

INTEGRATING CROSS-SECTORAL OVERSIGHT AND NATIONAL SECURITY IN COMBATING ILLEGAL MINERAL TRANSPORT: A POLICY REFORMULATION APPROACH

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Abstract

This article discusses the integration of cross-sectoral oversight and the strengthening of national security in addressing illegal mineral transport via air routes. The study is motivated by the absence of explicit regulation governing the distribution of illegal minerals, creating legal loopholes despite prohibitions in the Mineral and Coal Law. This activity has led to significant economic losses, severe environmental degradation, and potential threats to national security. This research adopts a progressive normative-empirical approach with a policy-legal mapping method, combining regulatory analysis, authority mapping, and the incorporation of local values. The findings reveal weaknesses in oversight and coordination between agencies, as well as regulatory gaps and weak law enforcement. Impact analysis highlights economic losses, environmental damage, and risks to national security. This study emphasizes the need for integrated cross-sectoral oversight, enhanced coordination, and evidence-based policy reformulation to safeguard the distribution of strategic minerals. The findings are expected to form a foundation for effective policy implementation, supporting national economic, social, and security stability.

Keywords: *cross-sectoral oversight, illegal mineral transport, law, national security, policy reformulation*

A. Background

The potential of gold mining in Indonesia is of considerable magnitude, sustained by geological diversity that fosters mineral formation and a long-standing history of mining activities. The country's tectonic configuration, shaped by the collision of the Pacific and Australian plates, has facilitated extensive metallogenic processes, resulting in highly valuable yet non-renewable mineral resources, while simultaneously exerting significant environmental impacts.⁴ The country accommodates a wide range of gold mining operations, encompassing both large-scale and ASGM practices, which contribute significantly to global gold production. Several regions, such as Sumatra, have historically served as prominent centers of exploration and mining activities since the seventeenth century, thereby playing a crucial role in sustaining national gold output.⁵ The Lakan Bilem Block in East Kalimantan, renowned for its alluvial gold deposits, is estimated to contain approximately 4.96 tons of gold reserves. This figure is further supported by the prospect of continued exploration, which may enhance confidence in the overall resource

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⁴ Fenty U Puluhulawa and Amanda Adelina Harun, 'Policy Formalization of Artisanal and Small-Scale Gold Mining (ASGM) Post-Ratification of Minamata Convention for Sustainability (Case Study of ASGM Gorontalo)', *E3S Web of Conferences 125 ICENIS*, 2019, pp. 1–7, doi:10.1051/e3sconf/201.

⁵ Theo van Leeuwen, 'Mineral Exploration and Mining in Sumatra, Indonesia—A Historical Overview', *SEG Discovery*, no. 129 (April 2022), pp. 21–29, doi:10.5382/SEGnews.2022-129.fea-01.

estimation.⁶ In 2024, gold production was reported to have reached approximately 100,000,000 kilograms, reflecting the scale of extraction activities undertaken during that period. This level of output underscores the strategic significance of gold mining within the national economy as well as its implications for long-term resource management.⁷ Gold production estimates in Indonesia are frequently rendered inaccurate due to double counting, wherein the output of large-scale companies is recalculated during the refining process conducted by state-owned enterprises. The situation is further complicated by the unrecorded contribution of ASGM operations without permits, with approximately 2,700 such sites currently identified, thereby hindering effective monitoring and law enforcement.⁸

Unlicensed mining involves a wide range of actors who collectively establish an organized system, encompassing the provision of equipment and materials, the recruitment of labor, the conduct of mining operations, the neglect of environmental and health safeguards, and the distribution and commercial transactions of extracted minerals. It has been estimated that approximately 70% of identified environmental degradation is attributable to the mining sector.⁹ In Indonesia, unlicensed gold mining has been estimated to cause state losses of up to IDR 3.4 trillion annually, primarily due to the forfeiture of potential tax revenues and royalties from operations conducted outside the licensing framework.¹⁰ Unlicensed mining generates substantial losses in state revenue as a result of tax and royalty evasion.¹¹ The proceeds derived from such activities are frequently laundered through complex financial transactions, including transfers, investments, and expenditures designed to obscure their illicit origins and create an appearance of legitimacy.¹² Illicit financial flows associated with ASGM in West Africa have been shown to generate economic instability while simultaneously linking formal and informal networks. Such interconnectedness complicates regulatory efforts and undermines the effective collection of taxes.¹³

The distribution of outputs from unlicensed mining not only generates economic losses but also poses serious threats to national security stability. Uncontrolled flows of such resources may serve as a source of financing for organized criminal activities,

⁶ Arifudin Idrus, Ni'matul Azizah Raharjanti, and Sufriadin, 'Characteristics and Potential of Placer Gold Deposit in Lakan Bilem Block, West Kutai District, East Kalimantan, Indonesia', *Journal of Geoscience, Engineering, Environment, and Technology*, 7.4 (2022), pp. 182–88, doi:10.25299/jgeet.2022.7.4.10772.

⁷ Ceic Data, 'Indonesia | Produksi Emas | 1990 – 2025 | Indikator Ekonomi', Ceicdata, 2025 <<https://www.ceicdata.com/id/indicator/indonesia/gold-production>> [accessed 1 June 2025].

⁸ Annisa Fitri Mustafa, 'Konflik Tambang Emas Sulawesi Utara: Pertambangan Emas Tanpa Izin (PETI)', *Penelitian Ilmu Pengetahuan Sosial*, 1.1 (2024), doi:10.61511/pips.v1i1.2024.571.

