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## Countering illegal tin mining with a legal formulation of law based on local wisdom in Bangka Belitung, Indonesia

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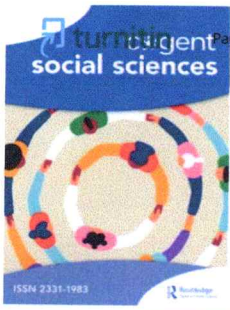
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## Countering illegal tin mining with a legal formulation of law based on local wisdom in Bangka Belitung, Indonesia

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### ABSTRACT

Illegal mining is a latent problem that cannot be overcome since the Reformation era until today in Bangka Belitung, with widespread impacts on environmental, social and financial losses. Indications of mining management failure are due to ineffective legal arrangements by the government. The analysis of article aims to test the effectiveness of law and regulations related to locals tin mining carried out in Bangka Belitung, the regulation of local wisdom by the community, and the potential to integrate these two aspects in an ideal law enforcement perspective. The interests of environmental conservation and limiting the rate of illegal tin mining are two aspects that are currently fundamental needs, while still requiring the presence of economic and cultural considerations of the community. Through a socio-legal approach, it can be seen that the people of Bangka Belitung have implemented a unique ecoliteracy concept through local wisdom applied in the living culture of the community. The ecoliteracy that is carried out through the active participation of the people is timah ampak. The results of the study, it was found the condition that ampak is very prospective to be integrated in legislation, as well as being a solution to the phenomenon of 'lame-duck' regulations that have not been sufficiently implemented due to substance issues. The recommendation of this study is the transformation of local wisdom in local regulations to re-streamline the management of illegal tin mining in Bangka Belitung.

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## 1. Introduction

The mining law policy strategy determines Indonesia's ability to optimize national income from the extractive industry sector. The right policy requires a multifactor approach and consideration, with the influence of domestic legal politics, fluctuations in global market prices, availability of resources, and competition between countries in controlling trade to obtain the maximum advantage (Redi & Marfungah, 2021). The politics of Indonesian mining law are determined declaratively in Article 33 Paragraph (3) of the 1945 Constitution, with the right of full state control over all natural resources contained in land, water, and air (Redi, 2016). The orientation of the utilization of these resources is for the welfare of the people.

The formulation of the right to control the state in Article 33 Paragraph (3) of the 1945 Constitution is the highest constitutional basis in the management of mineral and coal mining in Indonesia. According to Constitutional Court Decision Number 002/PUU-I/2003, the phrase 'controlled by the state' is defined as '... includes the meaning of control by the State in a broad sense derived from and derived from the conception of the sovereignty of the Indonesian people over all sources of earth and water wealth and the natural resources contained therein, including the understanding of public ownership by the people's collectivity over the source of wealth in question. The people collectively constructed by the NRI Constitution of 1945 mandate the state to perform its functions in conducting policies (*beleid*), and

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management actions (*bestuursdaad*), regulation (*regelendaad*), management (*beheersdaad*), and supervision (*toezichoudensdaad*) by the state...' (Putri & Wicaksono, 2016).

In the ruling, there are five consequences and functions given to the state, namely holding policies, management actions, regulation, management, and supervision (Muchamad, 2023). State authority in carrying out the functions and control of mineral resources is not interpreted exclusively for the central government, but is also carried out by local governments, both Provincial and Regency/City. The development of mineral and coal regulation, as a fundamental economic sector, has been dialectical with a shift in a number of different regulatory regimes. The tug-of-war of authority and regulation is linear with the wealth of resources contained in Indonesia, one of which is tin (Dordia Arinandaa & Aminah, 2021).

Tin mineralization in Indonesia is always an interesting topic because it is only found in the western part of the archipelago, associated with the Southeast Asian Tin Belt which stretches from Myanmar, Thailand, Malaysia, Sumatra, and West Kalimantan. The Southeast Asian Tin Belt was formed by the intrusion of tertiary granitic rocks found in Peninsular Malaysia, Karimun, Kundur, Singkep, Bangka, and Belitung (Breitfeld et al., 2020). Southeast Asia is the second largest tin-producing region in the world, after East Asia which is mainly dominated by China. In the last decade, Indonesia is recorded as a country that produces at least 40,000 tons/years with an average of 60,500 tons/years, the highest production in 2018 with 83,000 tons and the lowest in 2013 with 40,000 tons (Ober, 2018). The tin mining production puts Indonesia as the world's source of tin metal by 17%–28% in the last ten years. During 2011–2020, Indonesia always ranked second as the world's largest tin producer, one place below China, except in 2016 when Myanmar produced 54,000 tons and Indonesia 52,000 tons (Gardiner et al., 2015).

The history of tin mining in Indonesia was unknown until 1709 when evidence of mining in Toboali, Bangka was found by miners from Johor, Malaysia. Most of the tin in those days was used for the manufacture of coin currency (Suprpto, 2008). During the Dutch East Indies colonial period, large-scale tin mining in Indonesia was run by three companies, namely Bangka Tin Winning Bedrijf in Bangka, Singkep Tin Expliatie Maatshappij in Singkep, and Gemeenschappenlijke Mijnbouw Maatshappij Billiton in Belitung (Sabri et al., 2020). After independence, the three companies were nationalized on 2 August 1976 to become State-Owned Enterprises (BUMN) under the name PT. Timah, Tbk.

