

Legal Protection Against The Impact of Geothermal Management on Communities: A Comparative Study in Kenya, Philippines and Indonesia

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Article	Abstract
<p>Keywords Geothermal Energy; Public Consultation; Legal Protection; Legal Comparison; Affected Communities</p> <p>Article History Received: 2 March, 2026; Reviewed: 2 April, 2026; Accepted: 16 May, 2026; Published: 28 May, 2026.</p>	<p><i>This study compares the regulatory frameworks in the Philippines, Indonesia, and Kenya to find out how they deal with the issue of legal protection for populations impacted by geothermal energy management. To protect community rights during geothermal energy development, this study primarily aims to determine the conceptualisation, regulation, and implementation of public consultation. The methodological references and respectable academic literature support the use of a qualitative legal research strategy with a regulatory analysis and comparative study technique to ensure the accuracy of the analysis. While there is a very extensive legislative framework in place in Indonesia, the results demonstrate that public consultation is still not consistently carried out, particularly with regard to openness, community participation, and checks and balances. In the Philippines and Kenya, accountability is greater, involvement methods are more inclusive, and procedural requirements are clearer. This research adds to the existing body of knowledge by identifying regulatory gaps in geothermal governance in Indonesia and providing examples of how other nations have strengthened public consultation duties through practices. This research identifies several regulatory and implementation gaps in Indonesia's geothermal governance, particularly regarding transparency, accountability, and the effectiveness of public consultation mechanisms. Based on the comparative findings from Kenya and the Philippines, this study recommends strengthening Indonesia's legal framework by implementing clearer procedural standards for public consultation, mandatory publication of consultation outcomes, enforceable government responses to public input, and the establishment of participatory monitoring mechanisms. These reforms are necessary to ensure meaningful community participation and provide stronger legal protection for communities affected by geothermal energy development.</i></p>



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A. INTRODUCTION

Managing geothermal resources is vital in energy transition plans for many countries, including Indonesia. The development of geothermal energy is an essential foundation for fulfilling national energy demands in Indonesia, the country with the world's second-largest geothermal potential while attaining emission reduction objectives. However, social challenges interrupting the development of this sector have been inevitable, affecting communities living in close proximity to geothermal working areas (Aziz, 2025). Inadequate

management of environmental changes, social disruption, and risk perceptions arising from geothermal exploration and extraction have triggered opposition from the surrounding communities. Therefore, to ensure that communities are well-informed, have a voice in the matter, and are legally protected against adverse effects, public consultation is crucial in this context.

Several studies have highlighted community participation in natural resource management; some have reported that lack of information openness, muddled communication channels, and poor monitoring of local public consultations are common causes of community resistance to geothermal projects in Indonesia. For instance, geothermal projects have been rejected in West Java, Sumatra, and Sulawesi (A, Permana, & Gabriel, 2023). There is a common thread: the locals see the public consultation more as a formality than an opportunity for meaningful discussion. Comparative research conducted worldwide reveals that developing countries, such as the Philippines and Kenya, have established more organised systems for public participation in geothermal projects. This system includes better public consultation procedures as well as specific protection for indigenous communities and local residents.

Relevant literature reveals that technical, environmental, and economic studies have predominated in Indonesian geothermal energy research up to this point. Public consultation has received little academic attention in relation to its legal structure, particularly from scholars who see it as a tool for protecting impacted populations rather than just an administrative duty (Salsabila & Adharani, 2021). In addition, there is a dearth of research that compares Indonesia's and other countries' legislative frameworks for public engagement in geothermal energy management. The present state of Indonesia and the way forward for changes can be better understood by comparing Indonesia to others that have established participation mechanisms in the energy sector earlier.

There are three primary areas where prior research has failed. First, the legal standing of public consultation within the context of community protection has rarely been evaluated comprehensively; instead, it has been presented as a plain description. Second, there has been a lack of thorough documentation in the literature relating the duties of businesses and the government to public consultation, as outlined in various derivative regulations and Law No. 21 of 2014 concerning Heat, Government Regulation No. 7 of 2017, and Implementation of Energy and Mineral Resources (GRN) No. 25 of 2021. Third, research into how other countries handle public consultation and regulate geothermal energy remains limited, indicating that Indonesia is missing out on valuable information from other countries' experiences.

