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Illegal tin mining, policy gaps and the plight of small-scale tin miners in Indonesia

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ABSTRACT

This article examines the societal impacts of the Indonesian government's decision to permit unrestricted tin mining in Bangka Belitung. The declassification of tin as a strategic resource from 1998 to 2009 led to a significant increase in illegal mining, resulting in environmental degradation, social conflicts and occupational accidents. Methodologically, our research critiques legislative instruments and assesses the effectiveness of law enforcement in combating illicit mining, revealing substantial deficiencies in the licensing framework, particularly concerning People's Mining Permits and the absence of People's Mining Areas. The article highlights the economic reliance on illegal mining due to challenges in obtaining permits, demonstrating that despite legislative updates, illegal mining persists, exacerbating fatalities, child labour and environmental harm. Consequently, marginalized communities are trapped in a cycle of injustice with limited alternatives. The findings suggest that current government policies are inadequate in addressing the complexities of unrestricted tin mining. We propose the establishment of people's mining cooperatives as a transformative solution to these challenges, offering a viable and transparent alternative that can empower local communities and foster sustainable mining practices.


KEYWORDS

Illegal tin mining; policy gaps; small-scale tin miners; Indonesia

Introduction

Indonesia is currently the world's second-largest tin exporter, with 98% of its total production destined for international markets, leaving a mere 2% allocated for domestic industrial consumption (Indra Ibrahim 2015). Recording a substantial production volume of 76,400 tons in 2017 and maintaining an average output of 60,000 tons over the past decade, the province of Bangka Belitung stands as the predominant contributor, accounting for 99% of Indonesia's entire tin yield (Yanto, Salbilla, and Sitakar 2023).

The historical trajectory of tin exploitation dates back to the colonial era, when the Dutch East Indies government orchestrated large-scale extraction activities (Ahmad 2022). The governance landscape of Indonesia's tin mining sector has witnessed shifts since the conclusion of that colonial rule. Three Dutch-owned tin mining entities underwent nationalization and amalgamation in 1958, culminating in the establishment of the Tin Mining State Company in 1968 (Prapti Rahayu 2016). For the ensuing thirty-one

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years, the Indonesian government exercised comprehensive control and oversight over tin mining, designating it as a pivotal component of the nation's strategic mineral resources.

Indonesia's early mining laws were deeply influenced by colonial-era regulations. After gaining independence, the government initially adopted the *Indische Mijnwet* of 1899, which was later modernized through Government Regulation Replacement of Law No. 37 of 1960 on Mining, marking the country's first mining regulation under the Old Order (Thomas and Redi 2020). The subsequent New Order saw the introduction of key laws, including Law No. 1 of 1967 on Foreign Capital Investment and Law No. 11 of 1967, which provided the legal framework for mining (Redi and Marfugah 2021). During this period, the state maintained strict control over mining operations, granting mining concessions to either state-owned or private companies through contracts known as *kontrak karya* (contract of work) (Humaira, Saptono, and Gutami 2017).

In 1997–1998, Indonesia faced a severe economic crisis, culminating in the resignation of President Soeharto and the beginning of the reformation era under President B.J. Habibie (Aspinall and Fealy 2010). This period saw a shift from centralization to decentralization, with the introduction of Law No. 22 of 1999 on Local Government transferring significant mining regulatory authority to regional governments (Widyawati et al. 2022).

The decentralization policies, which were aimed at empowering local entities and fostering regional economic growth, led to a surge in tin mining activities (Yanto et al. 2023). This culminated in the reclassification of tin as a locally regulated export commodity, contributing to a rapid increase in mining concessions and artisanal mining operations (Badrudin and Siregar 2015).

Nevertheless, this newfound prosperity was not without a considerable toll, as it was closely associated with pervasive environmental degradation that rapidly transformed Bangka Belitung (Ibrahim, Haryadi, and Wahyudin 2018a). Tin mining activities, particularly the unregulated small-scale operations, have incontrovertibly contributed to environmental harm, encompassing deforestation, contaminated waterways, alterations in landforms, soil degradation and a troubling indifference to consistent spatial planning, all of which damaged ecosystems have led to a substantial loss of biodiversity. The repercussions of this environmental toll extend beyond immediate economic gains, prompting urgent concerns regarding the sustainability of such unbridled mining practices. The phrase 'dead islands' encapsulates the ecological price paid for the accelerated exploitation of tin resources, underscoring the need for a more sophisticated and sustainable approach to balancing economic development with environmental preservation in the region.

Since the 'explosion of illegal mining', the landscape of illicit mining has become ever more uncontrolled. In response, the government has instituted various regulatory transformations, encompassing Law No. 32 of 2004 on Regional Autonomy, Law No. 4 of 2009 on Minerals and Coal, Law No. 23 of 2014 on Regional Governments, and the recent Law No. 3 of 2020 on Minerals and Coal. These regulatory frameworks delineate a legitimate avenue for community-based mining through the issuance of Mining Licences for the People (*Izin Pertambangan Rakyat* or IPR) (Fernando et al. 2023).

Nevertheless, the practical execution of IPR in Bangka Belitung has been conspicuously deficient, leading to the ongoing prevalence of illegal mining activities (Bagus Sholihin 2021). The governance approach of the regional government, characterized by

inconsistency and laxity, has engendered sustained losses across environmental, economic and social domains. Local miners find themselves trapped in a challenging situation, grappling with the intricate process of acquiring permits while being heavily reliant on tin as the primary source of community income (Agustian, Salfutra, and Robuwan 2021). In the absence of clear and stringent regulations and policies on the part of the government, the practice of illegal mining has endured, heightening the risk of occupational hazards, generating social discord with the fishing community, raising concerns about child labour and causing environmental degradation.