⁹ AHMAD HABIBI, 'Pencemaran Lingkungan Akibat Tambang Batu Bara Di Desa Serongga Kabupaten Kotabaru', in *Seri Publikasi Pembelajaran*, no. 1, preprint, 19 September 2022, doi:10.31219/osf.io/sn79j.

¹⁰ Ongku Hasibuan, Jann Tjakraatmadja, and Yos Sunitiyoso, 'Finding Workable and Mutually Beneficial Solutions to Eradicate Illegal Gold Mining', *BISNIS & BIROKRASI: Jurnal Ilmu Administrasi Dan Organisasi*, 28.2 (2021), doi:10.20476/jbb.v28i2.1239.

¹¹ Yasmirah Mandasari Saragih and others, 'Prevention And Law Enforcement Efforts Against The Crime Of Gold Mining Without A Permit (PETI) In The Jurisdiction Of The Merangin Resort Police', *International Journal of Law, Crime and Justice*, 1.3 (2024), pp. 39–49, doi:10.62951/ijlcej.v1i3.126.

¹² Nirde Ali and Iyah Faniyah, 'Penerapan Unsur Tindak Pidana Pencucian Uang Yang Berasal Dari Illegal Mining Pada Tingkat Penyidikan', *UNES Journal of Swara Justisia*, 7.3 (2023), pp. 995–1003, doi:10.31933/ujsj.v7i3.405.

¹³ Marcena Hunter, *Illicit Financial Flows*, OECD Development Co-Operation Working Papers (2020), LXXII, doi:10.1787/5f2e9dd9-en.

strengthen transnational crime networks, and trigger potential social conflicts that threaten national sovereignty. Illegal mining can erode national fiscal capacity by diverting mineral revenues away from formal governance systems. In the Indonesia context, estimates indicating over 3.6 million informal miners-of whom approximately 1.4 million are engaged in gold extraction,¹⁴ this illustrate the scale of the issue and its economic consequences. Furthermore, social tensions arising from unlicensed mining can shape patterns of resource distribution, as local communities may demand compensation or benefits from these operations in an attempt to offset the adverse impacts.¹⁵ Law enforcement against ASGM without permits in Indonesia encounters significant challenges due to the involvement of influential actors, the remoteness of mining sites, the complexity of legal regulations, and the weak implementation of effective governance mechanisms.¹⁶ This situation necessitates comprehensive efforts to map, identify, and analyze the legal frameworks governing the supervision of mineral transportation conducted without permits. At the same time, it calls for the strengthening of national defense and security systems in response to the increasingly complex dynamics of unregulated distribution. Despite having legal rules on mining activities and aviation logistics, there is still no coherent mechanisms that effectively links mining legality checks with air cargo control systems. This disconnect leaves room for illegal mineral products to circulate through air transport networks with limited traceability.

B. Identified Problems

This study will focus on two main objectives: (1) the identification and analysis of the impacts arising from the transportation of gold extracted through ASGM without permits via air routes, particularly in relation to potential social conflicts and threats to national security stability in Indonesia; and (2) the identification and examination of the legal regulations governing the supervision of mineral transportation originating from unlicensed mining operations within the country.

C. Research Methods

This research employs a normative-empirical approach utilizing the policy-legal mapping method, which integrates regulatory analysis, institutional authority mapping, and the examination of local values in mining governance. The data are derived from a review of statutory regulations, academic literature, and analyses of actual field cases. The qualitative analytical process is undertaken to identify legal gaps, weaknesses in institutional coordination, and the implications of unlicensed mining distribution for economic, social, environmental, and national security dimensions.

¹⁴ S Sugiarti and others, 'Legalization of Illegal Small-Scale Mining, as a Policy of Business Guarantee and Environmental Management', *IOP Conference Series: Earth and Environmental Science*, 882.1 (2021), p. 012077, doi:10.1088/1755-1315/882/1/012077.

¹⁵ Yosi Prianti and Eka Juarsa, 'Penegakan Hukum Dalam Tindak Pidana Illegal Mining', *Bandung Conference Series: Law Studies*, 2.1 (2022), doi:10.29313/bcsls.v2i1.444.

¹⁶ Roy Djordy Satingi, Fenty Puluhulawa, and Nuvazria Achir, 'Faktor Penghambat Penegakan Hukum Terhadap Pengangkutan Hasil Tambang Ilegal', *Hukum Inovatif: Jurnal Ilmu Hukum Sosial Dan Humaniora*, 1.3 (2024), pp. 126–34, doi:10.62383/humif.v1i3.304; Prianti and Juarsa, 'Penegakan Hukum Dalam Tindak Pidana Illegal Mining'.

