

Non-Metallic Mineral and Rock Mining Policy Within Metallic Mineral Concession Areas: Analysis and Strategic Recommendations

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KEYWORDS

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Analysis

ABSTRACT

Indonesia's position as the world's largest nickel producer, holding 42% of global reserves, has intensified mining activities across Sulawesi. However, recent findings by the Audit Board (BPK) in 2024 revealed systemic exploitation of regulatory loopholes, where non-metallic mineral permits (IUP) for rocks like peridotite and limestone are being misused to extract high-value nickel in Central and Southeast Sulawesi. This practice stems from three critical factors: (1) significantly easier permitting processes for rock commodities (14-day approval) versus metallic minerals (22-day auction system), (2) inadequate verification mechanisms for mineral content in rock concessions, and (3) weak coordination between central and regional oversight bodies. This study examines the multidimensional impacts of such permit misuse through qualitative policy analysis, incorporating geological assessments of nickel-bearing rock formations, comparative evaluation of licensing procedures, and economic modeling of state revenue losses. Findings demonstrate that 5%-10% unauthorized nickel extraction under rock permits could incur state losses of IDR 22.8-45.5 trillion annually, while simultaneously causing environmental degradation and undermining legitimate mining operations. The research proposes tiered policy interventions including real-time monitoring through the MOMI/MODI systems, mandatory nickel content verification for rock permits, and revised commodity classification frameworks. These recommendations aim to reconcile Indonesia's mineral governance with its dual objectives of resource nationalism and sustainable development, particularly crucial as the nation advances its nickel down streaming agenda.

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INTRODUCTION

The Audit Board (*BPK*) in its 2024 Audit Report (*LHP*) on the management of mineral, coal, and rock mining licensing from 2009 to the third quarter of 2023 at the Ministry of Energy and Mineral Resources and other related agencies, and more specifically on the results of the examination of Mining Business Permits (*IUP*) in Southeast Sulawesi Province and Central Sulawesi Province, stated that there were findings of potential for unlicensed (illegal) mining for nickel (metal minerals) commodities that did not comply with the provisions, where the permits used were permits for mining *peridotite* and red soil (*laterite*) commodities that are classified as rocks. In addition to these two types of commodities, there were also several

mining permit concession areas that were suspected of taking nickel commodities using limestone mining business licenses. So, there is a suspicion that there is potential for abuse by rock *IUP* holders whose location is close to nickel metal mineral concession areas, especially in Central and Southeast Sulawesi.

The results of the examination were then tested, based on the results of testing of the *IUP* of rock commodities located around the mining permit concession area of metal mineral (nickel) in Southeast Sulawesi Province and Central Sulawesi Province according to the database of the Directorate General of Minerals and Coal, showing that there were 51 *IUP* of rock commodities in the form of *peridotite*, red soil, and limestone in the two provinces. The literacy of *peridotite* rocks and red soil is that they are rocks that contain nickel deposits. With the results of the analysis of the *IUP* that has been issued by the Minister and/or Governor in accordance with their authority, there are 12 companies that have been tested with further analysis related to the potential of nickel commodities in *peridotite*, red soil, and limestone *IUP* in the environment around the Nickel *IUP* with the following results.

The sampling test is carried out to find out the commodities that are being mined and the plans to be mined and have been confirmed to relevant agencies in Southeast Sulawesi Province and Central Sulawesi Province and the holders of the rock commodity *IUP*. The examination was carried out by paying attention to the location factors of the geological potential or the surrounding *IUP*, satellite imagery photos to determine whether or not there is land clearing, forest areas, and laboratory tests on the material content of the found commodities (Figure 1.2). The results of the inspection showed that there were other commodities in the form of nickel metal minerals in the *IUP* with permits given to the *IUP* for *peridotite* rock, red soil, and limestone commodities (Azhim et al., 2022; Financial Audit Agency, 2024; CREA & CELIOS, 2024; Ministry of Energy and Mineral Resources, 2025; Minerba, 2021; Mongabay Indonesia, 2023; Shanghai Metal Market, 2025).

The BPK's findings, as based on the results of testing samples of *peridotite*, red soil and limestone commodities around the *IUP* of nickel mining concessions in Southeast Sulawesi and Central Sulawesi Provinces, can illustrate the potential loss of state revenue (Kadir et al., 2020). The potential for lost state revenue can be in the form of Value Added Tax (*VAT*) and nickel royalties mined without permits in the *Batuan IUP* area. The obligation to pay *VAT* and royalties is only imposed on the *IUP* of metal minerals, in this context of nickel commodities, while the obligation to pay *VAT* and royalties is not subject to the obligation to pay *VAT* and royalties as for nickel commodities (Rahmat et al., 2024; Rohman et al., 2024). *VAT* is charged on every transaction of the sale of taxable goods, including nickel products, while royalties are payments that must be made by mining companies in exchange for the use of nickel mineral resources (Camba, 2021; Widiatedja, 2024). The latest regulation related to nickel royalty rates that is currently in effect is Government Regulation Number 19 of 2025 concerning Types and Tariffs of Non-Tax State Revenue (*PNBP*) Applicable to the Ministry of Energy and Mineral Resources (*EMR*).

If this condition is allowed to continue without any follow-up from the central government or local governments in accordance with their authority, mining activities without a nickel commodity permit in this rock *IUP* will not only have an impact on state losses from a larger financial aspect, but also have an impact on the environmental and social aspects of

the community. With the existence of mining activities without a nickel commodity permit in the *Batuan IUP* area, it has an impact on the disruption of investment by business entities engaged in the mining of legal metal minerals (nickel) and causes legal uncertainty; this can also hinder regional and national economic growth.

On the other hand, based on the results of the confirmation made by *BPK* to the Regional Government of Southeast Sulawesi Province related to the aspect of granting permits, it was found that in the process of issuing Mining Business Permits (*WIUP*) there are currently no rules or procedures that limit the submission of types of commodities in an area. This certainly provides an easy opportunity for every Business Entity that applies for *WIUP* to be accommodated as long as the requirements are complete and as long as they meet the applicable regulations. The technical limitations possessed by the Regional Government, especially in terms of determining data on the potential of metal mineral commodities (nickel in this case) as well as the limitation of supervision of mining activities without permits, have been obstacles so far.