The complexity of tin mining issues in Bangka Belitung extends beyond illegal mining activities by local communities. Illegal mining, or at the very least, mining conducted unlawfully, also involves corporate actors, law enforcement officials and government representatives (Astaman 2024). Their involvement in tin-related corruption came to light during investigations into tin trade corruption from 2015 to 2022, with court proceedings beginning in February 2024. This situation has caused extensive losses, although the exact value of these losses has never been clearly published.

A critical factor in the ineffectiveness of law enforcement efforts has been the involvement of actors from government, law enforcement and corporations in tin trade corruption. Government policies regarding tin trade since the reform era have failed to establish a legal framework that adequately protects the public, the environment and miners. At the time of writing, the complexity of mining issues remains unresolved, and lower-income communities working as miners continue to face uncertainty and economic hardship, and they are unable to secure proper mining permits due to the administrative, technical and financial requirements. It is evident that the underprivileged are the most affected by the government's failure to implement effective policies in the mining sector.

Recent research on the enforcement of illegal tin mining regulations in Bangka Belitung, conducted by Tri Agung Nugroho and Andri Yanto (2024), identifies micro-scale law enforcement as the most fundamental solution. They urge the government to enhance the effectiveness of community-based mining through proper licensing. Another study by Dwi Haryadi, Ibrahim and Darwance (2025) examines the environmental and geographic impact of tin mining, advocating for more comprehensive and sustainable policies.

The novelty of our research lies in identifying viable solutions to illegal mining, which has disproportionately affected small-scale miners. These miners bear the brunt of unfavourable policies and economic pressures that force them into illegal mining activities. This analysis aims to expose the ineffectiveness of current government policies in tackling illegal mining, explore the reasons behind the delay in formulating new, effective policies and review actionable approaches to resolving the issue.

Research method

Our research employed a multifaceted qualitative approach, integrating legal and conceptual analyses within the context of illegal tin mining in Bangka Belitung, Indonesia. Conducted during 2023–2024, the primary objective was to unravel the gaps and injustices in government policy related to this phenomenon. The research framework was designed to encompass a comprehensive understanding of the complex challenges surrounding illegal tin mining and to propose nuanced solutions (Langbroek et al. 2017).

The legal analysis involves a detailed examination of existing legal frameworks. This analysis is complemented by an exploration of the implementation gaps and challenges faced by law enforcement agencies in addressing illegal mining activities. The conceptual analysis includes an examination of the socio-cultural and economic dimensions that contribute to the perpetuation of illegal mining practices (Benuf and Azhar 2020). To enhance the research rigour, two focus group discussions were conducted with local government officials and law enforcement agencies to gather diverse perspectives on the issue. Additionally, field interviews were carried out with miners in the West Bangka, Bangka and East Belitung regions to obtain qualitative data that further illuminate the complexities of illegal mining.

Insights gathered from these multifaceted analyses contribute to the formulation of a normative framework that transcends legal and conceptual dimensions. This framework suggests amendments or new legislation that address both legal and socio-economic aspects, serving as a comprehensive guide for policymakers, legal practitioners and other stakeholders involved in combating illegal tin mining. The article concludes by presenting recommendations, acknowledging the multifaceted nature of the issue and emphasizing the potential impact of adopting the proposed normative framework on the legal system, environmental sustainability and societal dynamics. This holistic approach ensures a thorough understanding of the challenges posed by illegal tin mining in Bangka Belitung and provides a robust foundation for comprehensive policy reform.

Result and discussion

The emergence of illegal tin miners: how did reform era policies transform mining governance in Bangka Belitung?

In the nascent stages of Indonesia's independence, the extraction of tin remained under the purview of companies established during the Dutch East Indies era. Subsequent to Indonesia's unsuccessful bid for West Irian at the 12th UN General Assembly in 1957, the government instituted a comprehensive policy of nationalization, encompassing all Dutch assets within the country (Setiawan 2020).

To effectuate this nationalization, the government promulgated Government Regulation No. 23 of 1958, which placed three Dutch entities under state control. Specifically, Banka Tin Winning Bedrijf was transformed into the State Company for Tin Mining in Bangka, Gemeenschappelijke Mijnbouwmaatschappij Billiton assumed the mantle of the State Company for Tin Mining in Belitung, and Singkep Tin Exploitatie Maatschappij transitioned into the State Company for Tin Mining in Singkep (Ibrahim, Haryadi, and Wahyudin 2018b).

In response to the imperative outlined in Law Number 19 Prp of 1960, the General Leadership Agency was established on 17 April 1961 to oversee and coordinate these nationalized tin mining entities. Subsequently, in 1968, this agency fused with the three state-owned companies, a momentous amalgamation that culminated in the formation of the State Tin Mining Company on 5 July 1968 (Irzon 2021). Following its reconfiguration into a Limited Liability Company (PT) in 1976, this corporate entity changed its name in 1998 to assume the identity of PT Timah (Persero), retaining its

status as a state-owned enterprise. Throughout the tenures of the Old Order and New Order regimes, tin mining operations were exclusively undertaken by state-owned enterprises and private entities endowed with requisite permits. The involvement of local communities in tin mining activities was circumscribed, limited to collaborative endeavours with these corporate entities or engagement as employees therein (Yanto, Salbilla, and Sitakar 2023).

