become a widely recognized framework for assessing project sustainability, encompassing not only technical and financial dimensions but also social integrity and governance quality. However, given the prevailing conditions in Indonesia, ESG implementation must be reinforced with a rights-based approach and the principle of Free, Prior, and Informed Consent (FPIC) to ensure meaningful participation of affected communities.

## 1.2 Purpose

Although geothermal energy is positioned as the backbone of Indonesia's green energy transition, many geothermal projects on the ground have repeatedly triggered social tensions, particularly when they are situated in areas inhabited by IPLCs. These tensions often stem from the absence of meaningful community engagement mechanisms from the early planning stages. In practice, participatory approaches remain highly limited and tend to be exclusive to formally recognized MHA, while local communities with historical, ecological, and cultural ties to the area but lacking formal legal status are frequently marginalized. Previous studies have predominantly focused on the legal-formal recognition of MHAs, rather than exploring contextual and inclusive approaches to IPLC engagement. This has exacerbated social injustice and poses a significant risk to the social legitimacy of geothermal projects in the eyes of affected communities.

Aligned with the critical importance of engaging IPLCs in geothermal projects as a pathway to equitable and inclusive energy development, this study aims to analyze how the principle of FPIC, when reinforced by Gender Equality, Disability, and Social Inclusion (GEDSI) standards, can be effectively implemented within the ESG framework for social management of geothermal projects in Indonesia. It further explores how these principles can be systematically integrated into corporate policies and business practices of geothermal companies to strengthen project social legitimacy while advancing both social and environmental sustainability. This study seeks to formulate strategic recommendations that not only protect the rights of affected communities but also enable companies to generate long-term business value through inclusive governance practices that are responsive to socio-cultural diversity.

## 1.3 Theoretical Framework, Standards, and Regulations

### 1.3.1 Indigenous People & Local Community (IPLC) and Masyarakat Hukum Adat (MHA) in Indonesian Context

In the Indonesian context, the terms IPLC and MHA are often used interchangeably. However, from legal and operational perspectives, these two categories differ in ways that significantly affect the recognition of rights and participation in development projects, including geothermal initiatives. MHA is regulated under national law through various provisions, including Article 18B of the 1945 Constitution, which acknowledges and respects the unity of customary law communities and their traditional rights, as well as Law No. 6 of 2014 on Villages, which provides a legal foundation for the recognition of adat (customary) villages. Nonetheless, this recognition remains declarative and requires formal verification through regional regulations or local government policies, a process that often becomes a major implementation barrier.

In contrast, the concept of IPLC as outlined in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) includes not only communities that have been formally recognized as MHA, but also local groups that maintain historical and cultural ties to specific lands and natural resources. In the context of geothermal development, the gap between formal recognition and the de facto existence of such communities frequently generates conflict. This often occurs because corporate and policy approaches tend to focus on legally recognized communities, while overlooking others that, despite lacking legal status, possess strong social structures, deep local knowledge, and a high degree of ecological dependency on project-affected areas. Therefore, it is essential to position all communities as central stakeholders in development processes, both within the framework of national law and through the application of responsible corporate social practices, rather than treating them merely as recipients of development outcomes.

### 1.3.2 Environmental, Social, and Governance (ESG) Principles and Their Relevance to Geothermal Development

The ESG approach in the context of energy development, including geothermal projects, functions not merely as a metric for investment feasibility but as a comprehensive strategic framework that guides the management of risks and opportunities toward sustainable development. According to the Ministry of Finance's ESG Framework and Manual (2022), ESG ensures that all public and private development activities and investments contribute to achieving the Sustainable Development Goals (SDGs) while integrating principles of fiscal prudence, social equity, and ecological sustainability. The Environmental component promotes practices for environmental protection, including resource efficiency, greenhouse gas emissions reduction, and ecosystem preservation. In the geothermal sector, these issues are particularly relevant to land clearing in protected forest areas, water resource degradation, and emissions from hydrothermal fluids. The Social component highlights the importance of social inclusivity, meaningful community engagement, and protection of vulnerable groups, in line with the "do no harm" principle, which underpins fair and green development. The Governance pillar focuses on transparent, participatory, and accountable governance, including the implementation of ESG reporting systems and the integration of socio-environmental indicators into project planning and evaluation processes.

Under this framework, geothermal projects are assessed not only for their contribution to decarbonization but also for their capacity to manage social dynamics, reputational risks, and long-term operational legitimacy. As an operationalization of ESG principles at the project level, this framework is further reinforced by the adoption of international environmental and social safeguards, particularly the International Finance Corporation's Performance Standards (IFC PS), which serve as key references for multilateral financial institutions and global investors. In this study, IFC PS7 (Indigenous Peoples) and IFC PS8 (Cultural Heritage) are highlighted as essential standards that emphasize the importance of engaging indigenous communities and implementing consent mechanisms through FPIC. In addition, IFC PS1 (Assessment and Management of Environmental and Social Risks and Impacts) and IFC PS4 (Community Health, Safety, and Security) play critical roles in ensuring comprehensive risk management for local communities and surrounding environments.