Based on the description above, the issue in this topic is “*BPK’s LHP* states allegations of abuse of permits by *Batuan* commodity permit holders around the nickel concession area, especially in Central Sulawesi and Southeast Sulawesi Provinces”. Identify the problem of the issue: Holders of *IUP* Rocks (*peridotites*, red soil, and limestone) in Southeast Sulawesi and Central Sulawesi Provinces in their mining activities take layers of rock containing Nickel. The potential for environmental damage in Southeast Sulawesi and Central Sulawesi Provinces due to mining practices that are not in accordance with procedures. Nickel Permit holders in Central Sulawesi and Southeast Sulawesi Provinces have suffered financial losses.

The management of mining permits in Indonesia, particularly the overlap between non-metallic mineral and metallic mineral concessions, has been a contentious issue, as highlighted by recent findings from the Audit Board (*BPK*) in 2024. Previous studies have explored aspects of this problem but left critical gaps unaddressed. For instance, Azhim et al. (2022) examined the geochemical characteristics of nickel-cobalt laterite deposits in Southeast Sulawesi but focused primarily on geological aspects without delving into the regulatory and economic implications of overlapping permits. Similarly, a report by *CREA & CELIOS* (2024) analyzed the economic and health impacts of the nickel industry in Sulawesi but did not comprehensively address the systemic issues of permit misuse and state revenue losses. This study bridges these gaps by integrating geological, regulatory, and economic analyses to provide a holistic understanding of the problem. It critically evaluates the existing regulatory framework, identifies loopholes enabling permit misuse, and proposes actionable policy recommendations. The research aims to enhance mining governance, mitigate state revenue losses, and ensure sustainable resource management, thereby contributing to both academic discourse and practical policy improvements in Indonesia’s mining sector.

RESEARCH METHODS

The analysis was carried out in the context of solving the main problem, using a qualitative approach with literature review methods and analysis of official documents. This framework was chosen to examine the problem of misuse of Rock *IUP* in the nickel concession

area in depth, in order to formulate comprehensive and implementable policy recommendations (Figure 1).

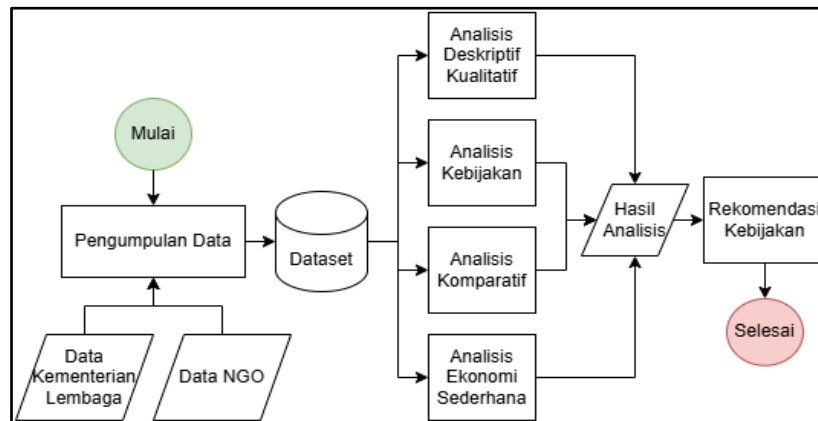


Figure 1. Flowchart for writing methodology

Source: Developed by researchers based on Ministry of Energy and Mineral Resources Decree No. 110.K/HK.02/MEM.B/2021

Data collection was carried out from various primary and secondary documents, which include: official government reports from the *BPK LHP* in 2024; laws and regulations on related matters; spatial and non-spatial data from the Ministry of Energy and Mineral Resources; as well as analyses of other reports, including studies on nickel and market data from private institutions such as *CREA & CELIOS* and the *Shanghai Metal Market (SMM)*. Several analyses were then conducted on the collected data, namely: policy analysis to identify gaps in existing regulations; comparative analysis to compare the licensing mechanisms between the mineral metal *IUP* and the rock *IUP*; qualitative descriptive analysis to systematically elucidate the geological relationships between specific commodities such as *peridotite* and nickel, as well as outline other impacts of *IUP* abuse; and a simple economic analysis by simulating the calculation of potential state losses based on the Gross Domestic Income (*GDP*) model, with a test scenario compared to business-as-usual (*BAU*) conditions. From these analyses, the range of the impact of state losses was determined to illustrate the urgency of the main problem. The results of the analysis can then be used as a basis to determine the best intervention steps for the government by considering regulatory and coordination aspects between the Central Government and Regional Governments.

RESULTS AND DISCUSSION

There are several records that must be considered from the LHP issued by BPK and the results of confirmation with the Southeast Sulawesi Provincial Government. At least one of the influences on the issue is the process of issuing Rock *IUP* which is procedurally easier than the Nickel *IUP*, coupled with the lack of information in correlating the potential of mineral commodities that may be carried (in this case Nickel) with the application for rock commodity permits, as well as the implications of the impact on state losses. This condition is exacerbated by the existence of obstacle factors in the process of supervising the Batuan *IUP* both in the field and the supervision of spatial data. Regardless of the aspect of causality with intent (*intended causal*) or not in the legal aspect, provisions related to procedures should be used as

direct applications to the Governor (WIUP in one province) and Minister (WIUP across provinces) the opportunity to get permits is greater and the process is faster. Based on this, the large number of mining permits for Peridotite, Tanah Merah, and Batu Gamping rocks in the nickel commodity area is a concern for BPK. Then it was followed up with a study based on sample testing with results in the form of a calculation of potential loss of state revenue.