The effective control of tin mining activities was realized in the absence of illegal miners (Soelistijo 2011). The governmental focus was directed towards the close supervision of mining practices conducted by established corporate entities. The sparse numbers of illegal miners enabled consistent law enforcement. Furthermore, engagement in illicit tin mining was perceived as atypical and, within public discourse, constituted a criminal transgression (Indra Ibrahim 2015). From a managerial perspective, the governance of mining operations was relatively stable, with no instances of unauthorized mining activities occurring beyond the demarcated zones officially sanctioned by the government (Eduful et al. 2020). This regulatory framework ensured the adherence of mining endeavours to legal boundaries, thereby fostering a climate of security and order within the mining sector.

Between 1958 and 1998, the centralized administration of tin mining operations by the Indonesian government, facilitated through state-owned enterprises and private entities, engendered conspicuous social inequality within the Bangka Belitung region (Erman 2010). This pronounced disparity resulted from the strategic deployment of non-local labour to fill pivotal roles at PT Timah, leaving a considerable portion of the indigenous population confined to menial positions and fieldwork. The socio-economic schism was further accentuated by the provision of various amenities by the company exclusively to its employees, including health services, entertainment and education.

The incongruence between mining policies and the contextual needs and aspirations of the local communities in Bangka Belitung became a catalyst for social discontent and catalysed an upsurge in illegal mining activities when regulatory constraints were relaxed. The 'illegal mining boom' gained momentum in 1999, coinciding with the worst of the global economic crisis in Indonesia and resultant political upheavals, notably the removal of President Soeharto from power (Prapti Rahayu et al. 2024).

In response to the economic downturn and escalating social inequality, the Regent of Bangka, Eko Maulana Ali, issued permits for small-scale mining activities through Regional Regulation No. 20 of 2001 concerning General Mining Management. This decision was aligned with the enactment of Law Number 22 of 1999 concerning Local Government and the Minister of Industry and Trade's Decree Number 146/MPP/Kep/4/1999, which deregulated tin as a strategic commodity, thereby facilitating its unrestricted trade (Prapti Rahayu and Faisal 2021).

The inadvertent consequence of permitting mining activities was an uncontrolled surge in illegal mining. By the early 2000s, over 50% of the Bangka Belitung population found employment in the mining sector, with a mere 30% of local mining conducted under legitimate permits (Yanto, Salbilla, and Sitakar 2023). Over the past three decades, illegal tin mining emerged as a significant contributor to a multidimensional crisis confronting the inhabitants of Bangka Belitung.

Over the initial fifteen-year period of the illegal mining surge, an environmental assessment conducted by the Regional Environment Agency of Bangka Belitung Province

revealed concerning statistics. Out of the total land area of 1,675,240.51 hectares, critical land comprised 15.15%, potential critical land 37.28%, and somewhat critical land 44.54%, leaving a mere 10.79% categorized as non-critical (Dwi Haryadi, Ibrahim, and Darwance 2022). According to Minister of Environment and Forestry Regulation No. P.29/MenLHK/Setjen/PLA.3/3/2018, critical land is defined as land that has been severely degraded, losing its productivity and ecological functions, and requiring immediate rehabilitation to restore its environmental sustainability. Subsequently, a survey conducted by the Wahana Lingkungan Hidup (WALHI; Indonesian Forum for the Environment) in 2020 indicated an alarming escalation, with critical land expanding to 1,053,253.19 hectares, encompassing 64.12% of the total land area. Additionally, the region incurred a loss of 320,760 hectares of productive land over the preceding decade (Haryadi, Ibrahim, and Darwance 2023).

Illegal tin mining exacted a direct toll on state revenues. Indonesian Corruption Watch reported state losses of IDR 50 trillion during the period 2004–2013 attributable to illegal tin mining. More recently, the Financial and Development Supervisory Agency asserted that illegal mining on PT Timah's land between July 2021 and July 2022 resulted in state losses amounting to IDR 2.5 trillion (Ministry of Energy and Mineral Resources 2015). The economic entrenchment of the local population in the tin mining sector was evident in data released by the Bangka Belitung Government, indicating that 344,430 workers, constituting approximately 24.37% of the total population, were engaged in the tin mining industry in 2022, with a majority being illegal tin miners.

The perilous conditions and lack of safety awareness among illegal miners contributed to a significant number of work-related accidents. From 2017 to 2020, there were fifty-nine reported fatalities stemming from illegal tin mining accidents, with the highest toll recorded in 2019, when there were twenty-five deaths within a single year. Beyond the immediate human toll, illegal tin mining precipitated enduring social conflicts, particularly between miners and fishing communities. Instances of such strife were documented in various locales, including Kelabat Bay, Tanjung Labu, Lepar Pongok and Belitung, accentuating the multifaceted repercussions of illicit mining activities (Prapti Rahayu et al. 2023).

The hurried policy initiatives during the initial phase of the reform era, which were intended to stimulate the local economy by permitting unrestricted mining, fundamentally reshaped the community's perspective on tin mining in Bangka Belitung (Ibrahim, Haryadi, and Wahyudin 2019). What was formerly deemed an uncommon and illicit practice became normalized, indicating a significant paradigm shift in societal perceptions. Amidst an economically precarious landscape, the people flocked to engage in unauthorized mining activities. The sheer scale of these activities rendered comprehensive regulation and oversight unattainable. Despite subsequent alterations to regulatory frameworks and the prohibition of illegal tin mining, the local population persisted in these activities. This persistence not only directly contributed to a downturn in the agricultural sector, notably impacting commodities like pepper that had historically served as the economic focal point of Bangka Belitung. The influx of labour into the mining sector generated an exodus from traditional livelihoods, a situation that remained challenging.