### 1.3.3 Free, Prior, and Informed Consent (FPIC) and Gender, Equality, Disability, and Social Inclusion (GEDSI) as international standards for rights-based engagement

The FPIC principle is the foundation of a rights-based approach that ensures IPLCs have full authority over decisions affecting their living space and cultural identity. Geothermal projects often intersect customary territories, sacred sites, and traditional socio-ecological systems, thus FPIC guarantees that development is carried out through a voluntary consent process conducted prior to project initiation and based on decision-making mechanisms aligned with the community's socio-cultural structures. The IFC PS7

serves as a primary reference in regulating FPIC implementation as a collective right inherent to the community, rather than a mere administrative consultation process. In global practice, community involvement is systematically adopted in IFC PS1 paragraph 19 and reinforced in IFC PS7, which binds project actors to ensure meaningful participation and protection of local values, as also outlined in UNDP Social and Environmental Standard (SES) 6: Indigenous Peoples. Furthermore, the principle of Gender Equality, Disability, and Social Inclusion (GEDSI) serves as a reinforcing component to ensure that the entire social engagement process does not overlook vulnerable groups.

## 2. METHODOLOGY

### 2.1 Qualitative Approach

This study employs a qualitative approach to examine the involvement of IPLCs in geothermal energy projects. Two main methods are used: a systematic literature review and case study analysis. The literature review was conducted by developing a search protocol based on relevant keywords and retrieving materials from scientific databases such as Scopus, Web of Science, and Google Scholar, as well as from donor publications, international standards, national regulations, official institutional documents, and other relevant sources. The selected literature was screened using rigorous inclusion and exclusion criteria, then analyzed thematically to identify emerging patterns, practices, and gaps in the implementation of FPIC, ESG, and GEDSI principles, as well as broader social management practices in geothermal projects.

### 2.2 Case Study Selection

The case studies in this research were purposively selected to reflect the geographical, social, and regulatory diversity of geothermal projects across Indonesia. This study employs a qualitative approach through a review of publicly available documentation on geothermal project resistance across Indonesia. Sources include news articles, NGO publications, and civil society reports that capture local community perspectives. These materials were selected based on their credibility and relevance to ESG, FPIC, and GEDSI-related concerns. Case studies were purposively chosen from Java, Sumatra, Sulawesi, and East Nusa Tenggara to reflect geographical and socio-regulatory diversity. Selection criteria included the presence of Indigenous Peoples or Local Communities (IPLCs), intensity of conflict, land tenure issues, and availability of public documentation. The findings were analyzed thematically to identify patterns of conflict, institutional gaps, and risks related to inadequate social safeguards.

## 3. FINDINGS

### 3.1 Patterns of Social Conflict in Geothermal Projects

Indonesia's energy transition through geothermal development is viewed as a strategic step toward a green economy. However, the success of geothermal projects is determined not only by technical and financial factors but also by the social legitimacy derived from the implementation of ESG principles. When social, environmental, and cultural aspects are neglected, projects risk triggering prolonged conflicts that ultimately undermine sustainability goals. In various regions, patterns of social conflict reveal recurring tendencies closely linked to the weak implementation of environmental and social safeguards.