D. Research Findings and Discussions

Impacts of Airborne Transportation of ASGM-Derived Gold Without Permits: Social Conflicts and National Security Threats in Indonesia

Artisanal and Small-Scale Gold Mining (ASGM) without permits constitutes a complex and multidimensional problem, shaped by the interplay of economic, social, political, and environmental factors, and exerting significant impacts on communities, ecosystems, and the economy. The management of mineral resources, therefore, ought to be undertaken with caution while ensuring that societal welfare remains a central consideration.¹⁷ The absence of effective oversight makes it difficult to avert the negative impacts of ASGM.¹⁸ Unlicensed gold mining is classified as a serious environmental crime due to its far-reaching impacts on forest destruction, mercury contamination, and biodiversity degradation. These consequences are particularly evident in resource-rich regions such as the Amazon, West Africa, and Southeast Asia.¹⁹ In the Amazon rainforest, unlicensed gold mining has been identified as a primary driver of deforestation, contributing to a 90% increase in deforestation rates between 2017 and 2020.²⁰ In Indonesia, approximately 70% of identified environmental degradation has been attributed to the mining sector.²¹ In South Aceh, Indonesia, unlicensed mining has resulted in deforestation, thereby increasing the region's vulnerability to flooding and causing damage to plantation areas.²² In Jambi, Indonesia, unlicensed mining activities have altered the landscape and degraded soil quality, thereby reducing agricultural productivity and undermining local livelihoods.²³ Mining activities that generate pollution, deforestation, and soil degradation exacerbate the global environmental crisis, as forest loss diminishes carbon sequestration capacity while simultaneously increasing greenhouse gas emissions.²⁴ Environmental degradation cannot be separated from the decline in community well-being, as polluted environments invariably exert direct impacts on public health and social welfare.²⁵ Health risks also constitute a major consequence of unlicensed gold mining. The use of hazardous substances such as mercury in these operations affects

¹⁷ Amanda Adelina Harun and others, 'Indonesian Mining Regulations Shift as a Potential Sector in Developing the Economy', *Jurnal Pamator: Jurnal Ilmiah Universitas Trunojoyo*, 16.2 (2023), pp. 419–34, doi:10.21107/pamator.v16i2.20114.

¹⁸ Fenty U. Puluhulawa and Amanda Adelina Harun, 'Biodiversity Protection from the Impact of Illegal Gold Mining for Sustainability', *IOP Conference Series: Earth and Environmental Science*, 519.1 (2020), doi:10.1088/1755-1315/519/1/012031.

¹⁹ Kuat Puji Prayitno, Galih Pandu Ramadhan, and Faiz Nuha Ilmawan, 'Law Enforcement's Role in Tackling Illegal Gold Mining for Sustainable Development Goals', *E3S Web of Conferences*, 609 (2025), p. 07002, doi:10.1051/e3sconf/202560907002.

²⁰ Juliana Siqueira-Gay and Luis E. Sánchez, 'The Outbreak of Illegal Gold Mining in the Brazilian Amazon Boosts Deforestation', *Regional Environmental Change*, 21.2 (2021), p. 28, doi:10.1007/s10113-021-01761-7.

²¹ HABIBI, 'Pencemaran Lingkungan Akibat Tambang Batu Bara Di Desa Serongga Kabupaten Kotabaru'.

²² Yuhasnibar Syah and others, 'For The Sake of Survival: Illegal Gold Mining Exploitation Crimes from Environmental Fiqh in South Aceh Regency', *Legitimasi: Jurnal Hukum Pidana Dan Politik Hukum*, 13.1 (2024), p. 121, doi:10.22373/legitimasi.v13i1.25008.

²³ Yudha Gusti Wibowo and others, 'Impact of Illegal Gold Mining in Jambi, Indonesia', *Indonesian Mining Journal*, 25.1 (2022), pp. 29–40, doi:10.30556/imj.Vol25.No1.2022.1271.

²⁴ Aqilah Liandita Ungawali, 'Pertanggung Jawaban Pidana Pelaku Penambangan Tanpa Izin Di Dalam Kawasan Hutan Dikaitkan Dengan Undang – Undang Nomor 18 Tahun 2013 Tentang Pencegahan Dan Pemberantasan Perusakan Hutan.', *Bandung Conference Series: Law Studies*, 2.1 (2022), doi:10.29313/bcsls.v2i1.833.

²⁵ Novendri M. Nggilu and others, 'Legislative Omission: Portrait of Regional Waste Management Arrangements in Gorontalo Province-Indonesia', *IOP Conference Series: Earth and Environmental Science*, 1270.1 (2023), p. 012008, doi:10.1088/1755-1315/1270/1/012008.

community well-being and further influences the socio-cultural dimensions of health and safety practices.²⁶ These harms persist not only because technological and socio-economic factors, but also because regulatory control remains uneven and poorly integrated across sectors. Where coordination is ineffective and legal mandates overlap or remain unclear, enforcement efforts tend to focus on mining sites while the downstream distribution of unlicensed gold continues to operate with minimal disruption, including through logistical routes that are difficult to supervise such as air transportation.

In Indonesia, more than two million individuals rely on unlicensed gold mining for their livelihoods, with activities dispersed across thousands of sites.²⁷ At present, there are approximately 2,700 unlicensed mining sites in Indonesia, creating significant obstacles for monitoring and law enforcement efforts.²⁸ Unlicensed gold mining has become an important source of livelihood for rural communities and contributes to poverty alleviation, yet it simultaneously fosters dependence on unauthorized activities.²⁹ This economic role renders the practice difficult to eradicate in impoverished regions.³⁰ In regions with limited economic opportunities, unlicensed mining functions as a means of livelihood for marginalized communities.³¹ In regions with limited economic opportunities, unlicensed mining functions as a means of livelihood for marginalized communities. This situation often fosters dependence on such practices for survival, despite the inherent risks and legal violations involved.³² The high market value of minerals such as gold and tin provides strong economic incentives for unlicensed mining.³³ Many communities rely on unlicensed mining for their livelihoods, making it difficult to eliminate the practice without providing alternative economic opportunities.³⁴ The economic incentives derived from unlicensed gold mining are often perceived as outweighing the environmental losses it generates. Limited employment opportunities and persistent economic pressures compel communities to remain engaged in these activities, even when the ecological consequences are widely recognized.³⁵

²⁶ Wulan Sari Wali, Wiclif Sephnath Pinoa, and Johan Riry, 'Understanding the Perspective of the Mining-Affected Community on Illegal Gold Mining (PETI) in Gogorea Village, Waeapo District, Buru Regency', *Jurnal Pendidikan Geografi Unpatti*, 3.2 (2024), pp. 218–29, doi:10.30598/jpguvol3iss2pp218-229.