Previous international studies on geothermal energy have primarily focused on technical development, investment frameworks, renewable energy transition, and governance challenges. Satya widya (2022) explain that geothermal development in Indonesia has been heavily contingent upon infrastructure readiness, regulatory complexity, environmental concerns, and public acceptance. Pratiwi, Arifin, Wahyiah, & Saputra (2025) further found that weak participation mechanisms and fragmented governance structures contributed to prolonged community resistance toward geothermal projects in Padarincang, Indonesia. Kong'ani (2022) demonstrates that mediation and continuous community

consultation mechanisms play an important role in curbing conflicts between geothermal developers and affected communities in Kenya. Utama, Ashat, Nur, Alkano, & Com (2024) emphasise that effective geothermal governance in developing countries depends on regulatory certainty, participatory governance, and balanced public-private partnership arrangements. In addition, Pambudi, Nanda, Wahyudi, & Suharno (2025) assert that public acceptance and perception significantly influence the sustainability of geothermal energy initiatives in Indonesia, particularly regarding community awareness and social legitimacy. However, previous studies still rarely examine public consultation, specifically as a legal protection mechanism for communities affected by geothermal development, from a comparative legal perspective. Existing research also provides limited discussion regarding how Indonesia, Kenya, and the Philippines regulate and implement public consultation obligations within geothermal governance frameworks. Therefore, this study differs from previous research, as it comparatively analyses public consultation as a form of legal protection for affected communities and formulates legal reform recommendations to strengthen participatory geothermal governance in Indonesia.

In this context, the current research aims to fill this gap by comparing Indonesia's legislative framework for public consultation in geothermal energy management with those of the other two developing countries, the Philippines and Kenya, which have considerable expertise in geothermal energy development and in community engagement in affected areas. This research also aims to define public consultation and its legal framework pertaining to geothermal energy in Indonesia, identify where the field's practices fail to meet legal requirements, and compare and contrast the two to propose ways to improve oversight and public engagement. In an effort to close a knowledge gap, this study seeks to compare and contrast countries and provide a thorough legislative framework for public engagement on geothermal projects. This study is unique, as it establishes public consultation as a fundamental community right by concentrating on protecting affected communities rather than merely on the licensing procedure or technical elements of energy. Better responsiveness, inclusivity, and adaptation to technical and societal changes can be achieved through regulatory reform, according to this research. Theoretically, this study adds to the literature on public consultation in natural resource law; pragmatically, it lays the foundation for lawmakers, local governments, and businesses to determine when they should better protect affected communities. This research is expected to contribute to improving the social legitimacy of geothermal projects and ensuring the long-term use of geothermal energy in Indonesia.

B. METHODS

This paper investigates the legislative structure for public engagement in geothermal management employing a normative juridical methodology supported by comparative legal research. We opted for a normative juridical approach, as our research would examine the rules governing geothermal management, including those that regulate public participation, community protection, and the relationship between the state and the private sector. With reference to Kristiawanto (2022), the normative legal research is to analyse statutes, case law, and other relevant legal documents to determine prevailing legal principles, standards,

and regulations. Research aiming to comprehensively examine relevant norms and their practical synchronisation calls for this method.

This study follows three approaches to normative legal research, as defined by Peter Mahmud Marzuki: (1) the statutory approach, which observes statutory laws, including Law No. 21 of 2014 concerning Geothermal Energy, Government Regulation No. 7 of 2017 in conjunction with Government Regulation No. 25 of 2021, and the Regulation of the Minister of Energy and Mineral Resources No. 37 of 2018 and No. 33 of 2018; (2) the conceptual approach, which takes into account the ideas like public consultation, community participation, and legal protection in natural resources; and (3) the comparative approach, which compares the legal frameworks of Indonesia, Kenya, and the Philippines as they pertain to public consultation on geothermal and renewable energy projects. Also, this research follows some of the steps outlined in Dunn's policy analysis framework. This method helps us understand how stakeholders engage in public engagement, how policies are evaluated, and how laws may be improved to better meet the needs of affected communities and the social context in which they are implemented. Although normative jurisprudence serves as the foundation of this study, a policy analysis perspective enables a more thorough assessment of the field's regulatory application.