Indonesia is currently the world's second-largest exporter of tin, with 98% of its total production exported to other countries and only 2% used for domestic industrial needs. With total production reaching 76,400 tons in 2017 and an average of 60,000 tons in the last ten years, 99% of all Indonesian tin is produced in Bangka Belitung. Indonesia's tin mining sector has been subject to different governance approaches through the years since colonialism ended (Rahayu et al., 2021). Three tin mining companies operating under Dutch ownership were nationalized and united in 1958 and became Tin Mining State Company in 1968 (Sabri et al., 2020). Over the next 31 years, the Indonesian government fully controlled and controlled tin mining as a strategic excavation material.

The government's policy to maintain the centralization of tin mining encountered difficulties as market price fluctuations declined into the 1980s. Efforts to maintain the stability of world tin prices through International Tin Agreement and International Tin Council failed to produce a positive surplus. In 1980, the failure of the 6th ITA agreement, the accumulated ITC debt, discovery of substitution materials, and the recycling of post-usage tin has disrupted global tin prices and had a far-reaching impact on Indonesia (Munandar et al., 2019). Although tin production figures continued to stay at an average rate, state revenues continued to decline sharply in the following 10 years, as shown in the Table 1 (Rahayu and Cholillah 2019).

The government's initiation to reorganize tin mining management was carried out in 1999 which established tin as an export item that was no longer regulated and supervised by the central government. Law Number 22 of 1999 concerning Local Government shifted the responsibility to local governments to regulate and manage mining in their respective regions. This provision is part of the regional autonomy project. The decentralization politics launched by the government in the early days of the Reformation Era aimed to reduce the centralization of authority that curbed during the New Order era, while providing space for regions to develop their economic potential independently.

The delegation of tin mining authority to local governments has opened a new phase which in the author's previous research was referred as the 'illegal mining boom'. The local government of Bangka



**Table 1.** Indonesia's tin and foreign exchange production in 1980–1991.

Year	Production (ton)	Price (USD/metrik ton)	Exchange (Million USD)
1980	32.500	17.090	555,43
1984	23.200	12.442	288,65
1986	24.000	5.386	129,26
1989	32.000	9.605	237,09
1991	29.400	5.703	167,67

Belitung in 2001 provided access to local communities to be directly involved in mining activities (Rahayu, 2016). During the first five years of implementing the decentralization policy of 2001, there were 75 mining concessions, 37 tin smelters, and 6507 artisanal tin mining units that together drove a significant increase in tin production. This led to a significant contribution to local revenues as well as increasing income for the people of artisanal mining communities.

However, this condition also directly has implications for the widespread destruction of nature which immediately makes Bangka Belitung a 'Dead Islands'. Tin mining activities, especially small-scale unregulated mining, directly associated with environmental damage, landform deforestation, soil degradations, and incosisten of spatial planning. Uncontrolled mining activities are caused by poor management of mining business. The socio-economic impact of tin mining after 20 years since the 'illegal mining boom' began to enter the resource curse phase, which is indicative of slower economic growth, reduced social welfare, landform and environmental degradation, and the very high economic dependence on the tin exploitation sector.

The latency of problems after the illegal mining boom in Bangka Belitung cannot be overcome using legal instruments to date. Since 1999, there have been two changes in the mining regime through Law No. 4 of 2009 and Law No. 3 of 2020 (Rahayu & Faisal, 2021). Technically, both laws encourage the re-centralization of mining with the control of state control rights by the central government. The latest regulation in Presidential Regulation No. 55 of 2022 confirms the very limited regional authority over the management of mining permits (Yanto et al., 2023). Nevertheless, the phenomenon of illegal tin mining has remained untouched and remains one of the main sources for widespread environmental damage and social conflicts in Bangka Belitung. The absence of a truly ideal policy strategy that can be presented through legal arrangements requires the government to find solutions with alternative approaches, namely socio-legal.

The complexity of tackling illegal tin mining with legal instruments has been described in a previous study conducted by Dwi Haryadi et al. (2018) which proposed an integrative law enforcement pattern to ensure the implementation of reclamation (Haryadi et al., 2018). However, as long as there is no practical solution to deal with illegal mining, integrative law enforcement against reclamation does not yet have compatibility to implement. This result is in accordance with research by Thomas and Redi (2020) which proves that law enforcement with criminal sanctions has proven ineffective in tackling illegal tin mining in Bangka Belitung (Thomas & Redi, 2020). The hypothesis in this study is that tackling illegal tin mining can be more effective by using socio-legal approaches based on ecoliteracy and indigenous values. Before being regulated in the first logging legal regime, customary values had been passed down for generations to prevent the expansion of illegal tin mining. This concept has better compatibility and projection when integrated in laws and regulations.

## 2. Problem and method

An important issue that becomes the main orientation in the elaboration of this research is the complexity of factors that cause the ineffectiveness of legal arrangements to carry out illegal tin mining management during 1999–2020. Changes in regulations with two changes in the mining regime, namely Law No. 4 of 2009 and Law No. 3 of 2020 proved to fail to provide prospective improvements to the mining ecosystem in Bangka Belitung. For this reason, socio-legal studies in this study are aimed at examining the possibility of using legal wisdom as a solution that is integrated with the formulation of laws and regulations in the regions. By utilizing belief systems and understanding community ecoliteracy, these solutions can be an alternative approach that is important to test for potentiality.