**Table 1. Community concerns over geothermal power plant development projects in Indonesia**

| No. | Case Study        | Environmental Issues                           |                                                |                                                                 |                                                     |                                                           | Social & Economics Issues                               |                                                        |                                                     |                                                   |                                                          | Cultural Issues                                      |                                                 | Reference                        |
|-----|-------------------|------------------------------------------------|------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------|---------------------------------------------------------|--------------------------------------------------------|-----------------------------------------------------|---------------------------------------------------|----------------------------------------------------------|------------------------------------------------------|-------------------------------------------------|----------------------------------|
|     |                   | Disruption of climatology and land-use balance | Depletion and contamination of water resources | Pollution from geothermal operations and excessive resource use | Increased disaster and health risks for communities | Loss of forests and threats to biodiversity or ecosystems | Lack of transparency and inclusive community engagement | Limited employment opportunities for local communities | Increased community fears, trauma, and safety risks | Unfair land acquisition causing livelihood losses | Economic losses and threats to livelihood sustainability | Sacred and culturally significant sites under threat | Threats to ancestral way of life and traditions |                                  |
| 1   | PLTP Batumaden    |                                                | ✓                                              | ✓                                                               | ✓                                                   | ✓                                                         |                                                         |                                                        |                                                     |                                                   | ✓                                                        |                                                      |                                                 | Mongabay, 2017<br>Mongabay, 2025 |
| 2   | PLTP Blawan-Ijen  |                                                | ✓                                              | ✓                                                               |                                                     |                                                           | ✓                                                       | ✓                                                      | ✓                                                   | ✓                                                 |                                                          |                                                      |                                                 | Celios, 2025                     |
| 3   | PLTP Dieng        | ✓                                              |                                                | ✓                                                               |                                                     | ✓                                                         | ✓                                                       |                                                        | ✓                                                   | ✓                                                 | ✓                                                        |                                                      |                                                 | VOA, 2022<br>Betahita, 2022      |
| 4   | PLTP Mataloko     | ✓                                              |                                                | ✓                                                               | ✓                                                   |                                                           |                                                         |                                                        |                                                     |                                                   | ✓                                                        | ✓                                                    | ✓                                               | Tirto, 2022                      |
| 5   | PLTP Muara Laboh  |                                                | ✓                                              |                                                                 | ✓                                                   |                                                           |                                                         |                                                        | ✓                                                   | ✓                                                 | ✓                                                        |                                                      |                                                 | Mongabay, 2024                   |
| 6   | PLTP Patuha       |                                                | ✓                                              | ✓                                                               | ✓                                                   |                                                           | ✓                                                       |                                                        | ✓                                                   | ✓                                                 | ✓                                                        |                                                      |                                                 | Antara, 2018<br>VOA, 2022        |
| 7   | PLTP Rantau Dedap |                                                | ✓                                              | ✓                                                               | ✓                                                   |                                                           | ✓                                                       |                                                        |                                                     |                                                   | ✓                                                        |                                                      |                                                 | Navigasi, 2025                   |
| 8   | PLTP Rawa Danau   | ✓                                              | ✓                                              |                                                                 |                                                     | ✓                                                         | ✓                                                       |                                                        |                                                     |                                                   | ✓                                                        |                                                      |                                                 | BBC, 2024<br>Kompas, 2024        |
| 9   | PLTP Sokoria      |                                                | ✓                                              | ✓                                                               | ✓                                                   |                                                           | ✓                                                       | ✓                                                      |                                                     | ✓                                                 | ✓                                                        |                                                      |                                                 | Flores, 2023<br>Mongabay, 2020   |
| 10  | PLTP Sorik Marapi | ✓                                              | ✓                                              |                                                                 |                                                     |                                                           |                                                         |                                                        | ✓                                                   |                                                   |                                                          |                                                      |                                                 | Dunia Energi, 2025               |
| 11  | PLTP Ulumbu       | ✓                                              |                                                |                                                                 | ✓                                                   |                                                           |                                                         |                                                        |                                                     |                                                   | ✓                                                        |                                                      |                                                 | Mongabay, 2025                   |
| 12  | WKP Gunung Lawu   |                                                | ✓                                              |                                                                 | ✓                                                   |                                                           |                                                         |                                                        |                                                     |                                                   |                                                          | ✓                                                    |                                                 | Solo Pos, 2022                   |
| 13  | WKP Rajabasa      |                                                |                                                |                                                                 |                                                     | ✓                                                         |                                                         |                                                        |                                                     |                                                   |                                                          | ✓                                                    | ✓                                               | Antara News, 2013                |
| 14  | WPSPE Wapsalit    |                                                | ✓                                              |                                                                 |                                                     | ✓                                                         | ✓                                                       |                                                        |                                                     | ✓                                                 | ✓                                                        |                                                      |                                                 | Trimurti, 2023<br>Mongabay, 2024 |
| 15  | WKP Waesano       |                                                |                                                |                                                                 |                                                     |                                                           |                                                         |                                                        |                                                     |                                                   | ✓                                                        | ✓                                                    | ✓                                               | Media Indonesia, 2025            |

The following table summarizes several media reports on geothermal projects in Indonesia, illustrating how environmental, socioeconomic, and cultural concerns have triggered community unrest. These community concerns are also reflected in the findings of environmental and social assessments conducted by project developers, including both national environmental permitting processes and international environmental and social safeguard studies. For example, the PLTP Dieng and Patuha projects experienced significant community concerns over water depletion, odor pollution, and land acquisition. In Dieng, around 48.68% of respondents voiced fears about reduced irrigation water, while night drilling led to increased complaints about noise and air quality (ADB, 2019 and ADB, 2024). Similar concerns were evident in the PLTP Muara Laboh, where perceptions of environmental degradation created skepticism despite overall community support (ADB, 2025 and NEXI, 2024). Meanwhile, PLTP Blawan-Ijen and PLTP Rantau Dedap triggered concerns over cultural heritage loss and land ownership disputes, aligning with the information presented on Table

1 record of recurrent challenges across sites, ranging from loss of sacred land to community health risks and lack of transparency (DFC, 2023 and ADB, 2018). The PLTP Waesano sites highlight moderate risks to livelihoods and local traditions (SMI, 2019).