Three types of legal resources were consulted for this research: (1) main legal sources, including but not limited to geothermal energy and public consultation laws and regulations in Indonesia, Kenya, and the Philippines; (2) secondary legal literature such as administrative law textbooks, scholarly articles, journals, and studies on public consultation best practices from international organisations; (3) encyclopedias and legal dictionaries as tertiary legal materials used to enhance conceptual knowledge. The legal research framework, as suggested by Dyah Octorina Susanti (2022), is adhered to when these legal documents are used, highlighting how crucial it is to categorise legal material sources according to their relevance and authority hierarchy. Qualitative data analysis methodologies were used, which involved systematising and analysing legal sources to identify possible regulatory discord, legal gaps, and legal principles. As stated in, the purpose of qualitative analysis in legal research is to map the links between norms, evaluate their consequences for public safety, and organise data according to substantive themes. This analytical method also aids in evaluating the efficacy, comprehensiveness, and potential for improvement of Indonesia's legal system by contrasting it with that of the other two countries.

To avoid pointless normative comparisons, this study adheres to the fundamentals of the comparative legal method as outlined by Zweigert & Kötz. These principles include comprehending the social context, legal history, and legal system of the comparative country (Jaakko Husa, 2023). As a result, in addition to mapping similarities and differences, the comparative research evaluates the applicability of other countries' techniques to the Indonesian setting, including whether their public consultation frameworks can be modified. The overall goal of this study is to provide a comprehensive understanding of the legislative framework governing public engagement in geothermal management. This research is also intended to provide a solid academic foundation for recommendations to strengthen regulations, to demonstrate Indonesia's legal position relative to other nations, and to systematically address the research questions through a combination of normative

approaches, policy analysis, and comparative studies. Additionally, this strategy guarantees that the study findings have both theoretical and practical significance for the formulation of energy policy and the defence of affected communities in Indonesia.

C. RESULTS AND DISCUSSION

This study's findings highlight the conceptual and practical obstacles that interrupt human rights protection within the Indonesian legal system. These obstacles are most acute when it comes to the realisation of non-derogable rights, which cannot be diminished under any circumstances. Though there is a solid normative foundation for national rules on these rights, there is still room for discrepancy in their execution, according to document analysis, jurisprudential studies, and comparisons with prior research. As several court rulings, studies from independent organisations, and academic assessments have demonstrated, the implementation of the universal criteria set out in international treaties has not yet reached an optimum level of efficacy, even though Indonesia's constitutional structure has upheld them. In principle, the provisions of the ICCPR are compatible with the category of non-derogable rights as defined in Article 28I of the 1945 Constitution, according to the study's principal finding. However, in practice, particularly in specific crimes or under intense pressure, police officers sometimes deviate from this strategy. This supports the conclusions of other scholars who have found that inadequate law enforcement and a lack of understanding of the principles of non-derogability among officials are the primary issues for human rights protection in Indonesia, rather than an absence of rules. However, this research shows that governmental forces are not the only ones to blame; unclear accountability mechanisms in the country's judicial system is also responsible.

The study also found that non-derogable rights are not often seen as absolute state responsibilities, but rather as just declaratory legal standards. Due to this misunderstanding, rights that should never be suspended are violated. This analysis highlights a normative passage that states, "*The right to life, the right not to be tortured, the right to individual liberty, the right to freedom of thought and conscience, the right not to be enslaved, the right to be recognised as an individual before the law, and the right not to be prosecuted retroactively under the law are human rights that cannot be diminished under any circumstances.*"

While these rights have been acknowledged as absolute in theory, as this provision explains, some officials still think it is feasible to limit them for political or public security concerns (Jumardin, Fadlan, 2024). This is where the main distinction between our study and others becomes apparent. This study reveals that the major difficulty is more epistemic in character, particularly regarding the knowledge framework and law enforcement's perspective on the concept of non-derogability. Previous studies identify the main problem as a governance issue, revealing that bureaucratic culture influences law enforcement methods, which creates contradiction with national standards. The processing of suspects was observed, in some instances, to be conducted with an attitude that prioritised stability over respect for basic rights. Based on Lawrence M. Friedman's theory of legal systems, these results contribute to the existing body of literature on institutional inadequacies, offering a new angle on the problem: its origins in legal culture. To that end, our study's

findings address a gap in the literature by highlighting the role of legal culture in explaining why non-derogable rights are so seldom exercise (Aldyan, 2022).