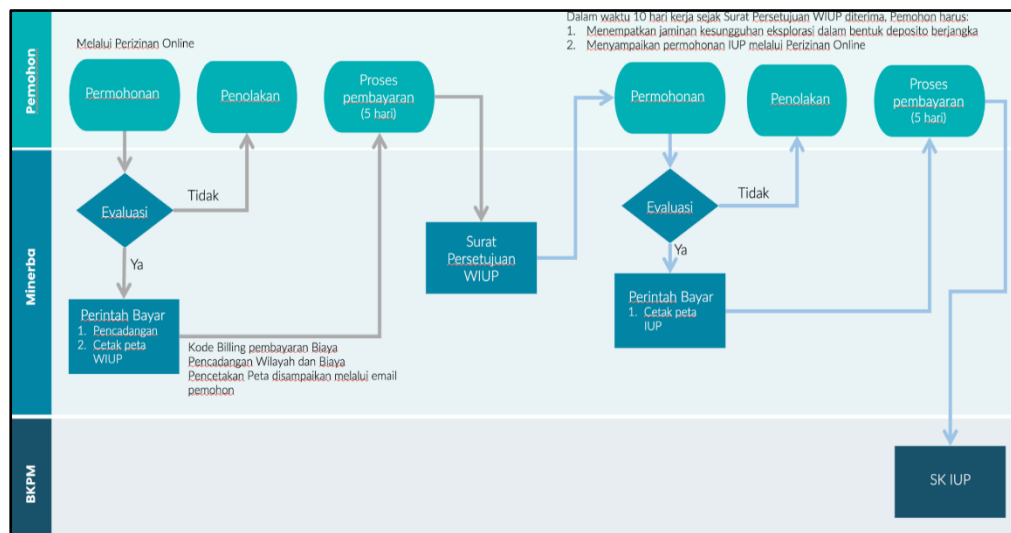


Figure 2. WIUP issuance process for Non-Metallic Minerals, Certain Non-Metallic Minerals, and Rocks

Source: Process mapping adapted from Government Regulation No. 96 of 2021, Article 12

Strategic Influence of Nickel Commodities and Non-Metallic Mineral Commodities, Certain Types of Non-Metallic Minerals, and Rocks (MBLB)

Indonesia occupies a strategic position in the global mining industry as the country with the largest nickel reserves in the world, accounting for around 42% of the total global reserves with an estimated 55 million metric tons. Indonesia's nickel production increased significantly from 1.6 million metric tons in 2022 to 2.2 million metric tons in 2024, making Indonesia the world's largest nickel producer with a significant impact on global supply chains. In terms of commodities, nickel ore in Indonesia can be separated based on its Nickel content level from 1.2% to 2.0% (Saprolite). Generally, Limonite and Saprolite layers (laterite deposits) that have the potential for nickel mining are found in the areas of Sulawesi, North Maluku, and Papua. As for the laterite nickel layer, it is possible to find rare earth minerals (REEs) such as Cobalt (Azhim, et al. 2022).

Indonesia's nickel downstream policy, which began with a ban on the export of crude nickel ore in 2014, has changed the landscape of the global nickel industry. This policy encourages massive investment in domestic processing facilities, with the number of nickel smelters growing from just 2 in 2014 to a projected more than 30 by 2025. So that economically Nickel mining becomes very high with the addition of value from the downstream aspect.

As for peridotite, in terms of the use of rock permits, it can only be used for construction materials. Moreover, in terms of data, the soil taken from the results of the BPK Report picking test in 2024 shows a fairly economical nickel content. So in terms of the price of peridotite as a building material is not that large (estimate of 1-2 USD), but in terms of the risk of state losses is quite high (Figure 2.3) if the nickel content on it is exploited without proper procedures.

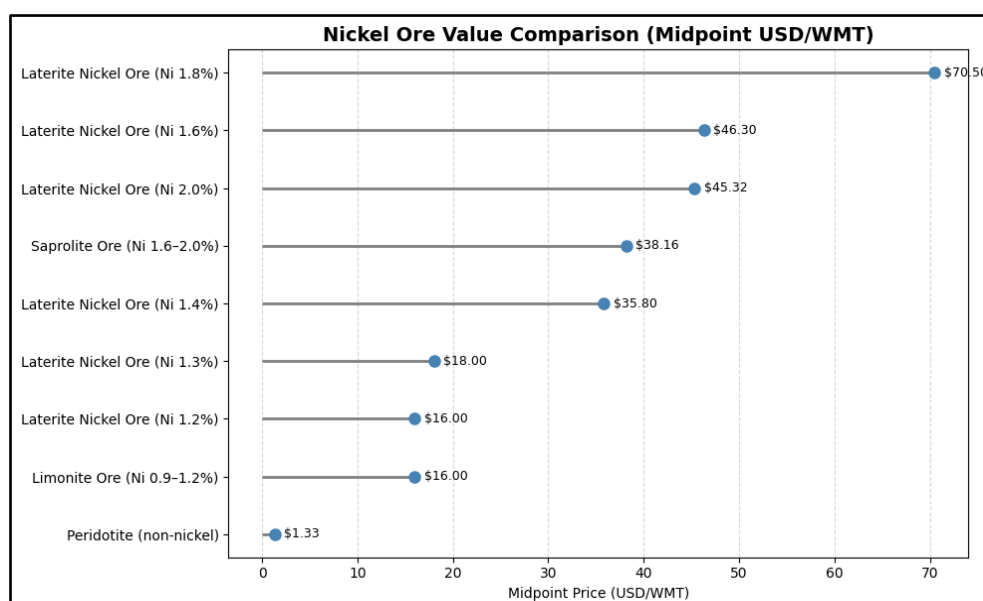


Figure 3. Graph of the comparison of the selling price of Peridotit to the Nickel ore commodity with various levels. Price source: Shanghai Metal Market (SMM) in 2025 source: Shanghai Metal Market (SMM) Nickel Price Index (2025)

Inequality in selling prices, licensing processes, and geological availability between peridotite and nickel commodities create its own challenges in mining governance, especially in avoiding the misuse of peridotite commodity Mining Business Permits (IUP) to exploit nickel commodities. This is actually no indication of the urgency of using peridotite as a building material either nationally or specifically in the regions as a whole.