This research was designed with qualitative socio-legal approach. It was chosen by considering that the researcher would be more unimpeded to explore data without having limited with certain questions. Nevertheless, as a limitation, researchers focused on formulation regarding the environmental and social impact of illegal tin mining activities and projected solutions with the integration of customary values in national legal products. Data collection technique employed was deep interview by using purposive sampling, direct observation to the mining sites, and documentation to collect important and necessary data in concluding the results of the study. This study's primary source was indigenous communities, miners, the affected communities, stakeholders, social and environmental activist. Whereas the secondary data source was obtained through data issued by some institution, the results of previous research, and verified news coverage. Methodologically, this study is aligned with theoretical tools with credibility comparisons through triangulation examination techniques. Triangulation theory allows researchers to check and complete information so as to obtain appropriate and methodological inferences. The limitation in this study is the latest legal regulation in Law No. 3 of 2020 and its derivative regulations that determine the authority of local governments and central governments in mining management. The regulatory change could be an extension for this research to be further developed.

### 3. Conflict, social harmony and the roots of illegal tin mining

The politics of Soekarno's government in the era of Indonesia's Guided Democracy brought many changes in the panorama of economic, social, defense policies, political configuration and resources policies of the country. The failed attempt to capture West Irian through the forum of the 12th UN General Assembly in November 1957 resulted in the beginning of the military approach and the political-economic confrontation with the Dutch in Indonesia. Gradually, the Indonesian government began to suppress the position of the Dutch people in Indonesia, most of whom controlled the facilities of production and ownership of mining businesses to leave the country.

Heightened political tensions throughout the final months of 1957 also became legitimacy for the government to take 'emergency measures' to save and restore national security. Prime Minister Djuanda's decree in 1957 established a policy of centralized supervision by the government of all Dutch-owned and mixed Dutch-Indonesian companies. At its peak, a large-scale nationalization action was enacted with the signing of Government Regulation (PP) Number 23 of 1958 concerning the Placement of All Companies Under the Control of the Government of the Republic of Indonesia. This policy includes the takeover of three tin mining companies that have been operating since before the independence era, including Banka Tin Winning Bedrijft (BTW) to PN Tambang Timah Bangka, Gemeenschaappelijke Mijnbouw Maatschaappij Biliton (GMB) to PN Tambang Timah Belitung and Singkep Tin Exploitatie Maatschappij (SITEM) to PN Tambang Timah Singkep (Gusnelly, *n.d.*).

In effort to supervise and coordinate the three tin mining companies, the government in accordance with the mandate of Law Number 19 Prp of 1960 established a General Leadership Agency (BPU) with Government Regulation Number 87 of 1961 concerning the Establishment of the General Management Agency of State Tin Mining Companies on 17 April 1961. The next steps, in 1968 were carried out the merger of BPU with the three state companies resulting from nationalization into the State Tin Mining Company which was authorized on 5 July 1968. After changing its form to a Limited Liability Company (PT) in 1976, this company then changed its name in 1998 to PT. Timah (Persero) (Sukarman et al., 2020).

Tin mining operations carried out centrally by the government through PT. Timah from 1958 to 1998 have triggered the flourishing of social inequality in Bangka Belitung (Rahayu, 2016). This condition arises as a logical consequence of the use of out-of-area workers to fill staff and high-ranking positions of PT. Timah, while many local-community people are employed as lowly employees and field workers. This gap becomes even more conspicuous with the construction of facilities and various special facilities provided by the company to employees which include health services, entertainment, education, sports and education. The non-linearity of mining policies with the context of thinking and the interests of local communities in Bangka Belitung has become a driving factor that generates social jealousy and accelerates the explosion of illegal mining when regulatory restrictions are removed (Ibrahim, 2016).

The momentum of the 'illegal mining boom' occurred in 1999, just as the world economic crisis reached its climax in Indonesia marked by a series of political events, including the fall of President



Soeharto from the regime he should have occupied until 2003. The Regent of Bangka, Eko Maulana Ali, in response to the economic crisis and sharp social inequality granted permits for small-scale mining activities for the community with Regional Regulation No. 20 of 2001 concerning General Mining Management. This decision was made in line with the enactment of Law Number 22 of 1999 concerning Local Government and Decree of the Minister of Industry and Trade Number 146/MPP/Kep/4/1999 which revoked tin as a strategic commodity and became a free good (Rahayu & Cholillah, 2019). As a result of the opening the mining permit, illegal mining soon became uncontrolled activities. In the early period of 2000, more than 50% of the people of Bangka Belitung worked in the mining sector, and only 30% of the local mining was carried out by obtaining permits. In the last three decades, illegal tin mining has contributed significantly to the emergence of a multidimensional crisis for the people of Bangka Belitung (Hariansah & Handini, 2021).

In the first 15 years since the illegal mining boom occurred, an inventory of environmental damage carried out by the Regional Environment Agency of the Bangka Belitung Province reported that of the total land area of 1,675,240.51 hectares, there has been 15.15% critical land, 37.28% potential critical land, 44.54% somewhat critical land and only 10.79% remaining including non-critical land (Sibarani, 2017). Meanwhile, in a survey conducted by the Wahana Lingkungan Hidup (Walhi) of Bangka Belitung Province in 2020, the amount of critical land has penetrated into 1,053,253.19 hectares, or 64.12% of the total land area. Bangka Belitung has also lost 320,760 hectares of production land in the last 10 years (Rosyida et al., 2019).

Illegal tin mining also directly impacts the decline in state revenues and losses. Indonesian Corruption Watch (ICW) noted that state losses incurred due to illegal tin mining in the period 2004–2013 reached IDR 50 trillion (Prapti Rahayu et al., n.d.). Then, the Financial and Development Supervisory Agency (BPKP) claimed that illegal mining operations carried out on land owned by PT Timah throughout July 2021–July 2022 had caused state losses of IDR 2.5 trillion.