Previous studies clearly indicate that insufficient funding, inadequate training, or lax oversight are the major causes hindering the implementation of human rights in Indonesia. This research, however, adds a fresh layer to the puzzle by suggesting that these issues stem from the nebulousness of law enforcement agencies' internal control processes. Officials have too much leeway due to the lack of clarity in standard operating procedures on the complete ban on torture. This discovery lends credence to the claim that human rights protection is not ensured by the mere presence of sound legal standards, especially in the absence of transparent procedures for inspection and punishment. A more complete picture of the link between norms and practices of human rights protection is produced by this research's innovative methodology, which blends doctrinal analysis with light empirical investigation (Ningsih & Tuasikal, 2025). This study bridges the gap between normative and empirical settings to demonstrate that the former is more important than the latter, since prior research often ignored the latter in favour of the former. Besides laying the groundwork for future evaluations of public policy, this research adds to scientific knowledge by providing a vivid picture of the proper treatment of non-derogable rights in Indonesian law.

These results add to the study's demonstration that precarious political and institutional processes substantially affect the efficacy of the protection for non-derogable rights in Indonesia. Priorities for enforcing human rights might alter depending on the political climate or changes in national security strategy. Several studies have found that the political will of the ruling government is the primary determinant of the consistency with which human rights are protected (Leksono, Fatimah, & Alfarisi, 2021). The lack of a robust independent monitoring mechanism to investigate officials' handling of absolute rights and policy shifts contributes to these variations, according to this study. In the end, human rights breaches in so-called "urgent" situations are more likely to occur due to this political instability.

There is a correlation between the failure to teach law enforcement officers human rights concepts and the ineffectiveness of protecting non-derogable rights, according to additional research. Human rights education has made its way into some institutions' foundational curricula; however, this approach is too formal and fails to focus on an in-depth understanding of fundamental rights. Human rights training is not seen by most authorities as an ethical and professional need that should inform all actions, but rather as an administrative requirement. The absence of in-depth, continuous education reinforces the conclusion that the main problem lies not only in weak regulations but also in the weak development of a cognitive framework among officials in understanding the importance of non-derogability (Iswahyudi, 2025) . In addition, this study also reveals that the remedy mechanism non-derogability mechanism; violations of non-derogable rights remain inadequately addressed. Complex reporting procedures, slow responses from law enforcement, and an absence of protection guarantees for reporters or witnesses are among the administrative and structural obstacles that victims of human rights breaches have encountered in some of the cases examined. These circumstances show a disconnect between the community's actual experience and the state's stated goal of protecting human rights.

These results add to the existing scholarly literature, which has mostly focused on prevention, by drawing attention to the often-overlooked yet crucial role of redress procedures in protecting non-derogable rights.

Kenya is one of the developing countries with an increasingly strategic geothermal policy framework in line with growing national energy needs and a commitment to clean energy transition. Geothermal management in Kenya is concentrated mainly in the Rift Valley region, particularly the Olkaria Geothermal Field, and is regulated by a combination of energy and environmental laws, including the Energy Act 2019 and the Environmental Management and Coordination Act (EMCA). Within this framework, geothermal energy is viewed as a strategic national resource whose utilisation must take into account environmental sustainability and social impacts on surrounding communities (Rotich, Chepkirui, Musyimi, & Kipruto, 2024). Every geothermal project is required to undergo an Environmental Impact Assessment (EIA) process and obtain approval from the National Environment Management Authority (NEMA) before exploration and exploitation activities can commence. Community protection is normatively accommodated through mandatory public consultation and the preparation of social impact mitigation plans, although their implementation still faces several problems (Kong'ani, 2022). Various studies note that the community engagement process in Kenya is often procedural, particularly in the context of relocating local communities and indigenous peoples around the Olkaria project, leading to criticism of the limited space for substantive dialogue and an imbalance in bargaining positions. Nevertheless, Kenya's experience shows progressive efforts to integrate public consultation, environmental impact management, and benefit-sharing schemes into geothermal governance. Thus, the characteristics of geothermal management in Kenya are marked by a strong national energy development orientation, relatively comprehensive environmental regulations, and the evolving dynamics of protecting affected communities, which remain the focus of academic debate.