Patterns of social conflict in geothermal projects in Indonesia are rooted in weak communication, limited access to information, and the exclusion of communities from the early exploration phase. Unequal information flows and the dominance of external decision-making without equal opportunities for dialogue often leads to unrest that escalates into collective resistance. Several case studies by Muslihudin et al. (2023), Santoso et al. (2019), and Ibrohim et al. (2019) on the development of geothermal power plants on Mount Slamet in Banyumas and Mount Lawu demonstrate that community resistance arises from unclear impacts on community land, livelihoods, and sites considered sacred by local communities. The absence of community involvement during the early exploration phase and the lack of transparency regarding environmental risks and social impacts trigger collective anxiety that eventually leads to mobilized opposition involving civil society groups, traditional authorities, and religious leaders.

Conflicts are further exacerbated by the limited capacity of local institutions and weak state facilitation in bridging the interests of companies and communities. According to Muslihudin et al. (2023) and Santoso et al. (2019), a case study in Banyumas showed that the conflict was triggered by concerns that the geothermal project would damage water sources essential for agriculture and daily use. Community protests took the form of public demonstrations, petition signings, and interruptions to project operations. This situation reflects a trust deficit toward both developers and the government, which is intensified by the lack of participatory and responsive dialogue addressing community concerns. Similarly, in West Sumatra, a study by Anggreta et al. (2022) revealed that latent conflicts tend to recur when projects proceed without adequate socio-cultural considerations, particularly in understanding decision-making structures at the customary community level and the crucial role of collective values regarding land. Hartati et al. (2022) also found that geothermal projects in Sumatra encountered significant obstacles due to resistance from communities who felt excluded from the outset. This resistance manifested not only in open protest but also in pervasive distrust and the withdrawal of social support for company activities. In other cases, Ibrohim et al. (2019) highlighted tensions around Mount Lawu, sparked by the company's failure to understand the symbolic significance of the forest area for the local community, particularly as a ritual site and ecological buffer. When a technocratic approach overlooks the cultural and spiritual dimensions of the community, the potential for conflict intensifies.

These cases show that geothermal conflicts in Indonesia are not only in the form of horizontal rejection of developers but also extend to internal community conflicts. In many cases, community approval is obtained through a formalistic administrative approach and does not guarantee a deep understanding of the community about the project. This kind of agreement does not represent true community consensus. Therefore, social conflicts in geothermal projects should be understood not as technical obstacles, but as a marker of failure in building the social legitimacy of the project, which can ultimately threaten the sustainability and operational effectiveness of the project in the long run.

### 3.2 Community Involvement Gap in Geothermal Project Implementation

Findings from various case studies show that the implementation of geothermal projects in Indonesia faces obstacles in meeting environmental and social safeguards standards. Based on the analysis, the main concerns of the community arise from three major components as shown in the following table.

**Table 2. Number of case studies based on IFC Performance Standard components**

| No. | Performance Standard                                                                  | Component         | Community Concerns                                              | Number of Cases |
|-----|---------------------------------------------------------------------------------------|-------------------|-----------------------------------------------------------------|-----------------|
| 1   | PS1. Assessment and Management of Environmental and Social Risks and Impacts          | Environmental     | Disruption of climatology and land-use balance                  | 5               |
| 2   |                                                                                       | Social & Economic | Lack of transparency and inclusive community engagement         | 7               |
| 3   | PS2. Labor and Working Conditions                                                     | Social & Economic | Limited employment opportunities for local communities          | 2               |
| 4   | PS3. Resource Efficiency and Pollution Prevention                                     | Environmental     | Depletion and contamination of water resources                  | 10              |
| 5   |                                                                                       | Environmental     | Pollution from geothermal operations and excessive resource use | 7               |
| 6   | PS4. Community Health, Safety, and Security                                           | Environmental     | Increased disaster and health risks for communities             | 8               |
| 7   |                                                                                       | Social & Economic | Increased community fears, trauma, and safety risks             | 5               |
| 8   | PS5. Land Acquisition and Involuntary Resettlement                                    | Social & Economic | Unfair land acquisition causing livelihood losses               | 6               |
| 9   |                                                                                       | Social & Economic | Economic losses and threats to livelihood sustainability        | 11              |
| 10  | PS6. Biodiversity Conservation and Sustainable Management of Living Natural Resources | Environmental     | Loss of forests and threats to biodiversity or ecosystems       | 5               |
| 11  | PS7. Indigenous Peoples                                                               | Cultural          | Threats to ancestral way of life and traditions                 | 3               |
| 12  | PS8. Cultural Heritage                                                                | Cultural          | Sacred and culturally significant sites under threat            | 4               |

First, threats to natural resources, including contamination and declining groundwater levels, as well as excessive resource extraction and pollution resulting from drilling and operational activities. These conditions directly impact the sustainability of agricultural land and the community's access to essential resources. Second, risks to public health, safety, and community security, such as the potential for landslides and flooding, and an increased risk of illness due to gas leaks or deteriorating air quality. Third, socio-economic concerns, including land appropriation and inadequate compensation, loss of farmer livelihoods, and economic losses. Fourth, issues

of participation and transparency, where the lack of accessible information and meaningful consultation deprives communities of the opportunity to understand and influence the future of their living environment. As a result, communities feel that their living space, cultural traditions, and inherited way of life are being threatened by geothermal development projects.