²⁷ Ami A. Meutia, Royke Lumowa, and Masayuki Sakakibara, 'Indonesian Artisanal and Small-Scale Gold Mining—A Narrative Literature Review', *International Journal of Environmental Research and Public Health*, 19.7 (2022), p. 3955, doi:10.3390/ijerph19073955.

²⁸ Mustafa, 'Konflik Tambang Emas Sulawesi Utara: Pertambangan Emas Tanpa Izin (PETI)'.

²⁹ Widyawati Boediningsih and Tjoe Kang Long, 'Konflik Dalam Penerapan Hukum Pengelolaan Sumber Daya Alam Pertambangan Mineral Dan Batubara Tanpa Izin Pada Skala Kecil', *ALADALAH: Jurnal Politik, Sosial, Hukum Dan Humaniora*, 1.4 (2023), pp. 255–66, doi:10.59246/aladalah.v1i4.603.

³⁰ Ongku Hasibuan, Jann Tjakraatmadja, and Yos Sunitiyoso, 'Finding Workable and Mutually Beneficial Solutions to Eradicate Illegal Gold Mining', *BISNIS & BIROKRASI: Jurnal Ilmu Administrasi Dan Organisasi*, 28.2 (2021), doi:10.20476/jbb.v28i2.1239.

³¹ Yuliya Zabyelina, 'The Harms and Crimes of Mining', in *Oxford Research Encyclopedia of Criminology and Criminal Justice* (Oxford University Press, 2023), doi:10.1093/acrefore/9780190264079.013.766.

³² Muhammad Melian and others, 'Pertambangan Emas Tanpa Izin (Peti), Dampak Lingkungan, Sosial Dan Ekonomi Serta Peranan Hukum Lingkungan Di Kabupaten Lebong, Provinsi Bengkulu.', *INSOLOGI: Jurnal Sains Dan Teknologi*, 3.3 (2024), pp. 339–44, doi:10.55123/insologi.v3i3.3578.

³³ Hasibuan, Tjakraatmadja, and Sunitiyoso, 'Finding Workable and Mutually Beneficial Solutions to Eradicate Illegal Gold Mining', 2021.

³⁴ Muhammad Melian and others, 'Pertambangan Emas Tanpa Izin (Peti), Dampak Lingkungan, Sosial Dan Ekonomi Serta Peranan Hukum Lingkungan Di Kabupaten Lebong, Provinsi Bengkulu.'

³⁵ Wibowo and others, 'Impact of Illegal Gold Mining in Jambi, Indonesia'.

Unlicensed mining constitutes not merely an economic activity but is also intertwined with cultural identity, social structures, and community dynamics. From a historical perspective, such practices have persisted across multiple generations in many regions, evolving into culturally embedded traditions that foster a sense of identity and ownership among those engaged in them.³⁶ The potential of Indonesia's mining industry has been recognized since the pre-colonial era and became integrated into the global economic system around 1619 through metal trade activities conducted by the Dutch East India Company (VOC).³⁷ Mining activities in Indonesia began to be officially documented in 1669, when the Dutch East India Company (VOC) reactivated the Salida mine in West Sumatra.³⁸ In the social context, these activities encouraged the formation of mining communities characterized by interdependence and close networking through cooperation and resource sharing, thereby reinforcing social bonds and a sense of belonging.³⁹ Social interactions among ASGM miners, manifested in strong bonds and networks through the sharing of resources and information, eventually became embedded within the social structure of local communities.⁴⁰ In certain cultures, mining activities are perceived as rites of passage or as symbols of masculinity, thereby reinforcing the normalization of unlicensed mining practices as integral components of community values and traditions.⁴¹

Unlicensed mining frequently triggers social conflict as a result of competition over resources and the absence of adequate regulatory frameworks to govern such activities.⁴² Unlicensed mining carries the potential to generate social tensions stemming from competition over land and resources. Such activities may disrupt agricultural areas or disturb local ecosystems, thereby provoking disputes among community members.⁴³ These conflicts have the potential to become increasingly complex with the involvement of multiple stakeholders, including local communities, government authorities, and law enforcement agencies.⁴⁴ Research findings from several areas in Puhuwato Regency, Gorontalo Province, indicate that mining activities are believed to receive financial backing from external actors with greater capital capacity than local communities.⁴⁵ This

³⁶ Muhammad Melian and others, 'Pertambangan Emas Tanpa Izin (Peti), Dampak Lingkungan, Sosial Dan Ekonomi Serta Peranan Hukum Lingkungan Di Kabupaten Lebong, Provinsi Bengkulu.'