Mining Regulation and Geological Aspects

Referring to the governance of the mineral and coal mining sector towards the issuance of Mining Business Licenses (IUP) in Indonesia tends to be dynamic, with the amendment of Law Number 4 of 2009 by Law Number 3 of 2020, the authority to issue IUP with non-metallic mineral commodities, certain types of non-metallic minerals and rocks that were originally the authority of the Regional Government was entirely withdrawn to the authority of the Central Government. Then 2 (two) years after the issuance of Law Number 3 of 2020, the authority that was previously withdrawn to the Central Government was returned to the Regional Government with the issuance of Presidential Regulation Number 55 of 2020 concerning the Delegation of Business Licensing in the Mineral and Coal Mining Sector. The provisions in this Presidential Regulation regulate the scope of delegated authority, the implementation of licensing, coaching, supervision, and reporting, as well as funding related to the granting of licensing. In the context of the authority to issue IUP with non-metallic mineral commodities, certain types of non-metallic minerals and rocks for the issuance of IUP in the context of domestic investment (PMDN) are delegated to the Provincial Regional Government in accordance with their administrative area (not cross-province).

Mining of metals and rocks that overlap by regulation in Indonesia is only allowed as long as they are found to be different or unassociated and have prospects. This is stated in Article 21 Paragraph (4) of Government Regulation Number 25 of 2023 concerning Mining Areas, but in this article the Minister of Energy and Mineral Resources must first establish a

new WIUP for the existing WIUP. However, related to the commodities to be issued are non-metallic mineral commodities, certain types of non-metallic minerals and rocks according to the provisions of Presidential Regulation Number 55 of 2020 are the authority of the Governor. In the context of the nickel commodity IUP, another mine was found, so a new WIUP was determined. For business entities that will work on other commodities in the WIUP, they must first obtain approval from the old IUP owner, as stipulated in Article 52 of Law No. 3 of 2020.

The peridotite rock commodity is geologically formed as an ultramafic rock that becomes the parent rock of the laterite nickel commodity through weathering and oxidation processes. The formation of laterite nickel occurs due to the oxidation and weathering process of ultramafic rocks that leave residual concentrates, where the peridotite rocks are dominated by the minerals olivine, clinopyroxene and orthopyroxene. Factors influencing the formation of laterite nickel deposits include sloping topography ($<20^\circ$), fracture structures, high rainfall and the presence of nickel sources from the parent rock itself.

Geologically, peridotite is the parent rock of nickel laterite that is formed through the weathering process. When ultramafic rocks such as olivine mineral-rich peridotites are exposed to tropical weather, a laterization process occurs that results in nickel concentrations in the form of secondary minerals. Thus, there is naturally an inseparable relationship between peridotite as a rock and nickel as a metallic mineral contained in it.

Government Regulation Number 25 of 2023 concerning Mining Areas regulates the criteria for areas that can be designated as Mining Areas (WP), which include:

- a. distribution of mineral and/or coal carrying rock formations; mineral and/or coal indication data;
- b. mineral and/or coal resource data; and/or
- c. mineral and/or coal reserve data.

The Mining Area (WP) is the basis for the determination of mining activities, where mining permits must be issued in areas that have been designated as taxpayers. Article 9, Law No. 4 of 2009 concerning Mineral and Coal Mining states that Mining Areas are part of the national spatial planning. Taxpayers consist of Mining Business Areas (WUP), People's Mining Areas (WPR), and State Reserve Areas (WPN), and Special Mining Business Areas (WUPK). Considering that Peridotite, Red Soil, and Batu Gamping as well as Nickel are given permits in the form of IUPs, in the taxpay, these commodities are depicted in the same mining area, namely the Mining Business Area (WUP).

In accordance with the Study of Classification of Rutile, Peridotite, and Dolomite Minerals conducted by the Mineral and Coal Testing Center (tekMIRA) in December 2023, the level of nickel that can be economically extracted by hydrometallurgy currently has *a threshold* above 1%. As for when compared to the condition of the Laterite Land commodity tested in the BPK LHP Number 13/LHP/XVII/05/2024, it was found that at least some points had nickel levels above 1%. Even in the LHP, for several Peridotite commodity exploration IUPs that have been found to have a mine opening at least have a nickel content of up to 2.28%. So in terms of geological aspects, there is actually a high potential for the discovery of nickel metal minerals in the area of the issued rock commodity IUP which is specifically located in or around the Nickel commodity concession area.

Economic, Social, and Environmental Aspects

Based on a Research Report conducted by CREA & CELIOS (2024), related to the health and economic impact of the nickel industry in Central Sulawesi, Southeast Sulawesi and Maluku. This report compares the total Gross Domestic Income (GDP) with the *business-as-usual* (BAU) model scenario with a value of 18.95 trillion rupiah in the first year and 62.6 trillion rupiah in the fifth year (Figure 4).