These issues demonstrate that many geothermal projects have yet to establish meaningful engagement with affected communities in accordance with fundamental principles of social and environmental risk assessment. Instead of conducting in-depth consultations and building inclusive engagement mechanisms, what often occurs on the ground resembles one-way socialization efforts. This not only undermines the project's legitimacy but also deepens the trust deficit between developers and the government. Such a situation shows that compliance with safeguards is not merely a matter of producing administrative documentation; it requires a genuine commitment to involving communities as equal partners in the decision-making process.

The gap in community engagement during the geothermal projects implementation in Indonesia is evident in the weak public consultation processes carried out from the early phases of development. Budiman et al. (2021) and Hartati et al. (2022) also emphasize that communities, particularly MHA, are often involved only symbolically rather than as equal partners in planning phases of the project. Developers tend to adopt a top-down approach, where technical decisions and project locations are determined before communities receive adequate information. As a result, many local residents lack a clear understanding of the potential benefits and risks, which fosters suspicion and resistance. Although national legal frameworks, such as Law No. 21 of 2014 on Geothermal Energy, have opened opportunities for public involvement, its implementation remains largely formalistic and frequently fails to uphold the community's right to be heard and to make informed decisions. Studies by Ibrohim et al. (2019) and Hartati et al. (2022) reveal that community participation is often treated as a formality for administrative compliance, rather than a process that enables meaningful dialogue and shared decision-making. In the context of IPLCs, this becomes a serious issue, as it directly relates to collective land rights, spirituality, and local value systems which are elements that cannot be substituted by economic compensation alone.

In addition to the lack of meaningful participation, challenges also arise from the information imbalance between companies and local communities. Many communities do not fully understand the impact of the project or its potential benefits because the information provided is one-sided, technical, or not delivered in a language that is easy for the communities to understand. This weakens the bargaining position of IPLCs in the consultation process and opens space for the emergence of mistrust. Furthermore, the narrow participation approach does not give people the opportunity to voice their interests meaningfully. Several case studies have revealed that meetings with communities are more often focused on technical socialization and administrative formalities, without considering local cultural values or people's perceptions of changing landscapes and their lives.

Failure to meet safeguards and implement FPIC substantively also exacerbates the vulnerability of vulnerable groups. Women often bear the greatest burden when water sources and agricultural land are disrupted, as they are responsible for household needs and food security. Children are affected when family income decreases, thus access to education and nutrition is hampered. People with disabilities and the elderly face limited access to basic services as well as increased health risks when their environment is disrupted.

Integrating FPIC and GEDSI principles from the earliest stages is not only a human rights imperative but also a sound risk mitigation strategy. Meaningful and inclusive engagement has been shown to reduce the likelihood of social delays or disruptions, which in turn contributes to improved project bankability by lowering the weighted average cost of capital (WACC). Fadhillah et al. (2022) estimate that unresolved social risks can result in delay-related costs ranging from USD 44,000 to USD 155,000, reinforcing the internal business case for early and culturally sensitive stakeholder engagement. Thus, beyond compliance, investing in inclusive participation can directly enhance financial performance and long-term project viability.

### 3.3 Best Practices and Effective Alternative Approaches

The development of the Muara Laboh PLTP in South Solok, West Sumatra, is inseparable from social challenges, especially community unrest which generally arises from the early stages. Most of the concerns stem from a limited understanding of the benefits and impacts of geothermal power plants on the environment, sources of livelihoods, and social and cultural values. Community engagement initiatives through open consultation forums, transparent information delivery, and the appointment of trusted local spokespersons have succeeded in building constructive two-way communication (Savira, 2023). This is also reinforced by the company's steps to develop social actor maps, identify key stakeholders in an inclusive manner, and involve women's groups and the youth in key discussions (Anggreta et al., 2022). This kind of approach is in line with the FPIC principle which emphasizes the importance of free and informed consent before the project proceeds. When companies view the community as a partner in project management, social resistance can be suppressed and a sense of ownership of development initiatives emerges.

The success of this engagement is also supported by internal training for the company's staff on ESG aspects and indigenous rights, as well as the courage to adjust the project schedule to ensure meaningful engagement. The Ministry of Finance of the Republic of Indonesia in its ESG Manual Book (2022) emphasizes the importance of integrated social impact management into the project's organizational structure. This approach is not only able to reduce the risk of conflict but also build long-term relationships between companies and communities. In the long run, these practices contribute to the creation of a stable social license to operate, making geothermal projects not only technically and financially feasible, but also socially sustainable.

