



The Dilemma of Environmental Sustainability: An Analysis of Mining Policy Implementation in the Case of Illegal Gold Mining in West Aceh

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Abstract

Background This study aims to analyze the effectiveness of the implementation of illegal gold mining control policies (PETI) in West Aceh Regency using Van Meter and Van Horn's (1975) policy implementation theory. Although there is a legal basis through West Aceh Qanun Number 1 of 2013 concerning Spatial Planning, practices in the field show weak enforcement and supervision of illegal mining activities.

Methods This study uses a qualitative method with a case study approach through interviews, field observations, and policy document analysis.

Results The results of the study show that policy implementation is still symbolic and lacks clear operational direction. Weak cross-sector coordination, limited human resources and budgets, and a permissive attitude among policy implementers are the main obstacles to law enforcement. Furthermore, the local government's economic dependence on illegal mining revenues creates a policy dilemma between economic growth and environmental conservation. This condition reflects structural weaknesses in governance and institutional accountability.

Conclusions These findings confirm that the effectiveness of policy implementation in West Aceh is low because it does not yet meet the principles of consistency, coordination, and accountability. This study recommends reformulating evidence-based policies, increasing local resource capacity, and strengthening participatory monitoring systems to achieve sustainable environmental governance.

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Keywords

Key words: environmental, illegal gold mining, sustainability, policy implementation, west Aceh

Introduction

Aceh ranks 7th out of 10 provinces with the highest deforestation rates in Indonesia, and forest loss in Aceh is significant because 55% of Sumatra's forests are located in Aceh ([Indonesia Baru, 2024](#)). Illegal mining is a crucial issue in Aceh. According to Walhi, West Aceh is the area with the largest amount of unlicensed gold mining (PETI) in Aceh, with a total mining area of 3,300.54 hectares ([Redaksi, 2025](#)). There are nine villages that have been designated as Mining Areas (KPP). This is regulated in West Aceh Qanun Number 1 of 2013 concerning Spatial Planning ([QANUN KABUPATEN ACEH BARAT NOMOR 1 TAHUN 2013 TENTANG RENCANA TATA RUANG WILAYAH KABUPATEN ACEH BARAT TAHUN 2012-2032, 2013](#)). The Aceh Barat RTRW Qanun also explains the sanctions imposed on illegal miners. However, in practice, it has not been implemented effectively, with the local government turning a blind eye. The government's tolerance is due to the billions in revenue that Aceh Barat receives from illegal mining ([Iskandar, 2019](#)).

Figure 1. Illegal Mining Excavation Pits



Source: Google Earth, 2025

Based on the image above, most of these mining pits are located near rivers, so that waste from these pits is simply dumped into the rivers without being treated. This causes the rivers to become murky and can have a long-term impact on health, as rivers are public goods for the surrounding community, whose members use river water for bathing, washing clothes, and drinking. This illegal gold mining activity has occurred in seven districts in Aceh. According to Walhi, West Aceh is the area with the largest illegal mining in Aceh, with a total mining area of 3,300.54 hectares ([Redaksi, 2025](#)).

Although West Aceh Qanun No. 1 of 2013 regulates sanctions for illegal mining, it has had no effect in reducing illegal gold mining activities. Local residents claim that they are aware of the schedule of raids conducted by government officials ([Redaksi, 2025](#)). With lenient sanctions and supervision, illegal mining needs to be criticized. In this case, the researcher uses the policy implementation theory from [Van Meter & Van Horn \(1975\)](#) to criticize the effectiveness of mining policies in West Aceh.

Policy implementation is an important stage in the policy process where policy objectives and targets can be translated into actionable steps. In other words, through policy implementation, we can see the actions taken by the government, whether through programs or other measures, to follow up on policies that have been passed. The policy implementation

stage is an important point in ensuring that a policy can achieve the desired results and overcome problems. In reality, poor performance factors, such as a lack of coordination between stakeholders, budget constraints, and a lack of commitment from implementers, often become obstacles to policy implementation. This means that policy implementation does not run effectively in accordance with its initial goals or objectives ([Khan & Khandaker, 2016](#); [Sager & Gofen, 2022](#)). Therefore, the government needs to improve its governance management in terms of both human resources and budget. In this case, the government must be present and respond quickly to the issues raised by the community, or in other words, prioritize public interests and problem solving ([Fadhly, 2019](#); [Jusniar & Fadhly, 2023](#)).