The sudden surge in the number of miners in Bangka Belitung was not met with adequate regulatory mechanisms from the government, exacerbating the challenges associated with illegal mining (Harinda, Purnawan, and Witasari 2021). Since 2009, the

government introduced the IPR mining licence scheme to formalize community mining activities (Thomas and Redi 2020). However, the IPR mechanism has proven unsuccessful due to the reluctance of the local populace to navigate the bureaucratic and intricate licensing process (Prapti Rahayu and Faisal 2021). Compounding this issue is the fact that a significant portion of the mining community typically hail from less-educated segments of society (Ibrahim, Haryadi, and Wahyudin 2019).

Data from 2017 showed only thirty active IPRs, while the number of illegal mining pontoons skyrocketed to 18,000 units by 2018, underscoring the difficulty in formalizing mining activities under the current regulatory framework. The community's economic dependence on tin further exacerbates the issue, as the immediate financial rewards of illegal mining often outweigh the perceived burdens of formal licensing (Yanto, Salbilla, and Sitakar 2023).

The substantial economic dependence of the Bangka Belitung community on tin exacerbates the proliferation of illegal miners. The allure of immediate economic gains and the perceived complexities of the formal licensing process contribute to the persistence and growth of this sector in the region. Efforts by law enforcement, particularly the police, to curb illegal mining activities in Bangka Belitung have proven to be sporadic and inconsistent. Occasional crackdowns are conducted, but illegal miners frequently return to their activities. A notable case is in Teluk Kelabat, the maritime region spanning Bangka and Bangka Barat regencies, where illegal mining has flourished since 2014 (Nugroho and Yanto 2024) despite enforcement attempts, causing protests by local fishermen and tension with community members. Law enforcement actions are also hampered by allegations of complicity, as some authorities are believed to facilitate or protect illegal mining activities. For instance, in 2022, sixteen illegal mining sites were discovered within palm oil plantations in Tempilang District, Bangka Barat, none of which had been subject to any law enforcement intervention, despite such activities being prohibited by both plantation and mining laws.

Law enforcement against illegal miners often triggers social conflicts, as mining is a primary source of livelihood for many locals. In 2019, an enforcement action against illegal mining in Geosite Sungai Sengkelik, Belitung, led to resistance from miners and the temporary capture of the Vice Governor of Bangka Belitung, Abdul Fatah. These challenges – ranging from inaccessible licensing mechanisms and community legal culture to the scale of illegal mining and involvement of authorities – have rendered the issue of illegal tin mining deeply entrenched and difficult to resolve.

Failure of policies in controlling illegal tin mining

Over the span of a decade following the implementation of open mining policies, the government introduced Law No. 4 of 2009 on Minerals and Coal. This legislative framework, with substantive provisions, explicitly prohibits any form of mining without government authorization, including tin mining. The legislation entails criminal repercussions for individuals engaged in illegal mining. In response, the government introduced the IPR licensing mechanism as an alternative, allowing communities to propose mining permits.

IPR is granted to communities through businesses or cooperatives that collectively apply for mining activities within designated People's Mining Permit Areas or Wilayah Pertambangan Rakyat (WPR). Before the issuance of IPR, the government is

tasked with preparing WPR in alignment with spatial planning. This regulatory approach seeks to eliminate illegal mining, urging communities to shift towards mining based on IPR, subject to government control through licensing.

Nevertheless, over the subsequent eleven years, local governments were extensively delegated authority to establish regulations, issue business licences, and manage community mining permits, in accordance with Article 7 and Article 8 of Law Number 4 of 2009. Despite this empowerment, the effective realization of local government competence has been impeded by the persistent issue of illegal mining (Erman 2010).

Regrettably, local governments have been slow in formulating IPR policies. The failure to establish successful WPR by the government implies the inability to grant IPR. This predicament is exacerbated by the bureaucratic intricacies of IPR procedures, necessitating involvement through businesses or cooperatives. Unfortunately, many illegal miners belong to the underprivileged sector of society, and so are often incapable of these intricate bureaucratic processes.

The political transition in the mining sector during 2020 marked a significant move towards the centralization of mining authority. Enshrined in Article 35, Paragraph (4) of Law Number 3 of 2020 concerning Minerals and Coal – an amendment to Law Number 4 of 2009 – the authority of local governments in mining matters was systematically revoked, reverting control to the central government (Yuniar 2021). This centralization was explicitly underscored in Article 4 and Article 3 of the law, consolidating mining management authority entirely within the central government.

However, the controversy surrounding the withdrawal of authority from local governments in mining affairs was not immediately resolved with the enactment of the new mineral and coal law. Since its implementation on 10 July 2020, the law has triggered symptoms of 'bureaucratic confusion'. The Ministry of Energy and Mineral Resources issued a circular prohibiting the issuance of new tin mining permits in 2020, awaiting legal clarity on the mining licensing process under the new regulations.