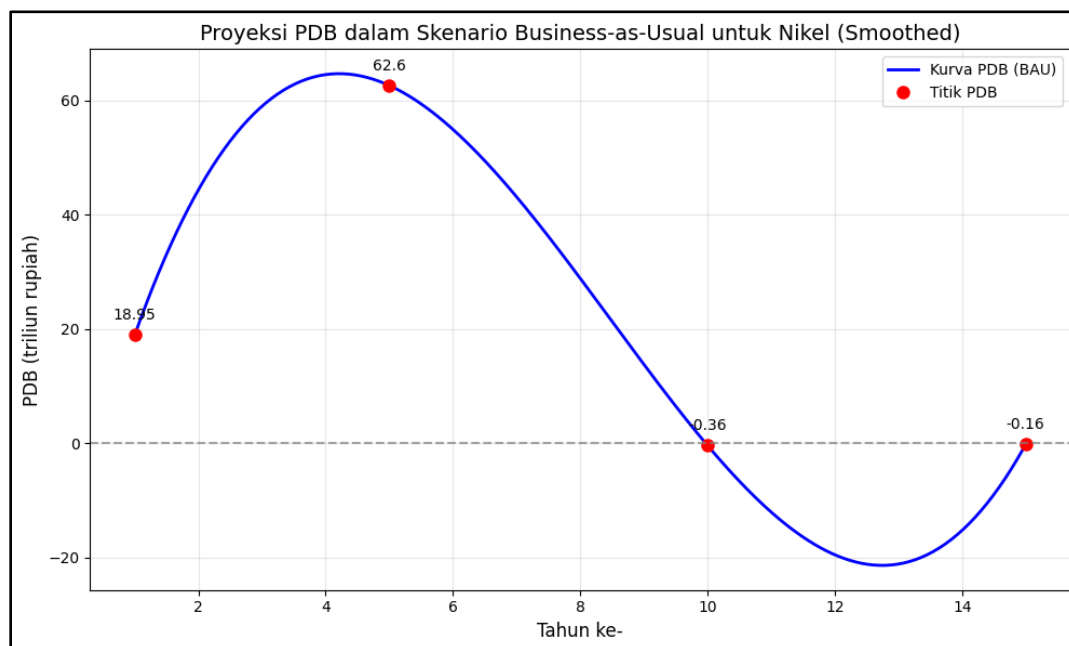


Figure 4. GDP curve graph, plotting based on the value point of the modeling
Source: CREA & CELIOS, 2024

The implications of the model proposed by CREA & CELIOS show that economically, especially in the first 5 years the GDP is at its peak. However, it will decrease after the first 5 years and negative after the next 10 years, indicating that the cost of environmental and social measures is higher than the income earned. Further calculations can be made of the curve from the model, to calculate *the area-under-curve* (positive income) and *area-over-curve* (negative income) using a simple curve area calculation, Simpson's concept.

$$Area \approx \int f(x)dx \approx \text{simps}(y, x)$$

So it was found that at least positive revenue was at 384.15 trillion rupiah compared to negative revenue of 70.87 trillion rupiah based on the model. This calculation is made for the nickel commodity as a whole (Figure 5).

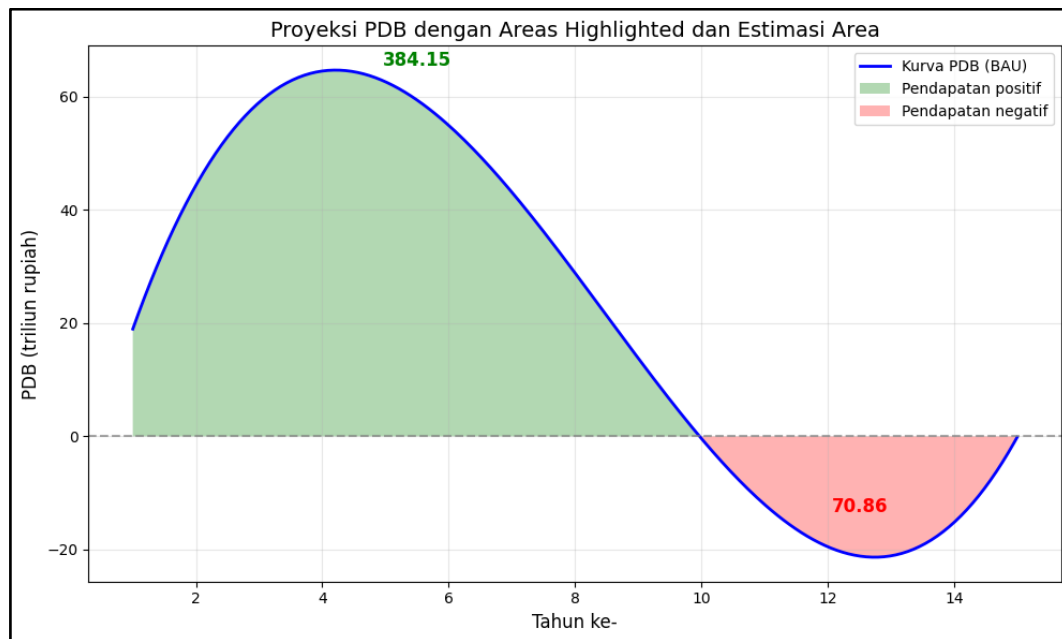


Figure 5. Calculation of the area of the GDP curve, positive income and negative

Source: CREA & CELIOS, 2024

This shows that indeed in the short term, nickel revenue is ideally high in the context of BAU. But in the long term, social and environmental impacts can negate these incomes. In the context of good *mining practices* in accordance with laws and regulations, the aspect of land reclamation must be the main consideration when budgeting and assessing the mining work plan in accordance with the mining business activities, which in this case is required to be in accordance with the planning within the scope of licensing of nickel metal mineral commodities.

It will be a potential issue of considerable state losses when rock mining that mines nickel commodities, with a guarantee of rock reclamation, against negative income as from the previously calculated model. With the value of the GDP of rocks that is not proportional to the price of nickel, if we assume and simulate that 5%-10% of GDP is lost from the revenue that should be due to the non-conformity of permits, then it can at least be represented by the following curve (Figure 6). Then we can compare the results of the simulation calculation with the value of the BAU Contribution, thus obtaining the potential loss of the State (Tables 1 and 2).

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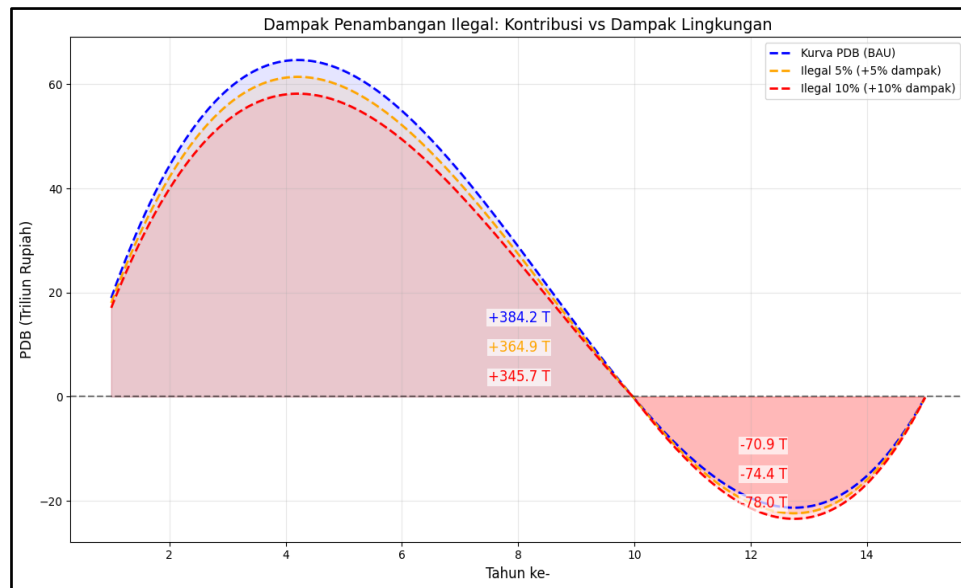