The local's economic dependence on tin mining is supported by data released by the Bangka Belitung Government, which records as many as 344,430 residents or around 24.37% of the total population working in the tin mining sector in 2022 with most of them being illegal tin miners (Faisal & Rahayu, 2020). The low level of knowledge and safety used by illegal miners leads to many work accidents. In the 2017–2020 period, there were 59 deaths due to illegal tin mining accidents. The highest death occurred in 2019 with 25 deaths in a one-year period. In addition to deaths, illegal tin mining also causes ongoing social conflicts, especially between miners and fishing communities. This conflict occurred in many areas, including Kelabat Bay, Tanjung Labu, Lepar Pongok, and Belitung (Erwana et al., 2015).

Despite being the second largest tin-producing country in the world, which together with China produces up to 60% and controls more than 40% of the world's tin reserves, Indonesia's role is still not optimal in determining global tin prices. Commodity prices are controlled by supply and demand. With its large total production, 98% of tin produced in Indonesia is exported to drive the industries of other countries, with only about 2% is used domestically for domestic industry. Indonesia's political policy of mining is clearly different from China, which since 2015 has been an importer of tin. This inequality clearly has implications for the losses of the exporter country, Indonesia, when there is a decline in global prices (Munandar et al., 2019).

The challenges to the prospect of Indonesian tin mining itself are inherently complex. Global price fluctuations in Indonesia's position as an exporter and China's energy politics of restricting tin exports are two important external challenges. In addition, domestic challenges in tin mining are also presented through a number of issues, illegal mining, bribery of officials, environmental damage, buying and selling permits, to corruption and difficulty breaking away from the extractive economy sector. Indonesia is now at an evaluation point that requires the start of massive policy reforms, including tin mining policy matters (Faisal et al., 2022).

The main problem that arises in the tin mining industry scheme is mining governance which is still overlapping and not effectively implemented. Mining arrangements that do not correspond to field conditions result in many violations that are almost unresolved, one of which is illegal tin mining. The crunch of conditions arising from illegal tin mining is shown by the systematic losses of the state every year, the increasing rate of environmental damage and a series of social conflicts that arise as a result. It is undeniable, that the problem of illegal tin mining is a latent matter that is very urgent requiring strategic resolution.



#### 4. Inefficiency of national mining law againsts illegal mining

Indonesia is a country that adheres to the ideology of welfare-state in its constitution. The state is given ample space to actively participate in regulating the economy and ensuring the well-being of its citizens. This can be identified by the content of Article 33 Subsection (3) which is the constitutional basis for the enactment of the concept of 'right to control the state', namely; 'The earth, water, and natural wealth contained therein are controlled by the state and used as much as possible for the prosperity of the people' (Rahayu, 2016).

In Constitutional Court Decision Number 002/PUU-I/2003, the function of state control over natural resources is defined as the absolute position of the state to impose five control functions. The five mastery functions can be seen in the following table (Putri & Wicaksono, 2016) (Table 2):

The implications of the state-right to control the resources are directly applied by the establishment of a licensing regime structure to manage and control all mining activities, including tin. The state performs the function of control by receiving, reviewing, providing, revoking and supervising the licensing of all mining activities, whether carried out by state-owned, private, or community companies. The legal approach used through licensing clearly places certainty as the first orientation, with enforcement guarantees in the form of sanction instrumentation for any form of mining outside the licensing regime (Fourie et al., 2015).

Policy formulation with this approach has been implemented in Indonesia since the beginning. Most recently, Law Number 3 of 2020 concerning Minerals and Coal, substantially clearly regulates the patterns, processes, requirements and licensing procedures for all types of tin mining businesses. The regulations derived from the law also use the same principles and approaches, the obligation to fulfill permits for all tin mining activities.

However, the social realities of society are concretely much more complex than what current legislation is capable of reaching. The use of coercive force through statutory instruments and the threat of criminal sanctions for any form of illegal mining cannot be perfectly implemented. This is due to the incompatibility of the substance of legislation with the social values of society. Laws that are not in harmony with the reality and culture of society are themselves ineffective and will be abandoned.

In principle, law enforcement by making people's behavior in line with the provisions of laws and regulations will produce an ideal mining climate and prevent the rise of illegal mining. To that end, from the phase of the explosion of illegal mines at the beginning of the reforms to the present day, the legal politics of the government leading to coercive efforts against citizens will follow the orders of the law. This force of coercion is represented by a number of arrests and criminal sanctions for illegal tin mining actors that have often occurred in Bangka Belitung. However, the reality of law enforcement with this approach remains and continues to show no significant results, with the continued existence of illegal mining in all regions with deteriorating conditions.