In this case, researchers used Van Horn and Van Meter's policy implementation theory. In this theory, they focus on and provide a framework for understanding the factors that influence the success or failure of public policy implementation ([Van Meter & Van Horn, 1975](#)). This theory is important in analyzing the complexity and challenges experienced by stakeholders and how this affects their performance in implementing policies and the results they produce ([Milwan et al., 2020](#)).

Research related to illegal gold mining has been widely discussed, namely in terms of environmental degradation and the dangers posed to workers and communities by illegal and small-scale gold mining (Artisanal Small-Scale Gold Mining, ASGM) in Indonesia ([Meutia et al., 2023](#)). Furthermore, there is a study by [Nainggolan \(2018\)](#) that discusses illegal gold mining in Mandailing Natal, North Sumatra, using the theory of resistance. His research found that even though the local government enforced the law, economic conditions often pushed people to return to illegal mining activities. This is also in line with the findings of [Cahyanti \(2024\)](#) research, which analyzed law enforcement. Even though there are laws in place, abuse and non-compliance with regulations are still widespread. [Wibowo et al., \(2022\)](#) analyzed the social-economic and environmental impact and found that in illegal gold mines in Jambi, the community still faces a dilemma between economic needs and the environmental impact of these activities. However, there has been no research examining illegal gold mining in West Aceh from the perspective of policy implementation using [Van Meter & Van Horn \(1975\)](#) Policy Implementation Theory with indicators of policy standards and objectives, resources, and the attitude of implementers. Therefore, the purpose of this study is to explore the effectiveness of policy implementation in overcoming deforestation and environmental degradation, with a focus on policies at the regional level implemented in West Aceh Regency. Thus, the ultimate goal of this study is to provide recommendations and suggestions for stakeholders to take firm action and resolve the issue of illegal gold mining and achieve environmental sustainability.

The research problem addressed in this study is rooted in the contradiction between formal legal frameworks and the informal practices that shape local governance in West Aceh. While the Qanun on spatial planning serves as a regulatory foundation to control mining activities, its implementation reveals persistent gaps in institutional commitment, resource allocation, and inter-agency coordination. These deficiencies highlight a broader structural issue of environmental governance in decentralized regions of Indonesia, where local authorities often face conflicting incentives between enforcing environmental regulations and supporting short-term economic interests. The study therefore seeks to critically explore the underlying factors that hinder the operationalization of mining control policies and the institutional behavior that sustains the coexistence of legality and illegality. Through this

lens, the research aims to deepen understanding of how policy implementation theory can be applied to analyze real-world governance failures and to formulate practical recommendations for improving the effectiveness of environmental policy enforcement in resource-dependent regions.

Methods

This study uses a qualitative method with a case study approach ([Cresswell & David Cresswell, 2018](#)). The case study approach allows researchers to explore the implementation of mining policies and the dynamics of environmental degradation caused by illegal gold mining in West Aceh Regency in a real-life context. This study collected data from various sources, including direct observation, interviews with stakeholders, policy documents, and research reports. This approach was chosen because it can describe in depth the phenomenon of environmental degradation occurring in West Aceh Regency and evaluate the effectiveness of the policies implemented. This study uses primary and secondary data sources. Primary data includes data obtained through observation and interviews to explore the socio-economic dynamics of illegal mining and environmental degradation occurring in four villages in West Aceh Regency. In addition, secondary data was obtained from policy documents, research reports, and relevant statistical data.

Result and Discussion

Based on interviews and policy document analysis, it was found that the implementation of policies to control illegal gold mining in West Aceh Regency has not been effective. This ineffectiveness can be analyzed through three main indicators in the policy implementation model of Van Meter and Van Horn (1975), namely policy standards and objectives, resources, and attitudes of implementers.

Policy Standards and Objectives

West Aceh Qanun No. 1 of 2013 on Spatial Planning formally designates areas for mining and establishes sanctions against illegal mining activities. However, these policy standards remain largely normative and have not been operationalized into clear, measurable, and enforceable guidelines at the implementation level. Local governments have yet to develop technical instructions or performance indicators that translate the Qanun's provisions into concrete enforcement mechanisms. Consequently, field officials tend to interpret the policy according to their own understanding, which leads to inconsistent and selective application of sanctions. This interpretive flexibility creates an implementation gap between regulatory design and practical enforcement.

