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Stakeholder Dynamics in Downstreaming in Indonesia; A Case Study of Nickel Mining

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Abstract

Indonesia possesses significant mineral resources, making it a crucial player in the global mining industry. This research aims to examine the interests of critical stakeholders including the government, mining companies, local populations, and environmental groups to ensure the long-term viability of the downstream mining sector. The study aims to identify the dynamics of relationships and interests. It reveals that conflicts of interest exist, and if not managed effectively, they may impede the industry's progress. However, there are opportunities for collaboration that, if maximized, can boost added value for all stakeholders, including enhancing the welfare of local communities. The consequences of this research include legislative recommendations to the Indonesian government for the establishment of more inclusive legislation and ways for businesses to improve their interactions with local communities and other stakeholders. The implications of this research include legislative recommendations to the Indonesian government for the establishment of more inclusive legislation, as well as ways businesses can improve their engagement with local communities and stakeholders.

Keywords : Downstream Sector, Stakeholder Analysis, Stakeholder Dynamics, Mining Regulation, Public Policy

Introduction

Indonesia, as an archipelagic country with abundant natural resources, is at a crossroads in utilizing the mining industry. In the midst of the rapid development of the global industry, downstream mining in Indonesia is still in its early stages, with a lot of potential that has not been optimized. While most countries have come a long way in maximizing the added value of their resources, Indonesia seems to be lagging behind. Despite being blessed with rich mineral resources, the contribution of the downstream mining sector to Indonesia's GDP is relatively low. This raises questions about how stakeholders in the sector interact, as well as how those interactions affect strategic and operational decisions.

This is problematic because without a deep understanding of stakeholder dynamics, policymaking and investment in the downstream mining sector can become less effective, limiting economic growth and increasing poverty. The problem to be solved in the study is to analyze and understand how interactions between stakeholders affect the downstream industry in Indonesia. It is important to discuss because by solving this problem, we can find solutions to increase the contribution of the downstream mining sector to the national economy while reducing poverty and improving people's welfare. How to Solve the Problem is through in-depth analysis of the data and interviews with key stakeholders. Reason for the research is to fill the knowledge gap in the literature regarding the dynamics of stakeholders in the Indonesian downstream industry.

This Research Contributes to Filling the Gap. While many studies have focused on stakeholder analysis across various industries, few have explored the specific complexities of the downstream mining industry in Indonesia. Methods Used This research will use qualitative methods, involving in-depth interviews with stakeholders and analysis of related documents. Several previous studies have explored the relationship between mining and development. However, no one has focused on stakeholder analysis in Indonesia's downstream mining industry. The proposed innovation in the study is to combine stakeholder analysis theory with the local context of Indonesia, providing a new perspective on how the downstream industry can develop and provide broader benefits.

The Research Question (RQ) is how do stakeholder dynamics affect decisions and outcomes in the mining downstream industry in Indonesia? The purpose of this study is to identify, analyze, and understand the role and impact of stakeholders on the downstream mining industry in Indonesia. It is hoped that through collecting data from various sources and analyzing it, this research is expected to provide concrete recommendations for more inclusive and sustainable policy-making and business practices in Indonesia's downstream mining sector.

In recent years, studies by Krustiyati & Gea (2023), Hilson (2020), and Li (2023) have focused on downstream mining and its implications in emerging economies. However, research on the specific dynamics of stakeholders in Indonesia's nickel downstream industry remains limited. This study addresses this gap by investigating the interactions and impacts of key stakeholders in this sector. This research aims to analyze how stakeholder dynamics affect the outcomes of the downstream nickel industry in Indonesia

Theoretical Framework and Research Hypothesis Development

Nickel Downstreaming

Downstreaming mining is an effort to increase the added value of mining products through processing and refining domestically, not just exporting raw materials. The downstream concept aims to maximize the economic benefits of various upstream sectors and increase job opportunities in the downstream sector (Krustiyati & Gea, 2023; Fahmid et al., 2022; Sjahza, 2019).

Some of the reasons why downstream mining is considered important is that increasing added value through domestic mineral processing can increase the economic value of these products. Job Creation: The processing industry needs labor, which can help reduce unemployment. Reduction of Import Dependence: By processing minerals domestically, the country can reduce its dependence on imports of processed products. In Indonesia, the concept of nickel downstream has received special attention in recent years, especially through regulations that encourage nickel processing in the country.

Nickel is one of the main mining commodities in several countries, including Indonesia. Nickel downstreaming refers to efforts to increase the added value of nickel

products through domestic processing and refining, rather than just exporting nickel ore or concentrate in raw form (Jacob, 2023; Hilson, 2020; Li, 2023). The objectives of Nickel Downstreaming include increasing the added value of products, encouraging the growth of related industries, such as the stainless steel industry and lithium-ion batteries, creating new jobs in the processing and refining sectors, reducing dependence on income from raw ore exports.