Illegal tin mining recently has encroached on areas designated as mine-free. In April 2021, illegal mining activity with suction pontoons can still be observed in Kelabat Dalam Bay, Bangka. In fact, based on Regional Regulation No. 3 of 2020 concerning the Zoning Plan for Coastal Areas and Small Islands (RZWP3K), Kelabat Bay is included in the zero-mining area. In addition to Kelabat Bay, the marine water

**Table 2.** The function of control by the state based on the Constitutional Court Decision.

Fungsi	Penjabaran
<i>Policy (beleid)</i>	Carried out by the state c.q. government by formulating and conducting policies.
<i>Management Actions (bestuursdaad)</i>	Carried out by the government with its authority to issue and revoke licensing facilities ( <i>vergunning</i> ), licenses ( <i>licentie</i> ) and concessions ( <i>concesie</i> ).
<i>Settings (regelendaad)</i>	The regulatory function is carried out by the state through the legislative authority by the DPR together with the Government and regulation by the Government (executive). The type of regulation in question is as stated in Article 7 of Law Number 12 of 2011 concerning the Establishment of Laws and Regulations.
<i>Management (beheersdaad)</i>	Carried out through the shareholding mechanism and/or through direct involvement in the management of State-Owned Enterprises as institutional instruments, through which the State, c.q. the government utilizes its control over these resources to be used for the greatest prosperity of the people.
<i>Supervisor (toezicht houden daad)</i>	Carried out by the state c.q. the government in order to supervise and control so that the implementation of control by the state over the resources of wealth is really carried out for the greatest prosperity of all people.





area of Matras, Batu Dinding, Dante Island, Air Belo, Toboali to the Perimping River is a hotspot that is prone to mining. Moreover, according to the Vice Governor of Bangka Belitung, Abdul Fatah, the estimated number of IT distributions throughout Bangka Belitung currently reaches more than 18,000 units. The difficulty of implementing a People's Mining Permit (IPR) for illegal tin miners in Bangka Belitung can conceptually be classified into three basic domains, namely due to complicated regulatory governance, low legal culture of the mining community and ineffective law enforcement (Sibarani, 2017).

The implementation of IPR which requires various administrative, technical and financial requirements in general is still quite difficult and tends to be convoluted, when juxtaposed with the capacity of illegal miners in Bangka Belitung, which on average comes from low-educated communities. This is supported by field facts that show the tendency of people to mine illegally for practical reasons, quick money, without any environmental stewardship and responsibility, even though they have to deal with the consequences of law enforcement. However, this weakness is complemented by another weakness, namely the inefficient law enforcement by the officers. Not without reason, the difficulty of strict and total enforcement efforts is crafted by the large economic profits of people who depend on the mining sector, the impact of illegal mining closures has the potential to closing up one of the most important sources of income for the local people.

In a broader scope, the root of the problem that is the main obstacle to the optimization of IPR is the legal culture of the community. Both the level of regulation and law enforcement can be implemented properly only if the legal culture of the community is adequate to carry out government regulation. The gap between regulation and application in the community is bridged with a legal culture, without a strong foundation, policies will only float and not be perfectly implemented, in this case as is the case in the case of illegal mining that relies on IPR to formal regulation. This makes the law unable to work effectively and requires alternative avenues in an effort to solve the problem of illegal tin mining.

In addition to IPR, another solution to tackle illegal mining is to establish partnerships with mining companies, such as PT Timah Tbk which has a Mining Business License (IUP). In 2023, PT Timah has 127 IUPs covering an area of 473,388 hectares, while other private companies have 517 IUPs covering an area of 572,631 hectares. However, partnerships with mining companies are also ineffective because companies have special restrictions and conditions for partnering, such as having to have a legal entity. This condition makes it difficult for the community, and is not proportional to the number of miners. Data from the Bangka Belitung Provincial Manpower Office in 2022 recorded that 24.3% or around 344,430 residents of the total population worked in the mining sector, most of which were carried out on a small scale and illegally (Yanto et al., 2023). Illegal mining, which is still mushrooming until the enactment of mining recentralization policies, significantly results in losses to the state. Related to financial losses, calculation of International ITRI data, Indonesia's total tin production for five years during the period 2008–2013 reached 593,304 tons (reported 241,304 tons, unreported 352,000 tons). Assuming a tin ore price of USD15,000/ton and an exchange rate of Rp11,000/USD1, Indonesia's total loss in that period reaches around Rp58,080 trillion which includes, Rp20,675 trillion from PT Timah area in Bangka Belitung Province and Rp37,405 trillion from areas outside PT Timah. This represents a loss of at least an average of Rp 11.616 trillion annually due to illegal mining (Anonymous, 2015).

In other parts of the world, small-scale mining in Ghana operates a lot illegally. The existence of the illegal mining sector has posed a policy challenge to the government, and actions to curb the problem have often failed. Small-scale mining in Ghana is the result of social injustice experienced by miners. Those involved in this sector is not homogeneous but is distinguished by class and motive. In addressing social injustice the state's actions focus only on law enforcement in addressing the issue (Ofori & Ofori, 2018).

Indigenous peoples in Guatemala oppose Canadian mining companies by holding a vote by indigenous peoples on whether to allow mining on their territory. The result of the flare collection wanted mining activities in its territory to be stopped but the decision was not respected by the mining company. Mining conflicts with local communities are played against a backdrop of intimidation and violence. The main actors behind it all are mining companies, the Guatemalan government, the World Bank and the Canadian government. All have an interest in the profitability of the mine amid the injustices inflicted on local indigenous peoples (Imai et al., 2007).

Even the case of the Yanacocha mine in Peru features a contestation of the power of the Peruvian government, the private power of Yanacocha, and the local people. The analysis shows that private and



public convergence is implied in four interrelated legal situations, which have an impact on the protection of human rights. It is said that in a case study in Yanacocha, the consent of members of the society to the privatization of land. It was the abuse of power that led to the deprivation of civil rights from the peasant community. Similarly, the privatization of coercive power, together with a highly insensitive and flawed judicial system creates a situation of impunity for offenders, both public and private, of the human rights (Kamphuis 2011).