Over the subsequent two years, from 2020 to 2022, illegal mining activities persisted and flourished in Bangka Belitung. This surge can be attributed to factors such as inflation, sluggish economic growth, and activity restrictions due to the COVID-19 pandemic, prompting individuals to turn to illegal small-scale mining. Simultaneously, local governments grappled with uncertainty regarding their authority to control mining, given that this authority had been centralized without corresponding implementing rules. Consequently, illegal mining became unmanageable during this period, and there were no new government-issued IPRs.

A turning point came on 11 April 2022, when the government introduced Presidential Regulation Number 55 of 2022, outlining the delegation of mineral and coal mining authority. Article 2, Paragraph (3) of this regulation explicitly delegates the authority to grant IPRs to local governments. Consequently, the provisions for IPRs remained consistent with Law Number 4 of 2009, and local governments retained the authorization to issue tin mining permits as they had done prior to the enactment of the new mineral and coal law. This resolution put an end to the bureaucratic confusion that had persisted for two years, clarifying that there was no alteration in the licensing authority for IPRs.

In addition to the complications arising from the interplay of laws and regulations between central and local governments, another significant challenge related to community mining pertains to regional zoning. According to the stipulations of the mineral and

coal law, it is underscored that IPRs can only be granted in areas officially categorized as WPRs. However, as of 2023, Bangka Belitung had yet to submit a proposal for the designation of WPR. Consequently, even if individuals apply for IPR, local governments remain unable to issue permits due to the absence of the requisite WPR.

The absence of established areas for which IPRs can be issued means that illegal tin mining mitigation programmes from 2009 to 2023 have been ineffective. Illegal miners are confronted with a dilemma: persist with unlawful mining or cease operations altogether. The prospect of obtaining permits through legitimate channels is hampered by the challenges of IPR issuance, contingent on the availability of WPR and substantial capital requirements, with limited alternatives such as partnerships with companies.

Law enforcement against illegal tin mining proves arduous due to two main factors. Firstly, the sheer magnitude of illegal miners is staggering (Haryadi, Darwance, and Sal-futra 2018). The dataset from the People's Tin Mining Association (ASTIRA) in 2006 recorded approximately 13,345 small-scale (unconventional) mines. This number surged to 18,000 units based on provincial government data in 2018. Additionally, PT Timah Tbk's March 2012 findings identified 6230 illegal suction vessels in the Bangka sea area. According to WALHI, from 2004 to 2013, a staggering 81,000 illegal mining units proliferated across Bangka Belitung. While there has been no updated data as of 2023, it is evident that the number of illegal miners has not diminished since 2013, as indicated by the continuous rise in annual average environmental damage attributed to illegal mining (Nurtjahya et al. 2017). Secondly, the community's pronounced economic reliance on tin exacerbates law enforcement challenges (Ibrahim, Haryadi, and Wahyudin 2019). Total cessation of illegal tin mining would have profound repercussions on the local economy. The close economic interdependence presents a formidable barrier to the complete eradication of illegal tin mining activities.

Since the promulgation of Law No. 3 of 2020 on Minerals and Coal, endeavours to address illegal mining within the new legal framework have been in progress. Nevertheless, these efforts have encountered impediments due to an unfavourable political environment. Throughout the period spanning 2022–2024, there were three changes in the Acting Governor of Bangka Belitung, namely Ridwan Djamiluddin (2022–2023), Suganda Pandapotan Pasaribu (2023) and Safrizal ZA (2023–2024). Under the leadership of Ridwan Djamiluddin, who concurrently served as the Director-General of Minerals and Coal at the Ministry of Energy and Mineral Resources, a task force for accelerating the handling of illegal tin mining was established and overseen by Thamron, the owner of a smelting company. However, in 2023, Ridwan Djamiluddin became a suspect in a nickel-related corruption case, while Thamron was designated as a suspect in a tin-related corruption case in 2024. The involvement of parties entrusted as law enforcers in alleged corruption cases related to the tin trade indicates the presence of illegal practices involving government elements, a condition that also explains why it is difficult to establish good governance in the tin trade. Suganda Pandapotan Pasaribu, who also held the position of Secretary-General of the Ombudsman of the Republic of Indonesia, lost his leadership position within one year, and no substantial tin mining policy was enacted during his tenure. Subsequently, under the leadership of Safrizal ZA, law enforcement became more consistent, evidenced by the apprehension and trial of Thamron (a.k.a. Aon), who was alleged to be involved in the handling of proceeds from illegal mining in South Bangka.

The state and illegality in illegal tin mining

In-depth interviews with small-scale miners working in Teluk Kelabat, Tempilang, Koba and Toboali revealed a common belief among the miners – many of whom have limited education – that their activities were entirely legal and had ‘received authorization from certain officials’. These mining operations were not confined to private lands or river-banks and coastal areas but also extended into mining concession areas owned by companies, such as PT Timah Tbk, as well as abandoned lands previously managed by PT Koba Tin, and even plantation areas that should have been free from mining activities.

In Tempilang District, West Bangka, medium-scale illegal mining activities involving heavy machinery, followed by small-scale miners who sift through tailings to separate tin – a process locally known as *ngelimbang* – were observed on land under the ‘right to cultivate’ (*Hak Guna Usaha*) of PT Sawindo Kencana. These activities have been ongoing since 2019 and continued through 2024, when our research was conducted. The number of mining sites has steadily increased, from sixteen sites in 2021 to eighteen in 2024, with some sites being abandoned while new ones are opened. The average size of each mining site ranged between 3 and 6 hectares. Similar conditions were observed in other regions across Bangka and Belitung.