The problem is further compounded by a persistent policy dilemma between economic growth and environmental protection. Although the Qanun emphasizes spatial order and ecological sustainability, the economic incentives derived from illegal mining including informal regional revenues and political rents have created an environment of policy ambiguity. Local authorities often find themselves caught between the formal obligation to enforce the law and the informal expectation to tolerate activities that sustain local livelihoods and revenue streams. This situation results in what scholars describe as symbolic policy implementation, in which policies exist more as administrative rituals than as instruments of substantive environmental governance ([DeLeon & DeLeon, 2002](#)). The absence of technical instruments in the Qanun framework has also weakened cross-sectoral coordination among relevant institutions. Ideally, mining supervision in West Aceh should integrate the efforts of the Environment Agency, the Provincial Energy and

Mineral Resources Agency, and law enforcement units under a unified monitoring and reporting mechanism. In practice, however, coordination is fragmented and reactive typically activated only after public complaints, environmental disasters, or media exposure. This institutional fragmentation reflects a sectoral logic of governance, where each agency prioritizes its narrow jurisdictional mandate rather than pursuing a shared objective of environmental sustainability. As a result, overlapping responsibilities and unclear lines of authority perpetuate administrative inertia and mutual avoidance between institutions.

Moreover, the absence of a structured and periodic policy evaluation mechanism exacerbates this problem. Without regular assessment of implementation outcomes, local authorities lack evidence-based feedback to improve policy performance. The Qanun, therefore, operates in a static regulatory environment, formally valid but substantively disconnected from ecological realities and socio-economic dynamics. This reinforces the view that policy implementation in West Aceh remains procedural, focusing on compliance with administrative requirements rather than on achieving measurable environmental outcomes.

From the perspective of Van Meter and Van Horn's (1975) policy implementation model, such weaknesses in policy standards and objectives represent the first and most critical barrier to effective policy delivery. When objectives are vague and performance indicators absent, implementers cannot align their actions with the policy's intended goals. This uncertainty opens space for discretionary interpretation and opportunistic behavior, especially in contexts where economic and political interests intersect. The lack of clear operationalization also undermines accountability, as success or failure cannot be objectively assessed in the absence of defined benchmarks.

Therefore, the weak implementation of the West Aceh Qanun is not merely a matter of administrative inefficiency, but reflects deeper structural issues in policy design and governance culture. The absence of transparent and participatory monitoring systems further distances the policy from public scrutiny. Civil society organizations, universities, and community monitoring groups are rarely involved in policy evaluation, resulting in minimal external oversight. Strengthening the substantive content of the Qanun thus requires not only technical elaboration of its regulatory provisions but also the institutionalization of participatory mechanisms that ensure policy responsiveness and accountability. Only through such reforms can the Qanun evolve from a symbolic administrative instrument into an effective tool for sustainable environmental governance in West Aceh.

Resources

Limited human resources and budgets are the main factors hindering policy implementation. Interviews with officials at an agency and law enforcement agencies revealed that field monitoring activities are only carried out on an incidental basis due to a lack of operational funds. The number of personnel involved in monitoring is also very limited, while mining areas are spread across several subdistricts with difficult access. In addition, weak technical capacity in data management and geospatial monitoring makes it difficult for the government to identify changes in land cover and illegal mining activities in real time. This has an impact on the low effectiveness of early detection of new mining activities.

Limited human resources in monitoring illegal mining are not only related to the number of personnel, but also to the technical competence of officials in the field. Many supervisory officers do not have a background in geology, the environment, or mining, so their ability to identify

violations and assess ecological impacts remains low. The lack of technical training and supporting facilities, such as digital mapping equipment, field vehicles, and access to spatial data, makes the monitoring process manual and unsustainable. As a result, new mining activities often escape government scrutiny until their impact on the environment has already become significant. In addition, financial resources for monitoring and law enforcement are also very limited. Regional budgets for mining control activities often depend on small, non-priority annual allocations. These budget constraints mean that monitoring, patrolling, and enforcement activities are only carried out sporadically and unsystematically.

Beyond the limitations of personnel and funding, resource constraints in policy implementation also reflect structural and systemic weaknesses within regional governance. The allocation of budgets for environmental supervision is often politically driven rather than based on empirical assessments of ecological risk. This indicates a mismatch between resource planning and the actual needs of policy implementation. Furthermore, the absence of digital infrastructure, such as integrated spatial databases and real-time monitoring systems, demonstrates the technological gap that hinders evidence-based decision-making. In the context of Van Meter and Van Horn's model, resources are not limited to financial and human capacities but also include informational and institutional resources necessary for coherent implementation. The inability of local governments to mobilize these resources indicates a lack of administrative learning and intergovernmental collaboration. As a result, enforcement becomes reactive and fragmented, with responses typically triggered only after public pressure or environmental crises. Strengthening policy implementation in this regard requires the institutionalization of data-driven monitoring, allocation of dedicated funding for continuous oversight, and the integration of local capacities with provincial and national agencies to ensure policy coherence and long-term sustainability.