## 4. DISCUSSION: RECONSIDERING SOCIAL STRATEGIES IN THE ENERGY TRANSITION

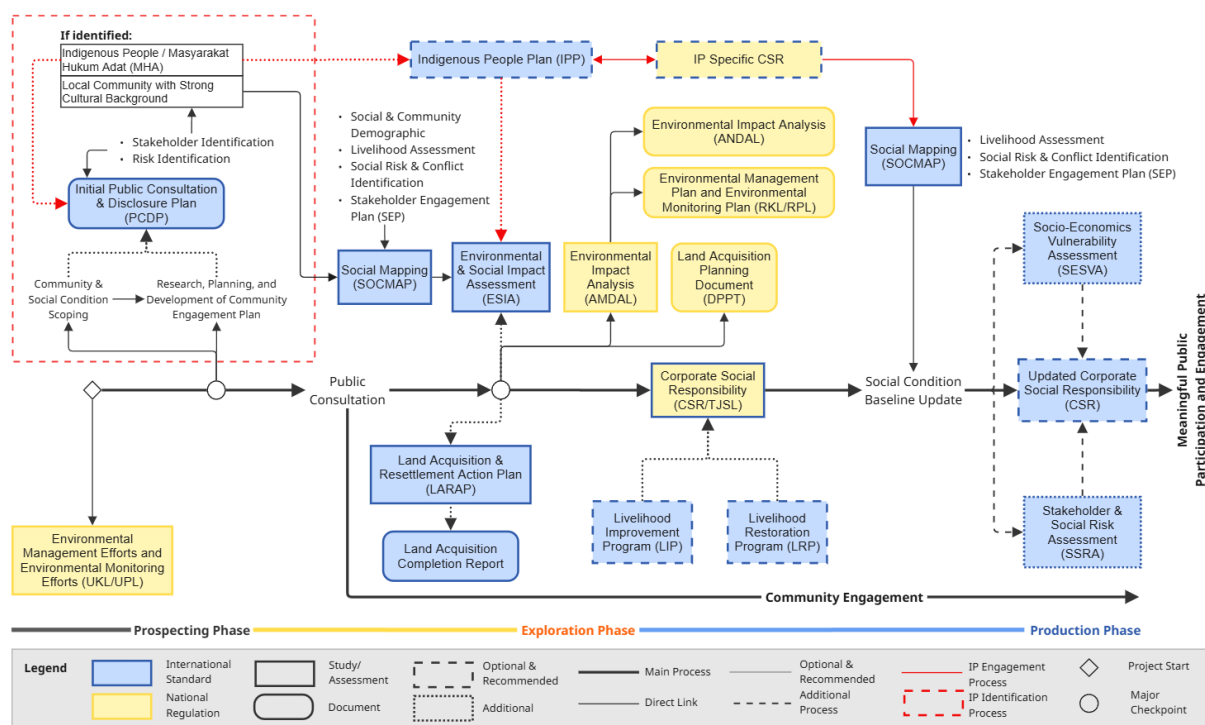
Geothermal project management in Indonesia faces challenges that cannot be addressed solely through technocratic or regulatory approaches. The findings in the previous chapter reveal that recurring social conflicts, ranging from overt resistance such as demonstrations to more subtle forms like community disengagement, indicate a structural failure to position communities as active participants in the development process. The emergence of such conflict patterns is closely tied to how project developers and the government approach community engagement as a normative or administrative obligation, rather than as a substantive and deliberative process. Moreover, gaps in community involvement, particularly with indigenous peoples and vulnerable groups, suggest that consultation mechanisms are often symbolic and ineffective in fostering a genuine sense of project ownership. While some projects exhibit good practices in building two-way communication, transparency, and empowerment, these practices have yet to

become industry standards. This disparity creates an opportunity to reformulate social strategies in energy transition projects that are not only responsive to conflict risks but also proactive in generating shared value and ensuring long-term social justice.

Accordingly, this chapter discusses two substantial approaches that are essential for restructuring the social framework of geothermal projects: first, the design of a strategic framework for IPLC engagement in geothermal project governance; and second, the identification of best practices and challenges in the governance of social engagement in energy projects.

#### 4.1. Designing a Strategic Framework for IPLC Involvement in Geothermal Project Governance

The need for a strategic framework for the involvement of IPLCs in geothermal projects is becoming increasingly urgent, as various studies indicate that social resistance is often not rooted in opposition to renewable energy itself, but rather in the weak recognition and inclusion of communities in decision-making processes that directly affect their living spaces. The findings in the previous chapter illustrate that geothermal projects in Indonesia are frequently implemented through one-way communication models, with limited access to adequate information, and without community involvement from the early exploration phase. In this context, the failure to build social legitimacy is not merely a procedural flaw but reflects the absence of a social governance structure capable of bridging the project with the complexity of local values, power structures, and knowledge systems. This highlights the need for a fundamental shift from a transactional approach to one that is relational and deliberative.