Figure 6. Calculation of simulated losses if 5%-10% of Nickel is not managed with proper permits

Source: Researcher's analysis using BAU scenario from BPK (2024) audit data

Table 1. Results of Simulation of the Impact on GDP in Rupiah

Scenario	Contributions (+)	Impact (-)	Net GDP
SMELL	384.2 T	-70.9 T	313.3 T
Illegal 5% (+5% impact)	364.9 T	-74.4 T	290.5 T
Illegal 10% (+10% impact)	345.7 T	-78.0 T	267.8 T

Source: Researcher's calculations based on CREA & CELIOS (2024) and BPK (2024)

Table 2. Potential State Losses from Loss of Nickel Revenue in Rupiah

Scenario	Difference in Losses from BAU
Illegal 5%	22.8 T
Illegal 10%	45.5 T

Source: Economic modeling by researchers using Ministry of Finance (2025) royalty parameters

Government Governance and Transparency

The implementation of Law No. 3 of 2020 has significant implications, especially related to the participation of the community and local governments in the mining licensing process. The centralization of authority has led to the perception of reduced involvement of local governments and community participation in decision-making related to mining permits. With the issuance of Law No. 3 of 2020, all mineral and coal mining licenses were withdrawn to the central government regardless of the commodity and its administrative limits. This was initially a severe blow to the local government which previously had the authority over mineral and coal mining permits.

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After the enactment of Law No. 3 of 2020, there was a tug-of-war between the central government and local governments, which resulted in centralized policies. This has resulted in a lack of local government involvement and community participation, which has led to controversy over mining licensing and has led to confusion about reclamation and post-mining responsibilities.

From the environmental side, Law No. 3 of 2020 actually strengthens policies related to environmental management in mining business activities, including the implementation of reclamation and post-mining. IUP or IUPK holders are required to carry out reclamation and post-mining obligations as follows:

- 1) ensuring a balance between land disturbance and land reclamation; and
- 2) carry out reclamation and post-mining activities up to a 100% completion rate before releasing the mining area (for WIUP/WIUPK).

In order to answer the transparency of mineral and coal mining management, the Ministry of Energy and Mineral Resources has developed an integrated map system, namely ESDM One Map as an implementation of the *one map policy* contained in the Phase VII Economic Policy Package. This portal aims to avoid overlap between licensing areas and regions, as well as allow for information disclosure for stakeholders, especially investors in the mineral and coal sectors.

ESDM One Map has been connected to *Minerba One Map Indonesia* (MOMI) built by the Directorate General of Minerals and Coal, providing spatial data on mining permits from more than 500 districts/cities and 30 provinces. This portal presents a variety of information, including the geological potential of minerals, coal, geothermal, solid bitumen and coal methane gas (Coal Bed Methane/CBM), as well as data on Mining Business Permit (IUP) areas, oil and gas working areas, and geothermal work areas. MOMI has also been integrated with the Ministry of Institutions and local governments, in this case the Provincial Energy and Mineral Resources Office has received open access to this application in accordance with its province. In addition to building the OMNI application, the Directorate General of Minerals and Coal has also built *Minerba One Data Indonesia* (MODI) which is a non-spatial website-based application system developed to manage the data of mineral and coal mining companies. MODI plays an important role in the transparency and management of mineral mining data; and coal nationally in Indonesia.

However, BPK found that the process of issuing permits for mining business licenses (IUP) for metal minerals that have been registered in the MOMI and MODI applications is not fully in accordance with the provisions. These findings include incompleteness of licensing requirements and unclear documents attached to the registration process. Business entity compliance to register their IUP is still lacking. This condition shows that there are still challenges in the implementation of a transparent and accountable governance system in the context of better management of mineral and coal mining.

Analysis of Policy Alternatives

That in terms of the authority to grant WIUP for non-metallic mineral commodities, certain types of non-metallic minerals (MBLB), and rocks located within one province is the authority of the Governor, including MBLB in sea waters up to 12 nautical miles along the

coastline. The requirements for granting MBLB WIUP refer to Government Regulation No. 96 of 2021 and the flow of granting WIUP has been regulated in the Ministry of Energy and Mineral Resources No. 110.K/HK.02/MEM. B/2021 concerning Guidelines for Applications for Evaluation, and Granting of Non-Metallic Mineral Mining Business License Areas, Non-Metallic Mineral Mining Business License Areas of Certain Types, and Rock Mining Business License Areas. Based on the provisions of the laws and regulations, it is permissible for there to be an overlap of WIUP for different commodities, in the context of this discussion the peridotite (rock) commodity can overlap with the nickel (metal) commodity as long as its issuance meets the applicable provisions, one of the basic requirements that must be met is the existence of a Joint Land Use Agreement (PLB).