³⁷ Zamroni Abdussamad and others, 'Constitutional Balance: Synchronizing Energy and Environmental Policies with Socio-Economic Mandates', *E3S Web of Conferences* (Riau), 506 (2024), p. 06006, doi:10.1051/e3sconf/202450606006.

³⁸ Leeuwen, 'Mineral Exploration and Mining in Sumatra, Indonesia—A Historical Overview'.

³⁹ Wali, Pinoa, and Riry, 'Understanding the Perspective of the Mining-Affected Community on Illegal Gold Mining (PETI) in Gogorea Village, Waeapo District, Buru Regency'.

⁴⁰ Muhammad Melian and others, 'Pertambangan Emas Tanpa Izin (Peti), Dampak Lingkungan, Sosial Dan Ekonomi Serta Peranan Hukum Lingkungan Di Kabupaten Lebong, Provinsi Bengkulu.'

⁴¹ Muhammad Melian and others, 'Pertambangan Emas Tanpa Izin (Peti), Dampak Lingkungan, Sosial Dan Ekonomi Serta Peranan Hukum Lingkungan Di Kabupaten Lebong, Provinsi Bengkulu.'

⁴² Hasibuan, Tjakraatmadja, and Sunitiyoso, 'Finding Workable and Mutually Beneficial Solutions to Eradicate Illegal Gold Mining', 2021; Yasmirah Mandasari Saragih and others, 'Prevention And Law Enforcement Efforts Against The Crime Of Gold Mining Without A Permit (PETI) In The Jurisdiction Of The Merangin Resort Police'.

⁴³ Wali, Pinoa, and Riry, 'Understanding the Perspective of the Mining-Affected Community on Illegal Gold Mining (PETI) in Gogorea Village, Waeapo District, Buru Regency'.

⁴⁴ Ongku P. Hasibuan, Jann H. Tjakraatmadja, and Yos Sunitiyoso, 'Illegal Gold Mining in Indonesia: Structure and Causes', *International Journal of Emerging Markets*, 17.1 (2022), pp. 177–97, doi:10.1108/IJOEM-11-2019-0964; Yasmirah Mandasari Saragih and others, 'Prevention And Law Enforcement Efforts Against The Crime Of Gold Mining Without A Permit (PETI) In The Jurisdiction Of The Merangin Resort Police'.

⁴⁵ Berdasarkan hasil focus group discussion dengan warga desa di puhuwato.

condition is feared to potentially generate horizontal tensions within communities, as certain groups feel disadvantaged and express concern over the negative impacts on the environment and residential well-being. Conversely, other segments of society support the presence of mining due to perceived improvements in the local economy. One indication of such economic growth is reflected in community statements that the daily allowance of elementary school children can exceed the Provincial Minimum Wage in Gorontalo.⁴⁶

The transportation of mining products is frequently carried out without proper authorization from relevant authorities, accompanied by violations of environmental regulations, links to criminal activities, overlapping licensing issues, and compounded by limited public awareness and weak law enforcement efforts.⁴⁷ The distribution routes and operational patterns of unlicensed mining are established through informal infrastructure networks that function beneath the legal radar, shaped by local socio-political dynamics and strategies designed to evade law enforcement intervention. The distribution of unlicensed gold constitutes a systemic structure involving multiple actors with specific roles that are coordinated to sustain the mobility of gold outside legal channels. An analysis of historical data from the Wagah–Attari border crossing between India and Pakistan demonstrates that gold smuggling practices hold substantial economic significance.⁴⁸ This phenomenon is driven by the high demand for gold and significant price disparities across countries. Business actors in organized networks facilitate the cross-border movement of gold by exploiting gaps within the post-partition socio-political context to expand unlicensed trade networks.⁴⁹ Communities, particularly miners themselves, are also directly involved in unlicensed mining and transportation activities.⁵⁰

The transportation of unlicensed gold frequently triggers conflicts at the community level, particularly as competing groups of miners struggle to control distribution routes. Tensions also arise when external distribution networks operate without involving local residents, generating perceptions of injustice and sparking clashes among community factions. One of the main channels used for the transportation of unlicensed gold is air routes. Air transport is chosen because it offers high speed and reduced inspection risks, largely due to the absence of explicit regulations prohibiting the carriage of unlicensed mining products and the limited availability of specialized detection systems for precious metals at airports. Although unlicensed gold transport networks are generally controlled by non-state actors, the involvement of state institutions and political interests further complicates these dynamics, especially when the boundary between state and non-state roles becomes blurred and state officials are directly implicated in supporting or managing

⁴⁶ Berdasarkan Keputusan Gubernur Gorontalo Nomor 482/34/XII/2024, UMP Gorontalo tahun 2025 telah ditetapkan sebesar Rp3.221.731. Apabila dibagi dengan 22 hari kerja, maka angka UMP Provinsi Gorontalo per hari berada di sekitar angka Rp. 146.442,-

⁴⁷ Muhamad Shafri Abdilah, 'Upaya Penegakan Hukum Terkait Pertambangan Emas Tanpa Izin Yang Mengakibatkan Delapan Pekerja Meninggal Dunia Di Ajibarang', *Proceedings Series on Social Sciences & Humanities*, 17 (2024), pp. 103–06, doi:10.30595/pssh.v17i.1123.

⁴⁸ 'Illicit Global Gold Trade and Wagah–Attari Crossing', in *The Punjab Borderland* (Cambridge University Press, 2022), pp. 132–63, doi:10.1017/9781009049184.007.