Attitudes of Implementers

The attitude and commitment of policy implementers are the most crucial aspects determining the success or failure of policy implementation. Based on the interview results, it became evident that a permissive attitude or deliberate neglect was exhibited by some local officials toward illegal mining activities. Several informants reported that these officials were not only aware of the mining operation schedules but also maintained informal communication with the perpetrators, yet no concrete law enforcement action was taken. This indicates the existence of a tacit tolerance that allows illegal mining to persist as a normalized practice. Such findings reinforce [Iskandar \(2019\)](#) argument that neglect often occurs due to short-term economic benefits that local actors derive from the continuity of illegal extraction practices.

The ambivalence of local communities further complicates this situation. On one hand, they clearly recognize the ecological damage, water pollution, and health risks associated with illegal mining. On the other hand, the activity provides a primary and often irreplaceable source of income. The resulting economic dependency creates a moral and practical dilemma: communities are simultaneously victims and beneficiaries of the same exploitative system. This duality erodes the moral authority of the state and weakens the legitimacy of government interventions. When communities prioritize economic survival over environmental sustainability, policy implementation becomes not only a technical matter but also a deeply social and ethical challenge.

Furthermore, the permissive attitude of policy implementers cannot be separated from the complex web of social and economic relations that have evolved between local officials and mining operators. In many instances, patron-client dynamics are evident, where mining operators

provide informal payments, logistical support, or even political backing in exchange for protection and the freedom to operate. These arrangements are often framed as acts of “compensation” or “social contributions,” yet they essentially function as mechanisms of policy capture. Policy capture, as explained in governance studies, occurs when public decisions and enforcement are distorted to serve the private interests of specific groups, undermining the broader public good.

This phenomenon signifies a deep-seated institutional weakness, where the boundary between state authority and private interest becomes blurred. When officials themselves become economically entangled within the illegal mining network, the normative function of regulation loses its substance. Law enforcement becomes selective and symbolic, serving as a means of negotiation rather than deterrence. Consequently, the community perceives illegal mining as “socially permissible,” despite its legal prohibition. Over time, such social acceptance reshapes local norms, transforming illegality into an accepted element of everyday life.

In a broader governance perspective, this condition illustrates the entrenchment of informal institutions within formal policy frameworks. The coexistence of formal regulations and informal practices produces what scholars term institutional hybridity, a situation in which rules are simultaneously acknowledged and violated depending on contextual interests. In this sense, the persistence of illegal mining is not merely a failure of law enforcement, but a manifestation of negotiated governance, where state and non-state actors continuously redefine what is “acceptable” in pursuit of economic and political gains. Strengthening implementation, therefore, requires not only administrative reform but also the reconfiguration of local political economies that sustain permissive and collusive behaviors.

Conclusion

This study concludes that the implementation of policies to control illegal gold mining in West Aceh Regency has not been effective. Based on the framework of Van Meter and Van Horn (1975), the ineffectiveness of this policy is due to weak policy standards that have not been translated into operational terms, limited human and financial resources, and the permissive attitude of the implementing agencies towards illegal miners. The Qanun, which should be an instrument of control, actually functions administratively without the support of a transparent and integrated monitoring system.

In addition, the dilemma between economic interests and environmental conservation undermines the effectiveness of policies, as some local actors benefit from the continuation of illegal mining activities. As a result, environmental degradation, water pollution, and ecosystem damage are becoming more widespread without any strict sanctions. The limitations of this study lie in the scope of the study location, which is still limited to four villages, thus requiring further research involving quantitative approaches and geospatial data to strengthen the findings.

This study recommends the importance of reformulating policy by clarifying policy implementation standards, strengthening inter-agency coordination, improving technical oversight capacity, and establishing a public participation-based accountability system. This approach is expected to promote policy effectiveness and strengthen equitable and sustainable environmental governance in West Aceh Regency.