If referring to Law No. 3 of 2020 and Presidential Regulation No. 55 of 2022, there are several priority policy frameworks in order to resolve the overlap of licensing between metal minerals and rocks, namely between nickel and peridotite commodities. In this paper, we try to divide into 3 (three) policy alternatives that can be implemented by the government, in this case as a regulator and stakeholder in the mineral and coal mining sector, while the alternative policies can be explained based on their duration, namely short, medium, and long term.

a. Short-Term Policy Alternatives

Currently, in accordance with the applicable provisions, both the law and the rules under it, there is no prohibition on mining rock commodities that overlap with mineral commodities, metals, and coal. Provisions regarding the classification of mineral and coal commodities are listed in Article 2 of Government Regulation No. 96 of 2021, in which it is stated that nickel is a group of metal minerals and Peridotite, Tanah Merah and Batu Gamping are among the rock groups. In terms of the requirements for rock commodity licensing issued in the nickel commodity WIUP, it can be given to business entities. In Article 52 of Law No. 3 of 2020, in areas where the Mineral Metal IUP has been granted, the IUP can be given to other parties to cultivate other mining commodities with different findings and the granting of the IUP is carried out after obtaining approval from the first IUP holder.

According to the regulations, the rock permit that has been given to business entities cannot necessarily be immediately revoked, so it must be focused on the aspect of mining supervision. Every mining company is obliged to apply good mining practices (*Good Mining Practice*) in carrying out mining operations from start to finish. *Good Mining Practice* is a mining system that follows and obeys the rules in accordance with the Regulation of the Minister of Energy and Mineral Resources No. 26 of 2018 Article 3 (3), where *Good Mining Practice* includes 6 aspects, namely mining engineering, conservation, K3, mining operation safety, environmental management and the application and utilization of technology.

Peridotit, Tanah Merah and Batu Gamping commodity WIUP that have been issued by the Provincial Government in the nickel commodity WIUP and around the nickel commodity WIUP need to be more intensive. This supervision can be carried out by Mine Inspectors (IT) placed in the regions according to their respective provinces, especially now the Directorate General of Minerals and Coal has IT spread throughout the province with a sufficient amount of it. Therefore, the WIUP of rocks that has been issued in the nickel WIUP and by the BPK is a record of findings because there is a suspected potential loss of state revenue, it is necessary

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to carry out intensive supervision by ensuring that companies that mine in the nickel commodity area:

- only mining/processing Peridotite, Tanah Merah and Batu Gamping and not mining/processing Nickel on overlapping WIUP/around nickel commodity WIUP;
- carrying out reclamation and post-mining obligations related to mining/exploitation of Peridotite, Red Soil and Limestone commodities, including environmental management;
- carrying out technical and safety aspects of the implementation of mining/business activities in Peridotit, Tanah Merah and Batu Limping; and
- If the company is engaged in mining/mining activities of Peridotit, Tanah Merah and Batu Gamping in the overlapping WIUP with nickel, it can report to the minister.

If the supervision aspects mentioned above are not fulfilled by the mining company, the company can be given a reprimand and revocation by the licensor. However, as long as the company mines properly and obeys the rules, the obligation from the government to respect the permit until the validity period of the permit expires. In addition to this, there needs to be a mandatory policy for IUP holders of Peridotit, Tanah Merah and Batu Gamping in reporting the condition of their concession areas to the Provincial Government, especially to identify nickel commodities in their concession areas. For Peridotit, Tanah Merah and Batu Gamping IUP that overlap with commodity IUP with a common land use agreement, there must be a report to the owner of the Nickel commodity IUP.

For the issuance of new and overlapping rock permits or located around the area of nickel commodity IUPs, the Provincial Government may coordinate with the Central Government to mitigate the risk of misuse of rock permits. The supervision must also be carried out as a form of social and environmental risk mitigation. This is possible, considering that the *One Map Policy facility* that can be used by the Provincial Government in the form of *Mineral and Mineral One Map Indonesia* (MOMI) which is a mining database in Indonesia that has been compiled by the Directorate General of Minerals and Coal has been enforced since Presidential Regulation No. 55 of 2022 was issued.

It is necessary to strengthen the MOMI and MODI systems by improving data integration and accuracy and ensuring regular and comprehensive data updates where in the future this system can clearly display the overlap of permits and land clearings in *an up-to-date manner*. For information, the satellite image data used in the MOMI application is still basic image data that is not *up-to-date* so it does not describe *the real-time* conditions of the existing mine site. This needs policy and government budget support so that in the future the data displayed at MOMI can inform the condition of mining land in *real-time*.

In its implementation, the Provincial Government, in this case the technical unit at the Provincial Energy and Mineral Resources Office, has used the application in providing WIUP in areas where this application has been integrated with the MOMO application. However, in the future, it is necessary to develop a multi-level licensing verification system involving the central government to ensure compliance with licensing requirements for new MBLB IUP applications in metal mineral potential areas. The application also needs to be developed with the addition of new features by publishing information about IUP holders, including their financial and environmental obligations, to increase accountability and enable public oversight, especially existing IUPs.

An alternative short-term policy can also be done by postponing the granting of new WIUP for Peridotite, Tanah Merah and Batu Gamping commodities in the nickel commodity WIUP area or in areas where there is nickel potential until there are regulations regulating the mining mechanism of Peridotite, Tanah Merah and Batu Gamping commodities and/or a ban on mining at these locations. The report on BPK's findings must be followed by a more in-depth study of the state losses that have occurred. Proof of abuse must be immediately carried out as a form of Government responsibility in mining governance, referring to the recapitulation report submitted by the Provincial Government and the BPK's findings report.

b. Medium-Term Alternatives

As a solution in mitigating the risk of misuse of mineral and coal IUPs, especially the issuance of new IUPs for rock commodities, including Peridotite, Tanah Merah and Batu Gamping commodities, can only be given in areas where reserves and nickel resources have been exhausted (ex-nickel areas) or in areas where nickel levels are not economical. Therefore, it is necessary to conduct a study and mapping of the area by the government with the aim of identifying the feasibility or unfeasibility of mining nickel mineral commodities in the area. The feasibility of this mining can be identified both in terms of potential and reserves, environmental carrying capacity, and economic value if the area is mined. Mapping is carried out by involving related agencies that have a study and mapping function such as the Geological Agency, the National Research Agency, and the Regional Research Agency. The Geological Agency in this case is in charge of conducting studies and validating and verifying the availability of reserve resources, especially in the feasibility of mining.