**Figure 1. Strategic Framework for IPLC Engagement in Geothermal Project Governance**

In response to these challenges, a strategic framework that integrates ESG principles as the overarching basis for project governance needs to be developed, with FPIC and GEDSI as key pillars for meaningful social engagement. Within the IFC Performance Standards, this commitment is systematically embedded in PS1, which mandates continuous and transparent stakeholder engagement; PS7, which affirms the collective rights of Indigenous Peoples to land and resources through FPIC mechanisms; and PS8, which ensures the protection of cultural heritage. Meanwhile, the GEDSI approach, embedded in PS1, PS2, PS4, and PS5, requires the equal involvement of vulnerable groups throughout the project cycle. This framework not only reflects global standards but is also highly relevant in the Indonesian context, which is pluralistic and often structurally unequal in the distribution of power and access to development-related information. Therefore, the development of a social engagement and management plan for geothermal project areas must consider the various factors previously described, combining global standards and national regulations to ensure meaningful engagement. Based on this rationale, a framework is proposed, as illustrated in Figure 1, in which social engagement efforts are undertaken from the early stages of prospecting and exploration and continue throughout the operational period of the project in a given region.

Importantly, while not explicitly illustrated in the framework, the presence of a Grievance Redress Mechanism (GRM) is a standard procedure commonly established by geothermal developers. GRM operates continuously across all project phases and associated studies as a fundamental accountability measure, thus ensuring transparency and responsiveness. It provides a structured and accessible channel for affected individuals and communities to raise concerns, request clarification, or seek resolution regarding social or environmental issues arising from project activities. Its presence reinforces the developer's duty to uphold participatory and inclusive governance, and it supports the implementation of FPIC and GEDSI principles by offering communities a reliable space to voice grievances throughout the project lifecycle. Therefore, geothermal project developers have multiple entry points to apply FPIC and GEDSI principles during engagement processes, which in turn will facilitate the obtainment of a social license to operate in the relevant area.

In specific situations where MHA is identified as project-affected communities in geothermal development sites, a dedicated engagement pathway must be established to ensure the protection and fulfillment of their rights. As illustrated by the red pathway in

Figure 1, this process begins with the identification of MHA, followed by early-stage stakeholder and risk identification by developing an Initial Public Consultation and Disclosure Plan (PCDP). This leads to the development of tailored studies and assessments including social mapping, social risk identification, and the formulation of a Stakeholder Engagement Plan (SEP), which may result in the creation of an Indigenous Peoples Plan (IPP) or other context-specific social management documents. The insights generated are then integrated into the Environmental and Social Impact Assessment (ESIA) and, where necessary, accompanied by Indigenous People-specific CSR programs. These steps ensure that engagement with MHA is not only early and inclusive but also respects their cultural norms and collective rights in alignment with FPIC principles. In cases where local communities exhibit strong traditional and cultural characteristics but are not formally recognized as MHA, the engagement proceeds through the general process pathway, while still upholding the core elements of FPIC as stipulated by international safeguards and national regulatory frameworks.

From a normative standpoint, this framework is supported by national legal provisions. Law No. 21 of 2014 formally separated geothermal energy from the mining sector, thereby creating opportunities for more innovative, inclusive, and participatory energy governance models. Minister of Home Affairs Regulation No. 52 of 2014 reinforces the recognition of the existence and rights of indigenous peoples, including rights to customary territories and cultural practices. However, neither regulation explicitly mandates the implementation of FPIC or the integration of GEDSI principles into project governance. As a result, community engagement in practice is conducted as an administrative formality, rather than as a genuinely deliberative process. By referencing the IFC Performance Standards, there is a significant opportunity to promote harmonization between national policies and global practices in the management of sustainable energy projects.

More than just a consultation tool, this framework is intended to restore the role of communities as subjects of development, rather than recipients of its impacts. By positioning FPIC and GEDSI as the main instruments under the ESG umbrella, geothermal projects are more likely to secure a social license to operate, reduce the potential for conflict, and build an energy governance system that is equitable, resilient, and long-term. In the context of Indonesia's energy transition, which demands the accelerated development of green energy infrastructure, this framework can serve as both an ethical and strategic foundation to ensure that development does not overlook social justice, ecological sustainability, and local community legitimacy.

#### 4.2. Best Practices in Managing Social Engagement Challenges in Energy Projects

Social engagement in energy projects in Indonesia often faces complex structural challenges yet also holds strategic potential for transforming governance based on collaboration and equity. Previous studies conducted by the Authors, which examined geothermal projects in Jambi and West Sumatra as well as a floating solar power plant (FSPV) project in West Sumatra, provide a landscape of learning about how energy projects are managed in different socio-ecological contexts. All three cases reflect dynamics of engagement that reveal regulatory challenges, fragile trust, and the potential for building collaborative governance.