Kenya has gained significant experience in the utilisation of geothermal energy, particularly since intensive development in the Rift Valley region, making it one of Africa's largest geothermal producers. The legal framework for geothermal management in Kenya emphasises licensing certainty, acceleration of national energy development, and technical oversight of environmental and social impacts. The regulations are primarily derived from the Energy Act 2019 and the Environmental Management and Coordination Act (EMCA), which form the legal basis for geothermal exploration and exploitation activities. Project management is largely carried out by state institutions and state-owned enterprises, such as the Geothermal Development Company (GDC), with relatively dominant involvement from the central government. Every geothermal project must undergo an Environmental Impact Assessment (EIA) before obtaining environmental approval from the National Environment Management Authority (NEMA). In terms of community protection, Kenya provides mechanisms for public consultation and the development of social impact management plans. However, various studies show that community participation tends to be procedural and does not fully guarantee equal dialogue, particularly in the context of the relocation of local communities around the Olkaria project (Abdi, 2024). The focus of community protection is more on environmental impact mitigation, technical risk control, and the

provision of compensation and benefit-sharing schemes, rather than on strengthening deliberative participation mechanisms. In general, the characteristic of geothermal management in Kenya lies in its concentration on technical control and national energy strategic interests, with community protection still developing and becoming a subject of debate in academic literature.

As one of the leading global providers of geothermal energy, the Philippines is a growing nation with tremendous geothermal potential. While keeping social and environmental concerns in mind, management is focused on meeting the nation's energy demands through the utilisation of geothermal energy. Presidential Decree 1586 established the Environmental Impact Statement (EIS) system, which is primarily governed by the Geothermal Resources Act. The government issued operating permits under the Geothermal Service Contracts programme, requiring all geothermal projects to obtain an Environmental Compliance Certificate (ECC) upon the completion of an EIA (Neupane, 2022). The Free, Prior, and Informed Consent (FPIC) method, as outlined in the Indigenous Peoples' Rights Act (IPRA), is a cornerstone of the Philippines' robust approach to protecting indigenous peoples' rights. This guarantees that indigenous tribes can express their approval or disapproval of a project prior to its implementation. To further reduce community risks, the government mandates routine monitoring of pollutants, disposal of liquid waste, and monitoring for microearthquakes caused by fluid injection. Through royalty sharing and local revenue, local populations, particularly indigenous people, also gain economically. An essential aspect of geothermal management in the Philippines is the system's robust protection of indigenous peoples and royalty sharing programmes.

This study shows that maintaining non-derogable rights in Indonesia is facing structural, moral, cultural, and epistemic issues. Even though the legal structure seems solid in theory, when these four factors interact, human rights protection becomes less effective. These findings indicate the critical need for changes that aim to improve rules, institutional capacity, legal culture, education for officials, and the creation of truly independent accountability systems. Thus, this study makes a theoretical and practical contribution to building more consistent and sustainable human rights protection within the Indonesian legal system. This finding is consistent with the study conducted by Suyatna, Suryono, Amri, Argadinata, & Abigail (2023), affirming that overlapping regulations between geothermal and forestry laws continue to create legal uncertainty and institutional inconsistency in the management of geothermal activities within protected forest areas.

It implies that a normative gap remains between Indonesia's public involvement structure and more participatory models, based on the comparison results. The public's hopes and dreams have not been adequately addressed by the current rules and regulations, even if there is room for involvement in the national legal framework. A lack of transparency criteria that prevent the formalisation of participation from becoming an administrative procedure, a small number of enforceable public consultation platforms, and the absence of a responsibility to follow up on public input all point to this problem.

This incident emphasises the importance of revising laws to better enable people to have a say in the rules being made. As a whole, these changes affect two domains. The first step is to update the laws to ensure everyone understands that public participation is not

merely a suggestion but is required. Secondly, there has to be reform at the governmental and regulatory levels to establish publicly monitored systems that are functional and quantifiable (Zeng, Li, Zhou, & Wang, 2022). As a result, public engagement will be realised and play a role in more democratically shaping the quality of policy and legislation decisions.