Field observations of illegal mining activities in Bangka Belitung revealed the involvement of rogue law enforcement officials acting as protectors (*beking*). These officials received a portion of the mining profits and were responsible for shielding the operations from potential enforcement actions by coordinating with other officials or by providing confidential information regarding upcoming crackdowns. The participation of law enforcement in ‘protecting’ illegal mining exemplifies a form of illegality conducted by state actors.

As interpreted by Edward Aspinall and Gerry van Klinken (2010), illegality occurs when state actors engage in illegal activities for personal or collective gain, ultimately harming both society and the state. The reality in the field stands in stark contrast to formal legal enforcement. Between 2020 and 2024, no court cases were brought against law enforcement officers for their role in protecting illegal mining operations. During a September 2024 corruption trial related to the tin trade, the former head of planning and control at PT Timah Tbk (2017–2020), Ichwan Azwardi, testified that illegal mining within PT Timah’s concession areas was difficult to eradicate due to the involvement of security officials. This testimony was corroborated by miners at various illegal mining sites across Bangka Belitung.

In addition to law enforcement officials, miners operating in Kolong Marbuk, South Bangka, and Sungailiat, Bangka, were also known to make payments to journalists to prevent media coverage of activities surrounding the mining sites. Further evidence from offshore mining operations in Teluk Kelabat indicated that miners made payments to local village officials and police officers in the area.

These findings demonstrate that the illegal tin mining economy in Bangka Belitung not only provides income for miners but also generates economic benefits for government officials, law enforcement and public authorities. Moreover, illegal miners contribute to the revenue of smelter operators, despite the legal prohibition against accepting tin from illegal mining sources. The tin mining economy thus operates within both legal and illegal frameworks, with the illegal side being facilitated and perpetuated by various

actors in these sectors. In interviews with police officers throughout 2023 in Bangka Regency, Central Bangka, West Bangka and South Bangka, it was disclosed that law enforcement actions against illegal mining frequently involve the exercise of discretion. Discretion refers to the authority granted to officials or governmental bodies to make decisions or take specific actions based on their personal judgment, particularly in situations where the applicable laws or regulations lack clarity, or in cases of emergencies that demand immediate action. The use of discretion is often justified on economic grounds. However, it also introduces a degree of legal uncertainty and may be perceived as tacit approval or tolerance of illegal mining activities.

The ongoing trial regarding the corruption in tin trading in 2024 highlights the substantial profits generated by illegal mining for government officials and entrepreneurs. As of August 2024, twenty-two individuals had been indicted in the case, including four officials from the Ministry of Energy and Mineral Resources and eighteen businesspeople or company employees. Calculations made by the Financial and Development Supervisory Agency in collaboration with the Bandung Institute of Technology estimate state losses to have reached IDR 300 trillion (USD 19.4 billion). These massive losses were calculated based on the environmental damage caused within the mining business license area of PT Timah Tbk. However, mining activities outside the 2015–2022 period and outside PT Timah Tbk's mining business licence areas were not included in the assessment, meaning the potential losses are likely much greater. During the proceedings, PT Refined Bangka Tin, a private company in partnership with PT Timah for tin metal refining, reported revenues of IDR 1.1 trillion (approximately USD 71 million) from 2018 to 2020, despite PT Timah itself incurring losses during the same period.

The presence of illegal practices that undeniably benefit the state actors involved in them indicates a serious failure to implement strategic and effective solutions to the persistent issue of illegal mining in Bangka Belitung. Law enforcement efforts are often limited and ineffective, particularly given the substantial number of individuals engaged in illegal mining activities. The protection afforded by law enforcement officials complicates efforts to address these illegal operations, as highlighted by the testimonies presented during the trial concerning the tin corruption case.

How small-scale miners become victims of government policy gaps and state illegality practices

The legal framework governing the mining sector in Indonesia is distinctly articulated within Article 33, Paragraph (3) of the 1945 Constitution, endowing the state with unequivocal dominion over all natural resources existing in the realms of land, water and air. The principal aim is the advancement of the population's well-being. The formulation of the state's prerogative in Article 33, Paragraph (3) of the 1945 Constitution serves as the paramount constitutional bedrock for the administration of mineral and coal mining in Indonesia.

In accordance with Constitutional Court Decision Number 002/PUU-I/2003, the expression 'controlled by the state' is construed as

...embracing the connotation of state control in the expansive sense emanating from the conception of Indonesian people's sovereignty over all the terrestrial and aquatic wealth, inclusive of the natural resources contained therein. This encompasses the concept of public ownership by the collective society over the aforementioned wealth. The construct of the collective society, as delineated by the 1945 Constitution, mandates the state to fulfill its functions in policy formulation, administrative proceedings, regulatory frameworks, resource management, and oversight. (Nalle 2016, 279, translated by the authors)

The judicial pronouncement elucidates five corollaries and functions ascribed to the state, comprising policy formulation, administrative proceedings, regulatory frameworks, resource management and oversight. Crucially, the authority vested in the state to execute these functions and regulate mineral resources is not exclusively vested in the central government but is also delegated to regional administrations, both at the provincial and regency/city levels (Muin 2015).

The onus lies with the government to devise inclusive policies facilitating the judicious utilization of natural resources, with the overarching objective of maximizing the prosperity of the people. This legal and constitutional framework establishes a comprehensive structure for the governance of mineral and coal mining in Indonesia, underscoring the imperative of both national and regional involvement in the effective stewardship of these invaluable resources.