⁴⁹ 'Illicit Global Gold Trade and Wagah–Attari Crossing'.

⁵⁰ Nurul Hasnah Maulida and others, 'Dampak Sosial Ekonomi Penambang Emas Tanpa Izin (Illegal) Pada Masyarakat Binawara', *PAKIS (Publikasi Berkala Pendidikan Ilmu Sosial)*, 2.2 (2022), doi:10.20527/pakis.v2i2.6120.

such unauthorized activities.⁵¹ Unlicensed mining is often linked to organized crime, wherein criminal groups control mining operations and engage in ancillary offenses such as human trafficking and money laundering, thereby posing serious threats to security and undermining the rule of law in affected regions.⁵² The laundering of unlicensed gold is generally carried out by integrating the outputs of unauthorized mining into formal supply chains. In Indonesia, this was exemplified by the distribution of 109 tons of unlicensed gold between 2010 and 2021, which was disguised as legitimate products through the use of the official brand of a state-owned enterprise.⁵³

Regulatory Oversight and Legal Gaps in the Transportation of Unlicensed Gold

The transportation of mineral resources, particularly gold, constitutes a critical link in the governance of natural resources. Such activities should be subject to strict regulatory control, given the high risks of deviation, ranging from production data manipulation to unauthorized trading practices. In the Indonesian context, unlicensed gold transportation frequently occurs in ASGM areas as well as in unauthorized exploitation zones that are difficult to reach through formal monitoring mechanisms. An analysis of regulatory aspects and legal loopholes in the supervision of gold distribution is therefore essential to understanding how state resource leakages persist despite the apparent availability of a legal framework. Oversight of unlicensed gold transportation requires a firm and well-coordinated regulatory system; however, in practice, the existing legal framework often faces challenges in the form of legislative gaps, overlapping institutional authorities, and weak implementation on the ground, which collectively allow unauthorized distribution to continue. From a regulatory perspective, the provisions governing the distribution of mineral resources can be outlined as follows:

Law	Specific part of the Law	Substance
Law No. 4 of 2009 on Mineral and Coal Mining	Article 1, Points 19 and 20	The definitions of transportation and sales are regarded as integral components of the distribution of mineral resources.
Law No. 4 of 2009 on Mineral and Coal Mining	Article 6, Letter d	Mining business activities encompass both transportation and sales.
Law No. 4 of 2009 on Mineral and Coal Mining	Articles 104 and 105	Business actors are required to obtain permits for the transportation and sale of mineral resources.
Law No. 4 of 2009 on Mineral and Coal Mining	Articles 129–130	The supervision and control of mining activities, including distribution, are carried out through reporting mechanisms and auditing processes.
Law No. 4 of 2009 on Mineral and Coal Mining	Article 35A	The government guarantees the continuity of mining operations, including the transportation and sale of mineral resources.

⁵¹ Alexander Kapatadze, 'BEYOND CONVENTIONAL BOUNDARIES', *World Affairs*, 186.3 (2023), pp. 747–75, doi:10.1177/00438200231178852.

⁵² Sara Mariella Lambertini, 'Consolidation of Organized Crime in the Orinoco Mining Arc (OMA): The Control of Illegal Mining, Human Trafficking, and Other Crimes', *Journal of Illicit Economies and Development*, 5.1 (2023), pp. 22–33, doi:10.31389/jied.144; Ali and Faniyah, 'Penerapan Unsur Tindak Pidana Pencucian Uang Yang Berasal Dari Illegal Mining Pada Tingkat Penyidikan'.

⁵³ Vadhia Lidyana, 'Antam Klarifikasi Isu 109 Ton Emas Ilegal, Gimana Dampaknya Ke Pasar?', IDN Times, 2024 <<https://www.idntimes.com/business/economy/antam-klarifikasi-isu-109-ton-emas-ilegal-gimana-dampaknya-ke-pasar-00-3m8tp-sfhwf2>> [accessed 10 June 2025].

Law No. 3 of 2020 on the Amendment to Law No. 4 of 2009 on Mineral and Coal Mining”	Article 47, Paragraph (1)	Holders of Mining Business Licenses (IUP) and Special Mining Business Licenses (IUPK) are required to carry out processing and/or refining prior to distribution.
Law No. 3 of 2020 on the Amendment to Law No. 4 of 2009 on Mineral and Coal Mining”	Article 111A	The central government supervises and regulates the distribution of mineral resources through a licensing system.
Law No. 3 of 2020 on the Amendment to Law No. 4 of 2009 on Mineral and Coal Mining”	Article 162A and 162B	The transportation and sale of mineral resources without authorization are prohibited and subject to both administrative and criminal sanctions.
Law No. 2 of 2025 on the Strengthening of Financial Sector Reporting and Supervision in Relation to Strategic Economic Activities, including Mining	Article 169 Letter b and c	The reporting mechanisms of the financial sector are integrated with strategic economic activities, including mining.
Law No. 2 of 2025 on the Strengthening of Financial Sector Reporting and Supervision in Relation to Strategic Economic Activities, including Mining	Article 176 paragraph (3)	The strengthening of risk-based financial supervision is directed at national strategic business sectors.