Then considering the relationship between the geological formation between peridotite as a parent rock and nickel as a metallic mineral contained in it, the form of licensing in these areas can be provided in an integrated manner by prioritizing commodities that have high economic value in this context nickel commodities. Companies holding nickel commodity IUPs may be granted the right to manage peridotites as part of their mining operations, with the obligation to pay additional state revenues by cultivating the peridotite.

Based on the provisions of Government Regulation No. 25 of 2023, mining licenses can be separated based on the availability of minerals and coal. This can be done where areas with laterite nickel potential with high nickel content are prioritized to be given nickel IUPs, while areas with peridotite rock dominance with uneconomical nickel content or low nickel content can be given for rock IUPs or SIPB (Rock Mining Permits). From the aspect of authority, further regulation is needed, considering that the mineral metal IUP is the authority of the central government, while the rock IUP is delegated the authority to issue it to the provincial government in accordance with Presidential Regulation No. 55 of 2022. The government, in this case, the Ministry of Energy and Mineral Resources needs to issue a Ministerial Decree/Circular Letter that requires the provincial government in the event of issuing a rock IUP that overlaps with a metal IUP or is in a metal and coal potential area must get a recommendation from the Minister. This is important in order to control the massive issuance of rock IUPs that overlap with mineral and metal and coal commodities in the region to avoid overlapping licensing and loss of state revenue.

c. Long-Term Alternatives

Mineral and coal resources in Indonesia are natural resources contained in the Indonesian earth which are non-renewable natural resources so their management must be carried out optimally and sustainably. In addition, its use is mandatory for the greatest possible welfare and prosperity of the Indonesian people, this is in accordance with the mandate contained in the 1945 Constitution of the Republic of Indonesia Article 33 Paragraph 3. In the utilization of mineral and coal resources, it adjusts to the classification of commodities and their use in industry, and their status as strategic minerals. This classification is important to regulate mining business activities, licensing, and the rights and obligations of mining business license holders.

In terms of the classification of mineral and coal commodities, it currently refers to Government Regulation Number 96 of 2021 concerning the Implementation of Mineral and Coal Mining Business Activities, where the classification of mineral and coal commodities consists of metal minerals, non-metallic minerals, coal and rock. In addition, there is the Decree of the Minister of Energy and Mineral Resources No. 147.K/MB.01/MEM. B/2022 which is an amendment to the classification of mineral mining commodities, including dolomite, feldspar, phosphate, graphite, quartzite, and zircon. Furthermore, in the course of the regulation of mineral and coal commodities, there is an addition of commodity classifications other than the main commodities, namely the classification of certain types of non-metallic mineral commodities such as amethyst, diamonds, and limestone for the cement industry.

Based on this, it is necessary to conduct a more in-depth study to support changes in mineral and coal mining regulations, including changes in the classification of commodities both in geological and economic aspects by considering market needs, selling prices, and processing technology and the use of minerals and coal. The quality and quantity of information data regarding resources and reserves need to be improved through verification activities by competent parties and regular updating of information data.

Currently, low-level nickel commodities may not have economic value, but with the development of mineral processing technology, one day it will be able to be processed into commodities with high economic value. This can also happen with other rock commodities, including peridotite and laterite soils that are found to contain low levels of nickel. Mineral processing technology, which is still not fully mastered domestically, encourages the tendency to export raw materials more plus existing investments are mostly by foreign private companies with a low contribution of national corporate investment.

Long-term studies can also be carried out on the market price of mineral commodities which tend to fluctuate and there is no definite projection regarding the price of processed products and only some mineral commodities have stable and increasing prices. This certainly affects the current economic commodity in terms of limited reserves and threatens sustainability in the future. Regulatory changes can also be made by banning certain commodities containing strategic metal minerals to carry out mining restrictions or mining bans. A study on the estimation of the potential of metallic minerals as a consideration in the issuance of rock permits needs to be carried out. This study requires a long time and process involving other related sectors and stakeholders.

A special study on the efficiency of existing regulations related to the authority and obligations between the central government and local governments needs to be carried out. For example, currently, the licensing authority for non-metallic mineral commodities, certain types of non-metallic minerals, and rocks (MBLB) is in the local government, but related to supervision is the obligation of the central government. Although there is a placement of mine inspectors (IT) in each province, this is not effective. This is because the aspects of infrastructure, budget and assignment are the responsibility of the central government, in this case the Directorate General of Minerals and Coal. Therefore, it is necessary to conduct a thorough evaluation of the current regulations. This can be illustrated if there is a mining accident in the area before IT goes to the field, it must be in accordance with the letter of assignment issued by the Chief Inspector of Mines at the center. In addition, if there are many MBLB commodity IUPs issued by local governments in terms of supervision by IT, a large budget and supervision personnel are required, not to mention that these IT people must also supervise the metal and coal commodity IUPs which are under central authority. Furthermore, lastly, the government's Sustainable Policy Vision, namely the implementation of ESG (*Environmental, Social, Governance*) based policies to ensure long-term economic benefits without sacrificing the environment and the welfare of the community in general and the communities affected by mining activities.

CONCLUSION

Based on the analysis that has been carried out, the main problem is: “Holders of Rock *IUP* (*peridotite*, red soil, and limestone) in the provinces of Southeast Sulawesi and Central Sulawesi, in their mining activities, take *laterite* soil containing nickel.” There are three root problems, namely: regulations that allow the overlap of Rock *IUP* and Metal Mineral *IUP*; limited supervision and authority facilities of the Central Government; and the licensing process for Rock *IUP* which is much easier than for Metal Mineral *IUP*. Therefore, based on the above discussion, it is recommended that intervention measures be taken to temporarily postpone the issuance of new *Batuan IUP* whose submission area is around and/or within the nickel concession area, tighten prerequisites, as well as strengthen supervision in the field and strengthen the database for regional permits in *MOMI* and *MODI* to identify permit abuse. Thus, in the future, better coordination between the Central Government and Regional Governments is needed regarding the issuance of *Batuan IUP* as well as improvements to supporting systems, namely the *MOMI* and *MODI* application systems, to ensure that all permits issued by the Regional Government are registered in the database.

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