Government policies in the tin mining sector in Bangka Belitung lack a clear commitment to addressing the needs of small-scale miners. Since 2009, there has been an absence of specific policies tailored to the requirements and capacities of the local community. The unprivileged community is confronted with limited options, as the IPR remains inaccessible due to the unavailability of WPR, partnerships with companies are highly restricted, and the economic downturn during the COVID-19 era has compelled a return to mining.

Conversely, the predominant solution to illegal tin mining revolves around law enforcement, implemented in a partial and incomplete manner. This enforcement approach engenders a cat-and-mouse scenario, wherein the community complies during crack-downs, only to resume mining shortly after enforcement ceases. The small-scale tin miners remain severely disadvantaged, struggling to obtain permits and facing legal repercussions during illicit mining activities. Limited financial capabilities further hinder the legitimate participation of these marginalized groups in the mining sector, contributing to an unaddressed stark reality.

The absence of a readily accessible licensing mechanism has perpetuated the engagement of smallholder miners in illicit mining activities as a means of subsistence. Regrettably, this pursuit not only fails to yield substantive profits for the community but also exposes its members to considerable losses. Illicit mining, undertaken without adequate adherence to safety protocols, has precipitated a notable upswing in workplace accidents, with fifty-nine fatalities between 2017 and 2020. The inadequate level of government supervision further compounds the predicament, resulting in heightened rates of school dropouts and the entrenchment of child labour. Alarming statistics from 2015 reveal that 3337 children under the age of seventeen were found to be involved in the mining sector, constituting a stark violation of Indonesia's labour laws, contravening the fundamental principles outlined by the International Labor Organization, and infringing basic human rights (Ibrahim, Zukhri, and Rendy 2019). The exploitation of

children in illicit mining activities stands as a poignant manifestation of marginalization and transgresses the established norms and regulations designed to safeguard the welfare and rights of vulnerable populations.

The poor conditions characterizing tin mining management in Bangka Belitung remain an enduring issue. Beyond the losses incurred due to a significant number of fatalities, environmental risks pose a substantial detriment to the local community. The systematic degradation of the environment, transforming the landscape of Bangka Belitung into 'dead islands', is expected to endure for several decades. In 2020, the global aggregate of known tin reserves amounted to 4,741,000 tons, with a noteworthy proportion, approximately 800,000 tons (17%), situated in Indonesia. Given an annual mining rate averaging 70,000 tons, it is projected that Bangka Belitung will continue to undergo extraction until at least 2035 (Yanto, Salbilla, and Sitakar 2023). Nevertheless, sustained exploration efforts over time elevate the probability of discovering new reserves, potentially extending the lifespan of tin exploitation on the island (Savirani and Wardhani 2022). This trajectory of continuous tin mining in Bangka Belitung not only perpetuates the adverse socio-economic consequences but also exacerbates the environmental degradation that has become synonymous with the region.

The escalating and persistent environmental losses in Bangka Belitung, unless effectively addressed by purposeful policies, cast a pervasive shadow over other economic sectors (Rosyida et al. 2019). These harms extend to a decline in agricultural productivity, with mining-induced land degradation emerging as a substantial contributing factor. As stated above, already by 2014 merely 10.79% of Bangka Belitung Province was classified as non-critical land, the rest being either critical (15.15%), potentially critical (37.28%), or somewhat critical (44.54%). The severe degradation of critical land areas renders them unable to support vegetation growth, agriculture or other forms of land use due to factors such as erosion, deforestation and unsustainable mining practices. According to Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number 27 of 2021 concerning the Environmental Quality Index, critical land is characterized by a very low capacity for water retention, nutrient loss, and vulnerability to environmental hazards, leading to a decrease in biodiversity and a higher risk of floods and landslides. On the other hand, non-critical land is classified as land with a relatively stable and healthy ecosystem, with good fertility and water retention, that can continue to support economic activities like farming and forestry without immediate risk of decline. WALHI's survey of Bangka Belitung in 2020, reported above, revealed that critical landloss had reached over 64% of the total land area, much of it productive land, underscoring the pervasive impact on the local landscape.

Moreover, offshore mining resulting from illegal practices poses severe threats to and substantial losses for the livelihoods of fishermen (Bagus Sholihin 2021). Mining activities have also inflicted damage on river ecosystems, with data from the Environment Agency in 2021 indicating that 75% of the sixty-seven rivers in Bangka Belitung have experienced pollution due to illegal mining. Seven rivers, housing the largest freshwater reserves in Bangka, including Mabet, Kayubesi, Limbung, Baturusa, Selindung, Pangkal-balam and Rangkui, are categorized as heavily polluted, exceeding water quality standards with an influx of chemical compounds (Mentari, Umrah, and Kurniawan 2017).

These cumulative environmental challenges underscore the urgency of implementing sustainable and comprehensive policies to mitigate further damage, safeguard diverse

economic sectors, and preserve the ecological integrity of Bangka Belitung. Without the clarity of strategic policies, injustice will persist, disproportionately affecting the underprivileged communities.

A further critical issue that warrants attention is the slow pace of government policies in establishing a clear and robust legal framework to address illegal mining. This delay is closely linked to the covert illegal practices evident in the tin trading corruption case from 2015 to 2020, which has been proven to have harmed the state. It is essential to investigate and eliminate the financial flows directed toward law enforcement officials and government authorities associated with illegal mining activities. As long as state actors continue to reap benefits from the existence of illegal tin mines, this problem will remain unresolved, and appropriate policies will not be implemented.