The distribution of mineral resources represents a crucial component of mining governance, reflected in regulations concerning transportation and sales. Law No. 4 of 2009 addresses these aspects, although it does not explicitly employ the term “distribution.” The subsequent amendment through Law No. 3 of 2020 strengthened oversight by introducing prohibitions, sanctions, and the requirement of mineral refining prior to distribution. Law No. 2 of 2025 further reinforced this framework by enhancing financial sector reporting and supervision mechanisms in relation to strategic economic activities, including mining. Normatively, these legislative instruments have established a more solid and integrative system for supervising the distribution of mineral resources. In practice, however, the effectiveness of this oversight remains contingent upon the integrity of law enforcement, the firmness of cross-sectoral coordination, and the active involvement of society in maintaining accountability in the governance of natural resource distribution. Despite the existence of such legal frameworks, regulation of mining activities continues to face challenges, as enforcement often proves suboptimal due to resource limitations, corruption, and the geographical remoteness of unlicensed mining operations.⁵⁴ Legal loopholes, coupled with permissive practices by certain law enforcement officials, continue to enable the distribution of unlicensed gold, in some cases even under the protection of informal power structures.

The distribution of unlicensed mineral resources occurs not only through land and sea routes but also by exploiting air transport channels. Unlicensed gold is frequently

⁵⁴ Roy Djordy Satingi, Fenty Puluhulawa, and Nuvazria Achir, ‘Faktor Penghambat Penegakan Hukum Terhadap Pengangkutan Hasil Tambang Ilegal’.

transported via air routes as an alternative means of distribution.⁵⁵ Air transport is often chosen as a distribution channel because it is considered faster and subject to fewer inspections. Although airport security systems are relatively stringent, their primary focus lies on threats such as terrorism or narcotics smuggling, rather than on the movement of unlicensed mineral resources. Surveillance mechanisms at airports are generally not designed to detect precious metals specifically, except in cases where undeclared goods clearly fall within explicitly prohibited categories. This situation is further exacerbated by the absence of explicit provisions in the Aviation Law that strictly prohibit the transportation of unlicensed mining products, leaving security personnel and airport authorities without a strong legal basis to conduct thorough inspections.

No	Relevant regulation	Regulations substance	Implementing Actors	Legal Weaknesses	Recommendations for Reformulation
1	Law No. 1 of 2009 on Aviation	It does not explicitly regulate the prohibition of transporting mineral resources from unlicensed mining activities.	Ministry of Transportation and Airport Authorities	Legal weaknesses are exploited to facilitate the air transport of unlicensed gold.	An explicit statutory provision prohibiting the transportation of mineral resources from unlicensed mining activities should be introduced.
2	Law No. 3 of 2020 on Mineral and Coal Mining	The conduct of mining activities without an official Mining Business License (IUP) shall be prohibited.	Ministry of Energy and Mineral Resources (ESDM) and Local Governments	It is not integrated with the air transportation sector.	The harmonization of mining regulations (Minerba) with the Aviation Law.
3	Airport Regulations/Cargo Standard Operating Procedures (SOPs)	General supervision of luggage and cargo.	Airport Authorities and Customs	The absence of specific standard operating procedures (SOPs) for high-value	Susun SOP khusus pemeriksaan kargo mineral bernilai tinggi.

⁵⁵ Arfandi Ibrahim, 'Skandal PETI Pohuwato, Emas Diselundupkan via Bandara Djalaluddin?', 2025 <<https://www.liputan6.com/regional/read/5973132/skandal-peti-pohuwato-emas-diselundupkan-via-bandara-djalaluddin>> [accessed 17 July 2025]; Tim redaksi, 'Tambang Emas Ilegal Di Sekitar Bandara Muaro Bungo Digerebek Polisi', VOI, 2025 <<https://voi.id/berita/488361/tambang-emas-ilegal-di-sekitar-bandara-muaro-bungo-digerebek-polisi>>; M Irzal Sudirman, 'Penampakan 10 Kg Emas Ilegal Diamankan Polisi Di Bandara Manado', Detik.Com, 2024 <<https://www.detik.com/sulsel/hukum-dan-kriminal/d-7310957/penampakan-10-kg-emas-ilegal-diamankan-polisi-di-bandara-manado>>.

				metallic minerals.	
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This situation reflects the weak institutional integration in the oversight of unlicensed mineral distribution through air routes. Each institution operates under a limited mandate without a clearly defined system of coordination. The absence of an integrated monitoring scheme allows unlicensed gold transportation to remain undetected from the point of origin to the distribution destination. Such conditions reveal structural weaknesses in the overall system of mineral distribution oversight, particularly in relation to air transport. The lack of regulatory integration and minimal inter-agency coordination is further evidenced by several cases of unlicensed gold shipments intercepted at airports, as reported in recent years.⁵⁶ This situation indicates the urgent need for legal norms that explicitly regulate the severe consequences of unlicensed mining activities, thereby providing law enforcement officials with a firm basis to impose proportional criminal sanctions on both individual perpetrators and structurally involved actors.⁵⁷

Beyond normative challenges, law enforcement against unlicensed mining also encounters obstacles at the social level. Efforts to regulate the distribution networks of unlicensed gold face significant difficulties due to their complex structure, the involvement of multiple commodities, and the high degree of uncertainty in tracing outputs and circulation pathways.⁵⁸ Normative guidance and oversight remain insufficient, while law enforcement is often reactive rather than proactive, emphasizing punitive measures over preventive strategies.⁵⁹ The handling of such cases frequently encounters resistance from local communities whose livelihoods depend on mining activities.⁶⁰ In such circumstances, repressive approaches applied without social sensitivity risk provoking open conflict. At the same time, socio-economic factors—such as the desire to avoid regulatory burdens and the limited awareness of environmental impacts—further reinforce the persistence of unlicensed mining practices.⁶¹