References

- Cahyanti, M. (2024). The Application of the Longest Criminal Sanction for Illegal Miners for Environmental Conservation in the Bangka Belitung Islands Province. *Proceedings of the International Conference on Environmental Law and Mining Law, ICTA II-MIL 2023, 21st October 2023, Pangkalpinang, Bangka Belitung, Indonesia*. <https://doi.org/10.4108/eai.21-10-2023.2343527>
- Cresswell, J. W., & David Cresswell, J. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (five editi). Sage Publisher.
- DeLeon, P., & DeLeon, L. (2002). What Ever Happened to Policy Implementation? An Alternative Approach. *Journal of Public Administration Research and Theory: J-PART*, 12(4). <http://www.jstor.org/stable/3525857>
- Fadhly, Z. (2019). PERBANDINGAN MANAJEMEN SEKTOR PEMERINTAH DENGAN SEKTOR SWASTA. *Jurnal Public Policy*, 2(2). <https://doi.org/10.35308/jpp.v2i2.1014>
- IndonesiaBaru. (2024, December 1). 17 SURAT CINTA (Full Movie). Youtube. <https://www.youtube.com/watch?v=I3AwmtMgPCA&t=1782s>
- Iskandar, T. D. (2019, April 9). Walhi: Penambangan emas ilegal di Aceh Barat masih dibiarkan aparat. *Antara News Aceh*. <https://www.antaraneews.com/berita/2090266/walhi-penambangan-emas-ilegal-di-aceh-barat-masih-dibiarkan-aparat>
- Jusniar, N., & Fadhly, Z. (2023). ANALISIS KINERJA APARATUR SIPIL NEGARA DAN TENAGA HARIAN LEPAS DALAM MENINGKATKAN EFEKTIVITAS KINERJA DI BADAN KEPEGAWAIAN DAN PENGEMBANGAN SUMBER DAYA MANUSIA KABUPATEN ACEH SELATAN. *Dinamika : Jurnal Ilmiah Ilmu Administrasi Negara*, 10(2), 223–232. <https://doi.org/http://dx.doi.org/10.25157/dak.v10i2.9486>
- Khan, A. R., & Khandaker, S. (2016). A critical insight into policy implementation and implementation performance. *Public Policy and Administration*, 15(4), 538–548. <https://doi.org/10.13165/VPA-16-15-4-02>
- Meutia, A. A., Bachriadi, D., & Gafur, N. A. (2023). Environment Degradation, Health Threats, and Legality at the Artisanal Small-Scale Gold Mining Sites in Indonesia. *International Journal of Environmental Research and Public Health*, 20(18), 6774. <https://doi.org/10.3390/ijerph20186774>
- Milwan, M., Kurniawan, H., Adhy, M. E., & Udin, U. (2020). POLICY IMPLEMENTATION OF ONE-PRICE FUEL OIL DISTRIBUTION: AN EMPIRICAL STUDY IN INDONESIA. *International Journal of Energy Economics and Policy*, 10(2), 294–301. <https://doi.org/10.32479/ijeep.8824>
- Nainggolan, P. S. (2018). RESISTENSI PENAMBANG ILEGAL : STUDI KASUS EKSPLOITASI TAMBANG GALIAN B (EMAS) DI DESA SAYUR MATUAKECAMATAN NAGA JUANG KABUPATEN MANDAILING NATAL. *JURNAL BUANA*, 2(3), 870. <https://doi.org/10.24036/student.v2i3.149>
- QANUN KABUPATEN ACEH BARAT NOMOR 1 TAHUN 2013 TENTANG RENCANA TATA RUANG WILAYAH KABUPATEN ACEH BARAT TAHUN 2012-2032, Pub. L. No. 1, 1 (2013).
- Redaksi. (2025). *Lubang Gelap Emas di Tambang Ilegal*. DigData.Id. <https://digdata.id/baca/lubang->

gelap-emas-di-tambang-ilegal/

Sager, F., & Gofen, A. (2022). The polity of implementation: Organizational and institutional arrangements in policy implementation. *Governance*, 35(2), 347–364.
<https://doi.org/10.1111/gove.12677>

Van Meter, D. S., & Van Horn, C. E. (1975). The Policy Implementation Process. *Administration & Society*, 6(4), 445–488. <https://doi.org/10.1177/009539977500600404>

Wibowo, Y. G., Ramadan, B. S., Maryani, A. T., Rosarina, D., & Arkham, L. O. (2022). Impact of illegal gold mining in Jambi, Indonesia. *Indonesian Mining Journal*, 25(1), 29–40.
<https://doi.org/10.30556/imj.Vol25.No1.2022.1271>