Formulating a normative framework

The ineffective mining policy regarding tin, which fails to accommodate the interests of small-scale miners, necessitates an immediate and comprehensive solution. Given that the recent amendments to the Mineral and Coal Law are still in their infancy and several derivative regulations were enacted in 2022 and 2023, the likelihood of implementing accommodating changes at the legislative level is minimal. Moreover, the challenges primarily lie in the implementation phase and the eradication of illegal practices that undermine the policy framework and delay the establishment of effective mining regulations. In light of this, our research team proposed a series of urgent solutions to the provincial government of Bangka Belitung and law enforcement agencies in a policy recommendation issued in June 2024. The recommendations were grouped around four areas – anti-corruption, mining cooperatives, law enforcement and economic diversification – as follows.

First, the report recommended that there should be an investigation into corruption within the tin trade to reveal the illegal practices occurring within government and law enforcement bodies. The tin trade network should be streamlined by eliminating smuggling and the illegal buying and selling of tin. The government should ensure that all business entities, whether state-owned or private, operate mining activities responsibly and in accordance with the law. A significant challenge in fostering a healthy bureaucratic environment in the mining sector is the instability of leadership in Bangka Belitung. Between 2021 and 2024, there were four changes in the acting governor, each introducing distinct programmes and approaches to address the challenges of tin mining, which further complicated bureaucratic efforts. Therefore, law enforcement efforts should focus not only on bureaucratic structures but also on the business entities engaged in purchasing illegally mined tin. This strategy would help to halt illegal tin trading.

Second, the report stressed the urgent need to address the inadequacies in the IPR, as these present significant barriers to access for independently established mining companies. An effective approach would be to advocate for the establishment of people's mining cooperatives, which would serve as socio-economic associations specifically designed for mining activities. These cooperative entities would be entrusted with managing mining permits in collaboration with the government, operating for and by local community members.

Through these cooperatives, the government would assume a regulatory role by overseeing the permitting process and ensuring that mining operations adhere to designated areas within the WPR mining area. After the establishment of the people's mining cooperatives, the government should carefully manage the availability and alignment of WPR with spatial planning to minimize potential conflicts of interest, particularly with local communities. Essentially, mining cooperatives function similarly to associations but on a more inclusive scale. Workers seeking to participate in mining must become members of the cooperative and operate within the designated permitting area, adhering to financial and technical obligations set forth by the government. The establishment of cooperatives would represent a significant step toward transforming small-scale mining from unregulated to regulated operations.

Third, alongside the operation of cooperatives, the report recommended that the government should reinstate strict law enforcement at the micro level, akin to practices from the pre-Reform era. Strategic law enforcement is vital in motivating miners to transition from illegal operations to licensed mining within the framework of people's mining cooperatives. With the existence of cooperatives, the legal pathway for mining would become more accessible to the community, rendering illegal mining a relatively impractical option. Therefore, stringent law enforcement by the government could be consistently applied, as there would now be a legitimate avenue for the public to engage in legal mining activities.

Finally, the policy recommendation set out the pressing need to develop alternative economic sources and promote industrialization. Tin mining is an unsustainable economic sector in the long run. The community's dependence on the mining economy incurs significant costs, resulting in environmental degradation and unhealthy trade practices, as evidenced by the conditions experienced in Bangka Belitung over the past three decades. Long-term solutions should include not only the management of tin mining but also the establishment of alternative economic sectors to effectively replace extractive industries, particularly for small communities.

Conclusion

The government's decision to permit unrestricted tin mining at the onset of the reform era has significantly influenced the perspectives of the Bangka Belitung community toward this extractive industry. Historically, illegal tin mining was viewed as taboo and was rare, being effectively managed through consistent law enforcement measures. However, between 1998 and 2009, the government's declassification of tin as a strategic resource led to a surge in illegal mining activities, marking a transformative period that profoundly altered the landscape of Bangka Belitung. This increase resulted in extensive environmental degradation, social discord and a rise in occupational accidents.

Despite the government's attempts to revise mining policies through legislative instruments such as Law No. 4 of 2009 and Law No. 3 of 2020 on Minerals and Coal, along with efforts to criminalize illegal mining, the practice persists unabated and largely beyond effective control. This situation is exacerbated by the inefficacy of the licensing mechanism, particularly the IPR. The unavailability of WPR makes the application for permits a daunting task, forcing many miners to resort to illegal practices. Since its introduction in 2009, the implementation of IPR has regrettably failed to curtail illegal mining.

Government policies have proven insufficient to reduce the prevalence of illicit activities, and law enforcement agencies struggle to regulate the vast number of miners, many of whom are economically dependent on illegal operations.

The establishment of a thorough investigation into corruption in the tin trade is essential. This investigation should aim to expose illegal practices involving government and law enforcement officials, streamlining the tin trade network by eliminating smuggling and illegal transactions. Additionally, revising the IPR framework by advocating for the formation of People's Mining Cooperatives will facilitate local community participation and allow miners to operate legally while adhering to necessary safety and environmental standards.

Reinstating strict law enforcement will encourage miners to transition from illegal operations to licensed practices within the cooperatives. Finally, recognizing that tin mining is not a sustainable economic sector in the long term, the government should develop alternative economic sectors to effectively replace extractive industries, particularly for small communities. This long-term strategy will mitigate environmental degradation and promote healthier economic practices, ultimately benefiting the local population and ensuring a sustainable future for Bangka Belitung.

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No potential conflict of interest was reported by the author(s).

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