The role of law is crucial in regulating environmental protection, which has been guaranteed under the constitution.⁶² In addition, strategies for addressing unlicensed gold

⁵⁶ Ibrahim, ‘Skandal PETI Pohnuato, Emas Diselundupkan via Bandara Djalaluddin?’; Gloria Setyvani Putri Tim Redaksi Skivo Marcelino Mandey, ‘Pengiriman Emas Batangan 10 Kg Diduga Hasil PETI Digagalkan Di Bandara Sam Ratulangi Manado’, 2024 <<https://makassar.kompas.com/read/2024/04/25/102915378/pengiriman-emas-batangan-10-kg-diduga-hasil-peti-digagalkan-di-bandara-sam>>.

⁵⁷ Siti Aisah and Haryadi Haryadi, ‘Kebijakan Hukum Pidana Terhadap Penambangan Ilegal Yang Menyebabkan Hilangnya Nyawa Menurut Undang-Undang Nomor 3 Tahun 2020 Tentang Pertambangan Mineral Dan Batubara’, *PAMPAS: Journal of Criminal Law*, 4.3 (2023), pp. 373–86, doi:10.22437/pampas.v4i3.28672.

⁵⁸ Mehdi Najafi, Hossein Zolfagharinia, and Fatemeh Asadi, ‘Angels against Demons: Fight against Smuggling in an Illicit Supply Chain with Uncertain Outcomes and Unknown Structure’, *Computers & Industrial Engineering*, 176 (2023), p. 109007, doi:10.1016/j.cie.2023.109007.

⁵⁹ Prianti and Juarsa, ‘Penegakan Hukum Dalam Tindak Pidana Ilegal Mining’.

⁶⁰ Prianti and Juarsa, ‘Penegakan Hukum Dalam Tindak Pidana Ilegal Mining’; Hasibuan, Tjakraatmadja, and Sunitiyoso, ‘Finding Workable and Mutually Beneficial Solutions to Eradicate Illegal Gold Mining’, 2021.

⁶¹ Prianti and Juarsa, ‘Penegakan Hukum Dalam Tindak Pidana Ilegal Mining’.

⁶² Fenty U. Puluhulawa and Amanda Adelina Harun, ‘Enabling Circular Economy: Towards Sustainable Electronic Waste Management Regulation’, *Jambura Law Review*, 6.01 (2024), pp. 33–65, doi:<https://doi.org/10.33756/jlr.v6i1.24024>; Fenty Puluhulawa, Mohammad Rusdiyanto Puluhulawa, and Amanda Adelina Harun, ‘Legal Culture of Local Community in Plastic Waste Management’, *KnE Social Sciences* (Malang), 2022.October (2022), pp. 183–91, doi:10.18502/kss.v7i15.12089.

mining and distribution must be designed holistically, not only through strict legal measures but also by empowering communities and reforming cross-sectoral policies. Preventive efforts should encompass the strengthening of public education, the enhancement of transparency in mining governance, and the integration of inter-agency oversight. Without interventions that address the underlying social and economic roots of the problem, repressive law enforcement risks deepening local tensions and failing to foster sustainable behavioral change. A collaborative approach involving the state, local communities, and the private sector is therefore a critical prerequisite for building a mining system that is legal, equitable, and sustainable.

E. Conclusions

This study shows that persistence of unlicensed gold mining and its distribution in Indonesia is primarily driven by governance weaknesses rather than the absence of regulation. The key finding is that oversight remains fragmented across sectors, particularly between mining governance and transportation control, which allows illegal gold to move beyond extraction areas and continue circulating through distribution channels, including air routes. In practice, enforcement responses tend to be reactive and localized, while downstream mobility and commercialization are sustained by limited traceability of mineral origin and insufficient coordination among relevant institutions.

These findings carry important implications for supervision and enforcement. Strengthening control at mining sites alone is unlikely to disrupt illegal distribution networks if monitoring mechanisms do not extend to logistical nodes where commodities are transferred and transported. Oversight therefore requires an integrated approach that connects licensing verification with transport documentation, cargo inspection, and inter-agency operational coordination. Future regulatory priorities should focus on clarifying institutional mandates, harmonizing cross-sectoral procedures, and developing targeted monitoring models for high-risk distribution pathways. At the same time, regulatory reform should be accompanied by community-based strategies that support lawful economic alternatives and improve compliance incentives, ensuring that governance strengthening does not rely solely on punitive measures but contributes to more sustainable and equitable mineral resource management.

F. Acknowledgement

Authors extend sincere appreciation to the Directorate of Research and Community Service (*Direktorat Penelitian dan Pengabdian kepada Masyarakat*), Directorate General of Research and Development (*Direktorat Jenderal Riset dan Pengembangan*), Ministry of Higher Education, Science, and Technology of the Republic of Indonesia (*Kementerian Pendidikan Tinggi, Sains, dan Teknologi Republik Indonesia*) for financial support under the 2025 Master's Thesis Research scheme. The funding was administered through Surat Keputusan (SK) No. 0419/C3/DT.05.00.2025 and administered through Master Contract No. 082/C3/DT.05.00/PL/2025 dated May 28, 2025.

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