The impact of Gold mining in Thailand is also affecting global climate change. Increasing resources and a carbon-constrained world will continue to be a formidable challenge for major industries, including mining. Understanding the implications of climate change mitigation for the mining industry, however, remains limited to presenting the results of the feasibility study on the implementation of clean development mechanisms and greenhouse gas (GHG) emission reductions in the gold mining industry (Kittipongvises, 2015).

## 5. Local wisdom and ecoliteracy related to tin mining in Bangka Belitung

The long history of tin mining in Bangka Belitung that began to be exploited since the beginning of the 18th century has produced various cultural responses that implicitly affect the lifestyle, way of thinking, and formation of traditions and culture of the local community. Pragmatism needs in response to conditions that arise due to mining are intertwined in the form of living laws and are obeyed on the basis of traditional ties. Substantively, the rules that are intertwined in the culture of society have the same principles as the modern rule of law, namely to meet the principle of restrictions, divide mining zones with mine-free zones, as well as preventive rules to prevent environmental damage (Sykes, n.d.).

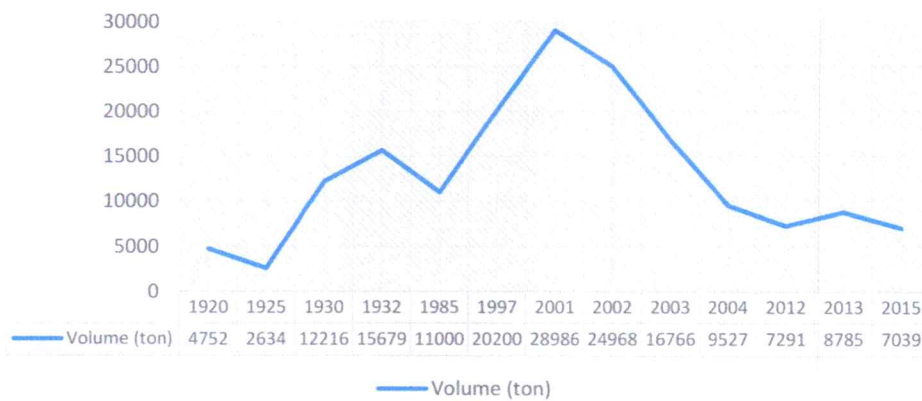
From a sociological perspective, the response to tin mining is inseparable from the legal culture of the people who mostly work in the agrarian sector. The people of Bangka Belitung since before the tin mining era are an agrarian society, with the main production of rice, corn, tubers and spices. It was not until the period 1880–1930 that the need for labor to carry out tin exploitation prompted the Dutch East Indies government to bring in mineworkers from China and recruit many local workers. However, due to the transition of the mining system with the presence of mining mechanization decades later, many workers lost their jobs and began to switch to the cultivation of white pepper which is estimated to have originated in Lampung, South Sumatera. The success of white pepper cultivation led interest of local people to make this 'King of Spices' domesticated and became the main agricultural commodity. White pepper from Bangka Belitung is known to have very high quality, and has entered the export market since the 1930s (Table 3).

The ban on local's participation in mining activities since the Dutch East Indies era, before it was allowed in 1999 and lasts until now, has caused people's dependence on agriculture and pepper production to be very high. This makes the function of soil conservation a fundamental necessity, and tin mining is considered an activity that threatens the existence of farmers (Rizaldi, n.d.). Former tin mining lands no longer have mineral elements that can support the growth of agricultural crops, and are often arid, barren, and very poor in nutrients. In fact, pepper cultivated in Bangka Belitung, including the types of Lampung Daun Lebar (LDL), Lampung Daun Kecil (LDK), Chunuk, Merapin and Jambi, are all plants that require extra care and soil conditions with high nutrient and fertility.

With the urge to maintain agricultural land and prevent the spread of land damage due to mining activities, the Malay indigenous people in Bangka Belitung established a local wisdom known as ampak, this wisdom is known and spread in various regions, especially in Bangka Regency and South Bangka Regency (Rahayu, 2016). In indigenous beliefs, ampak is a tradition carried out to eliminate or remove tin from an area so that no lead ore and sand can be mined. Even if it is still found, the lead obtained from the area that has been ampek-ed is kopong (empty) so it has no value. Thus, the territory will be free from any form of mining.

The ampak tradition itself is widespread in several regions, and is believed to be passed down from generation to generation. Although there is no exact knowledge about when the ampak tradition was enacted, this tradition is known to be alive today in several regions, such as Tuing, Riau Silip, Serdang, Tobaali, Merawang, Simpang Rimba, Balunijuk, Jade, Mabet, Dalil and Petaling. The essence of the prohibition in ampak law is the inability of everyone to carry out mining activities in areas that have been declared



**Table 3.** Bangka Belitung white pepper export data.

ampak. Effectively, ampak is still highly respected and prevents these areas from illegal mining efforts that are often carried out by local's in many other areas in Bangka Belitung. Conceptually, the ampak tradition is included as an ecoliteration concept. Ecoliteration is understood as a concept and strategy to move the wider community to understand new perspectives on the reality of their common life on earth and make the necessary changes. Ecoliteration emphasizes the view that nature is part of life, nature is an ecological and systemic reality, and not as a mechanical object that can be exploited without restrictions.