Recommendations for pertinent legislative reforms, based on comparative findings and empirical evidence, include mandating that official government responses to public input be published, establishing criteria for assessing public participation as a tool of accountability, and setting minimum standards for the length and methods of public consultation. With these changes, this study aims to close the gap between our current legislative framework and the more inclusive participation models seen in other countries. As a result, initiatives to enhance the quality of national regulation might incorporate bolstering public engagement channels.

Table 1. Weaknesses of Current Public Participation Regulations and Recommendations for Legal Reform

Regulatory Aspect	Current Regulation	Weakness/Substance Not Accommodating Public Aspirations	Recommended Direction for Legal Reform
Level of Legislation	Public participation is regulated in general terms, without operational standards for mechanisms.	The scope of participation is merely declarative; there is no obligation to follow up on public input; high potential for formalism.	Revision of norms that make public participation a legal obligation; clearly defining the purpose and standards of public involvement.
Government Regulations/Implementing Regulations	The implementation of public consultation is left to each agency, without standard parameters.	There are no standards for consultation duration; no transparency requirements; no evaluation instruments; public input does not have to be responded to.	Development of technical mechanisms: minimum duration, obligation to publish initial drafts, official response to input, and participation evaluation procedures.
Regulatory Transparency Standards	The obligation to publish academic papers and draft laws/regulations has not been consistently implemented.	Public access is uneven; documents are often published late; participation is encouraged without sufficient information.	Affirmation of the obligation to publish draft regulatory documents from the initial stage, including the drafting timeline and notes on changes.

Government Response to Public Input	There is no standard obligation to respond to the results of public consultations.	Public input often has no visible impact on final decisions; lacking accountability.	Establishing a requirement for the government to publish an "Official Response List" to all public input before regulations are passed.
Monitoring Public Participation	There is no mechanism for monitoring and evaluating the effectiveness of public participation.	It is impossible to measure whether the participation process is effective; there is a risk that it will become merely procedural.	Formulation of guidelines for evaluating public participation as an instrument of accountability, with measurable and periodic indicators.

To allow public involvement to go beyond a mere formality and, therefore, impact the quality of regulations, the suggestions for legislative reform in the table need to be put into action. There needs to be a combination of legislative efforts to strengthen public participation norms with operational technical arrangements for implementing regulations. This will ensure that there are open standards, measurable consultation mechanisms, and transparency obligations that the public can monitor at every stage of regulation drafting. Thus, the design of legal reform not only aligns the normative framework with public aspirations but also creates a regulatory drafting system that is more responsive, accountable, and aligned with the practices of other countries in the more advanced application of participatory principles.

D. CONCLUSION

This study demonstrates that the legal framework governing geothermal energy management in Indonesia is facing significant challenges in ensuring effective legal protection for communities affected by geothermal projects. Although Indonesian regulations formally recognise public participation and consultation in geothermal governance, their implementation remains inconsistent and often procedural. In many cases, public consultation is conducted merely as an administrative requirement rather than as a meaningful mechanism for involving communities in decision-making processes related to geothermal development. The comparative analysis with Kenya and the Philippines shows that both countries have developed more structured mechanisms for community participation and social protection in geothermal governance. Kenya emphasises environmental and social impact management through mandatory Environmental Impact Assessments and benefit-sharing schemes, while the Philippines strengthens community protection through the Free, Prior, and Informed Consent (FPIC) mechanism for indigenous communities. These comparative experiences indicate that effective public consultation requires not only formal regulation, but also clear procedural standards, transparency obligations, accountability mechanisms, and government responsiveness toward public input.

This research finds that Indonesia is experiencing normative and practical gaps in the implementation of participatory geothermal governance. Existing regulations do not yet provide detailed operational standards regarding consultation procedures, publication of consultation results, minimum participation requirements, or mandatory government responses to community objections and recommendations. As a result, affected communities frequently experience limited access to information and insufficient involvement in geothermal decision-making processes. Therefore, this study recommends strengthening Indonesia's geothermal governance framework through regulatory reforms that institutionalise participatory consultation mechanisms, raise transparency standards, establish measurable procedures for public participation, and reinforce monitoring and accountability systems. These reforms are essential to ensure that geothermal development not only supports national energy transition objectives, but also guarantees fair legal protection, social legitimacy, and sustainable community relations in geothermal project areas.

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