The FSPV project in West Sumatra, which has been designated as a National Strategic Project (PSN), faced collective opposition from 13 Nagari communities organized under the Salingka Danau Singkarak Village Forum. The roots of this distrust can be traced to the legacy of trauma from the earlier hydropower project, which left a series of unfulfilled promises. Amid the cultural sensitivity of the Minangkabau people, who uphold the principles of deliberation and local wisdom, the project's approach is lacking meaningful dialogue and implemented in a rushed manner further intensified social resistance. This study shows that a participatory bottom-up approach, collaborative adjustment of technical designs, and the establishment of customary-based communication forums are key elements in restoring trust and fostering shared ownership of the development vision.

In contrast, the Authors' case study of the Muara Laboh PLTP project in West Sumatra illustrates how a participatory approach that is sensitive to the local context can produce good practices worth referencing. By actively involving the Nagari Customary Council (KAN) in the land acquisition process, prioritizing local labor, and implementing CSR programs aligned with community needs, the project succeeded in building trust, social legitimacy, and a sense of ownership within the community, despite the time required. This success highlights the importance of sustainable social governance that prioritizes collaboration from the outset, particularly in a region like Minangkabau, which possesses strong customary bonds and a collective historical identity.

However, the replication of such participatory success is not always straightforward. In contrast to the Muara Laboh experience, the development of the PLTP project in Jambi encountered social challenges due to the absence of facilitative leadership capable of uniting stakeholders and fostering their involvement in a collaborative spirit to integrate sustainable conservation. The absence of leadership led to imbalances in power, interests, and capacity, ultimately resulting in low levels of trust and weak legitimacy in decision-making. Through the application of a collaborative governance mechanism, the Authors designed an implementation strategy for the PLTP developer to build mutual trust through open communication, inclusive participation, joint monitoring, and the empowerment of local actors.

This study offers several important lessons for the future of geothermal and other renewable energy projects. First, a participatory approach must be initiated at the planning stage, not merely during implementation or conflict mitigation. Second, recognizing the rights of IPLCs and respecting local wisdom systems is not solely a legal obligation, but also an ethical foundation and a source of social legitimacy. Third, the success of a project should not be measured only by its technical feasibility or its contribution to the national energy mix target, but by the extent to which it contributes to social and ecological sustainability. Accordingly, the lessons drawn from this study underscore the urgency of designing a strategic framework for IPLC engagement rooted in the principles of FPIC, GEDSI, and a comprehensive commitment to ESG standards.

#### 5. CONCLUSION AND RECOMMENDATION

The development of geothermal projects in Indonesia plays not only a role as a driver of the transition to clean and low-carbon energy, but also as an important arena for testing the feasibility of fair and sustainable social governance. This study demonstrates that the social conflicts occurring in several geothermal projects are generally not caused by opposition to renewable energy itself, but rather by weak community involvement, minimal recognition of the rights of IPLCs, and the dominance of a technocratic approach that is insensitive to local social and cultural contexts. The absence of FPIC principles and the lax implementation of ESG and GEDSI in

their entirety increase the risk of social rejection, weaken project legitimacy, and ultimately hinder long-term operational sustainability.

Ultimately, this paper offers dual engagement pathways grounded in ESG, FPIC, and GEDSI principles and strengthened by risk-mapping approaches drawn from the IFC Performance Standards. This integrated framework is designed to guide geothermal developers and stakeholders in building early, culturally sensitive, and rights-based engagement pathways with IPLCs. By operationalizing this approach, projects can secure a social license to operate more swiftly and equitably, reducing conflict-related delays and enhancing long-term sustainability and investment resilience.

Based on the study's findings, the sustainability of geothermal projects in Indonesia heavily relies on substantial community involvement from the initial stages. Therefore, several recommendations are proposed for both project developers and other stakeholders, as follows:

**For Project Developers:**

1. Integrate the FPIC principles substantively into the entire project cycle. This process should be based on trust, information transparency, and participatory decision-making.
2. Fully adopt the ESG and GEDSI frameworks in internal policies through staff training, independent social and human right audits, and active involvement of vulnerable groups, including women, youth, persons with disabilities, and other marginalized group.
3. Develop a comprehensive social map from the outset to identify key actors, cultural values, and potential sources of conflict, thus communication strategies can be tailored to the local context.
4. Treat social investment as part of a long-term business strategy by allocating specific budgets for building fair and participatory social relationships.

**For Public and Government:**

1. Promote national regulations that explicitly adopt FPIC principles, for example, through revisions to AMDAL regulations or sectoral energy policies.
2. Build the capacity of local communities, including women and marginalized groups, to understand their rights and actively participate in public consultations.
3. Expand collaboration spaces between CSOs, academics, and local governments for independent, evidence-based monitoring.
4. Develop community-based social business models that enable the communities to share the economic and ecological benefits of geothermal projects.

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