As a rule of law, the ampak tradition has a better level of effectiveness compared to the concept of modern ecoliteration regulated in the provisions of laws and regulations. As understood, the Indonesian government and the provincial government of Bangka Belitung have comprehensively established various rules related to mining law, and divided mining zones with each different type of business license. To provide mining space for the local community, the government has established permits in the form of People's Mining Permits (IPR), with a special zoning division of community mining called the People's Mining Area (WPR). Although conceptually this is ideal, the implementation is far from expected. The latest data released by the local government in 2017 only recorded a total of 30 active IPRs, inversely proportional to the number of illegal mining pontoons which in 2018 amounted to 18,000 units (Faisal et al., 2022).

In this context, the ampak tradition is understood as an instrument that has a common purpose with the national law, which is to establish zoning between areas that can be mined and a mine-free zone. Concretely, the ampak is synonymous with Regional Regulation Number 3 of 2020 concerning the Zoning Plan for Coastal Areas and Small Islands (RZWP3K) which divides the waters of Bangka Belitung in several mine-free zones. However, as is the case on the mainland, RZWP3K is not effective with the continued number of illegal tin mining along the coast and even causes prolonged social conflicts, including those that occur in Kelabat Bay, Matras, Tempilang, Muntok, Toboali, to Belitung.

The phenomenon of people's tendency to comply more with the provisions of the ampak tradition than national law indicates the difference in the quality of the two toward the culture and sociological values of the Malay community in Bangka Belitung. First, as an intersubjective reality, ampak arises and is shaped by the indigeonus community itself, and is preserved by a strongly binding culturalization to address the problems of tin mining that threaten agricultural land and plantations. Meanwhile, national law is seen as 'foreign' and imposed on society, by generalizing in the designation of mining zones that do not take into account the values of wisdom. As a result, national law has no sociological attachment to the legal culture of society.

Second, the tradition of ampak is guaranteed to be in harmony with traditions and beliefs. Mutual trust, respect for ancestral admonitions, and a cultural value made people collectively realize the importance of preserving nature and preventing mining invasions in certain areas. A different thing is offered by national law, which emphasizes guarantees of implementation by sanctioning. The climate of mining restrictions established by national law clashes with economic needs, and such misalignment results in numerous violations.

## 6. Transformation of local wisdom in formulation of national law

Satjipto Raharjo, the thinker and initiator of Progressive Law Movement has since begun to theorize about the teleological purpose of law as a tool for human beings. Law for humans and not vice versa (Rahardjo, 2006), the effectiveness of the applicability of the law as an instrument of social engineering is not seen from the aspect of human compliance with it, but rather from the impact of the expediency resulting from the imposition of the law on society. Therefore, the law must be constantly updated, transformed from one form to change toward a better direction in terms of form and function (Faisal & Rahayu, 2020). In the context of national development, law is seen as a source of power that has two main functions. First, the law as a means of renewal to create order. Second, law as a rule that supports ideal values to meet the demands of people's lives in achieving prosperity and security. The importance of the role of law in shaping social reality and the implementation of social life, requires the state to exclusively monopolize law enforcement efforts and integrate the social values of society in the substance of legal regulations so that its implementation can provide the greatest benefit and in accordance with the values of society.

Esmi Warassih Pujirahayu asserts that an order that manifests from that value is not static and open to penetrations from the outside, but nevertheless the soul built by the community does not make it lost or extinct. Local wisdom itself is basically something that has social value that can or is used by local people in regulating social life. Fritjoff Capra said that local wisdom is based on a high respect for nature. So that consciousness in the law can be a pattern of consciousness in which the individual feels a sense of belonging, from a sense of connection that is spiritual, attached to the natural and social environment (deep ecology). Local wisdom such as human values, togetherness, brotherhood and other attitudes of discipleship began to erode a lot in the cultural environment of the community. The vision and ideology promoted in the local wisdom of the community is genuine and is a very valuable source of material law. Throughout the history of legal formation in various countries, the values embodied in the local wisdom of the people have always been seen as the basic capital for reconstructing an ideal national legal product.

By looking at the Indonesian legal system in the lens of Hans Kelsen's *staatsfundamentalnorm*, the regulation of local wisdom in legislation at the *formalgezets* level in Indonesia is not a taboo. Concretely, there have been seven laws and regulations that contain regulations on the implementation of local wisdom through Indigenous Peoples.

Meanwhile, regarding Mining Affairs, there is no regulation on local wisdom that is integrated into laws and regulations in Indonesia. The regulation of local wisdom related to mining in laws and regulations is a form of breakthrough that is deemed necessary, and at the same time integrates the eclectic nature of the two forms of regulation so as to produce an ideal and implementative rule of law (Table 4).

The relevance of local wisdom as a rule of law becomes stronger and its enforceability can be imposed by the state if the rule is adopted in concrete laws and regulations. This method puts the framers of the law to learn from the community, before establishing the rules that will also be applied to that society, instead of designing by using legal assumptions that have no sociological attachment to the culture of the society in which it is implemented.

However, the regulation of local wisdom in laws and regulations will directly have implications for one major weakness, not all communities in various regions recognize and feel bound by these rules. Ampak itself is a tradition believed by the Malay community in Bangka Belitung, and is not known in other regions or provinces. Thus, the regulation of local wisdom will make the legislation exclusive. To overcome this, local wisdom must be regulated in the type of legislation that is in accordance with its nature and character, in order to ensure optimal utilization. In the hierarchy of laws and regulations in Indonesia, Article 7 of Law Number 12 of 2011 concerning the Establishment of Laws and Regulations confirms that there are seven types of regulations known in the Indonesian legal system, including;

1. Constitution of the Republic of Indonesia of 1945 (written constitution)
2. MPR Provisions
3. Government Laws or Regulations in Lieu of Laws
4. Governing Law
5. Presidential Regulation
6. Provincial Regulations
7. District and City Regulations



**Table 4.** Comparison of characteristics of national law and local wisdom.

Parameters	National law	Local wisdom
Sources of law	Constitution and formal law	Tradition and culture
Binding force	Forced by the state	Bound by trust, followed voluntarily
Enforcement instruments	Legal sanction	Social sanction
Reachability	All communities within the jurisdiction	Limited to specific regions and social groups
People's perspective	Rules and sanctions	Culture and shared needs

The legal politics of government to integrate local wisdom must be established at the level of the Law, which is further clarified by a Government Regulation or Presidential Regulation. The essence of the regulation is the principle of recognition of local wisdom and the ability for local governments to determine the zoning of mining areas by taking into account local wisdom which is then contained in the legal products at the level of Regional Regulations, both provincial and district and city.

Regional regulations, which are provincial, district and city regulations are the most ideal form to contain substance on local wisdom based on three main reasons. First, regional regulations are local and only binding on the area where they are enacted. Second, local government have better understanding with the conditions and needs of the regions so that policy setting can provide the greatest benefit for regional and community development. Third, local regulations are more flexible to be formed, revised and made improvements, so that they can adapt to the needs of the community quickly, efficiently and without being convoluted.

Regulating the concept of zoning by adopting the ampak tradition in local regulations is important to be accompanied by the ratification of these provisions by indigenous institutions. The government needs to cooperate with indigenous peoples who have traditionally had the 'authority' to ampak an area. Determinations made by indigenous institutions must be in accordance with zoning policies by the government, so that the prohibition of mining in an area has two dimensions of different approaches but one common goal, a legal and cultural approach to prevent widespread environmental damage.

With these two approaches, the mine zoning arrangements set by the government will apply more effectively and cover the community as a whole. The demographics of the people in Bangka Belitung in the 2020 BPS Census showed that of the total population of 1,455,678 people, 60% of them were ethnic Malays, while the remaining 30% were divided into ethnic Chinese, Javanese, Flores, Bugis, Palembang and a small part of other ethnic migrants. The determination of ampak by indigenous institutions is traditionally binding for the Malay community so that it is effectively carried out with traditional and cultural motives. Meanwhile, for migrant communities that are not culturally bound by the ampak traditions, restrictions are carried out through legal instrumentation in regional regulations (Faisal et al., n.d.). Thus, migrant communities are projected not to carry out mining with two basic motives, prohibited in laws and regulations and respect for customary law and local community traditions. This condition will effectively encourage mining communities to seek mining permits, as well as carry out activities outside the zones that have been declared mine-free, both by laws and regulations and by community traditions and culture.

## 7. Conclusion

For three decades, mushrooming illegal mining has resulted in systematic losses for the environment and the country. In addition to losing money at a rate of IDR 2.5 trillion every year, the government also has to deal with the reality of the widespread critical land, pollution of rivers and beaches, land destruction, reduced mangrove areas, damage to coral reefs and prolonged social conflicts due to illegal mining. Moreover, the contribution of tin, which reaches 40% of the total Regional Original Income (ROI), makes it very difficult to stop directly, because it will have an impact on decreasing the economic capacity of the community and causing various larger and prolonged social problems.

In such dilemmatic conditions, the tug-of-war between economic and environmental interests is trying to be addressed with the political policy of mining law that provides space for the community to carry out mining activities through the People's Mining Permit (IPR). This permit is granted as a means of control for the government to directly control and supervise mining activities carried out by

the community. However, despite efforts to be enforced since 2009 until now, the IPR policy is almost only ideal on article, with the proliferation of illegal mining. The complexity of economic, social, political and law enforcement factors makes the laws and regulations related to community mining dull in their implementation. On the other hand, the people of Bangka Belitung in their cultural life have a tradition that grows and develops along with the history of mining, namely ampak. Ampak is a tradition established as a form of prohibition against mining in a certain region with the belief that the area does not contain tin. In a historical perspective, ampak is aimed at protecting agricultural land from mining activities. The interesting thing is that ampak concretely managed to keep many areas in Bangka Belitung from being encroached upon by mining. The ampak tradition is voluntarily adhered to by the community.

With the comparative logic between legislation and local wisdom, there is a strategic solution to be able to produce rules that are adhered to bindingly by aligning the content of the law with that wisdom. This is done through the transformation of local wisdom in regional regulations. Integrating the two will result in community mining arrangements, especially related to zoning, in two dimensions of reliable enforcement, law on the one hand and culture on the other. Harmony between the law and the culture of the community will guarantee compliance and the achievement of ideal goals to protect the environment and ensure the implementation of sustainability principles.

The recommendation in this study is the necessity for local governments and the central government to consequently exercise the latest authority in Law No. 3 of 2020 by integrating local wisdom in the formulation of regional regulations. This formulation can be done with a holistic approach and active community involvement as part of public hearing and integration of social values so that the resulting legal products can be complied with and become part of the solution to the problem of illegal mining in Bangka Belitung.

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### Credit author statement

Derita Prapti Rahayu: Conceptualization, Methodology, Supervision, Sri Rahayu: Validation, Formal Analysis, Faisal: Resources, Writing Original Work, Writing-Review & Editing, Andri Yanto: Investigation, Project Administration, Data Curation.

Countering Illegal Tin Mining With A Legal Formulation of Law Based On Local Wisdom in Bangka Belitung, Indonesia.

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