The challenges of Nickel Downstreaming are the large investments required to build infrastructure and processing facilities, the high energy requirements in the processing and refining process, environmental issues, such as waste management and emissions. Application Potential: Nickel is a key component in lithium-ion batteries used in electric vehicles. Nickel downstreaming can support the growth of the electric automotive industry. Nickel is also used in the production of stainless steel, which has a wide range of industrial applications. In recent years, particularly in Indonesia, there have been significant efforts to encourage nickel downstreaming, with the construction of several nickel processing and refining plants. This is driven by government policies to increase the added value of the country's natural resources.

Stakeholder Mapping Analysis

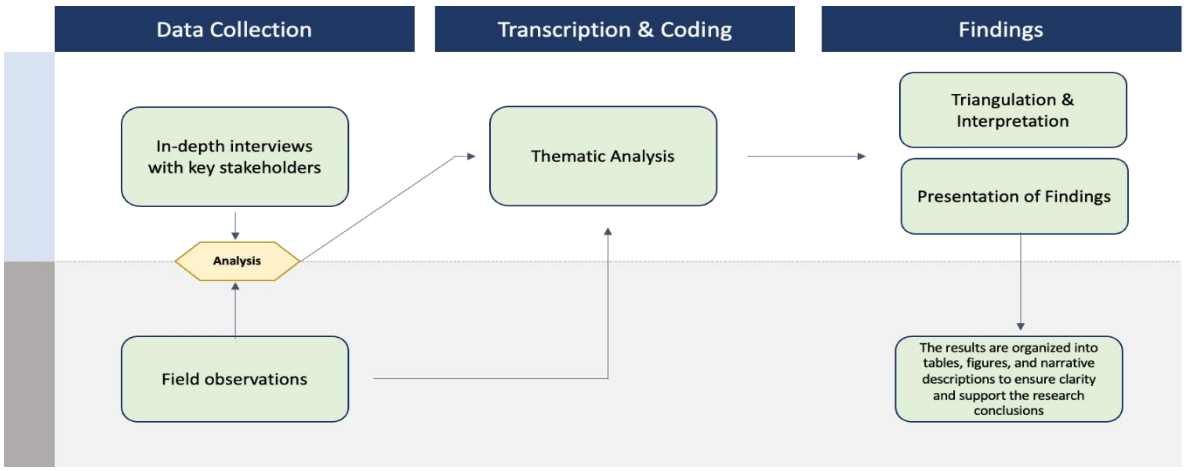
This concept is concerned with the identification, analysis, and visualization of all parties who have an interest in a project, initiative, or decision. This analysis helps organizations understand who should be given attention, how communication with them should be done, and what impact those decisions or actions will have on each stakeholder. The steps in a Stakeholder Mapping Analysis include the following: Stakeholder Identification: List all individuals, groups, or organizations that may be affected by the decision/project. Stakeholder Priorities: Based on their level of interest and influence, categorize stakeholders into groups such as: "High Influence/High Interest", "High Influence/Low Interest", etc. Understanding Interests and Impact: Further analysis of what is in the interest of each stakeholder and how decisions/projects can affect them. Design a Communication Strategy: Determine how, when, and what you will communicate to each stakeholder based on previous analysis (Yudha, 2019). Visualization: Create tables to display stakeholders and their positions based on priority and influence. The benefits of Stakeholder Mapping Analysis are that it aids in more

informed and informed decision-making, Reduces the risk of conflict with stakeholders, and increases the chances of success of a project or initiative by identifying and managing stakeholder expectations (Aligica, 2006).

Research Methodology

Research methodology in this study followed several key stages to ensure a comprehensive understanding of stakeholder dynamics in Indonesia's downstream nickel industry. First, data collection was conducted through semi-structured interviews, field observations, and document analysis. Interviews were held with representatives from government bodies, local community leaders, executives from PT. Weda Bay Nickel and PT. Aneka Tambang Tbk, and NGO members. These interviews aimed to capture the perceptions of each stakeholder on the economic, social, and environmental impacts of the downstream industry. Field observations were carried out at five major nickel mining sites in Halmahera and Morowali to examine the interactions between stakeholders and gather insights into the environmental and operational dynamics of the industry. Additionally, official documents, such as government reports, corporate annual reports, and environmental assessments, were analyzed to provide context and support for the interview data.

Grafik Flow Diagram the Data Processing and Analysis Stages



Once data collection was complete, the interviews were transcribed, and the transcripts were translated into English where necessary. These transcriptions were then

imported into qualitative data analysis software for coding. A coding framework was developed based on key themes identified in the literature review and research objectives, such as economic benefits, environmental impacts, and stakeholder collaboration. Each transcript was systematically coded according to these themes. Thematic analysis was then conducted to identify recurring patterns and themes within the data. This involved categorizing the data into broader themes related to stakeholder perceptions, such as economic gains, social impact, environmental concerns, and regulatory frameworks. Data from the field observations and document analysis were triangulated with the interview findings to reinforce the validity of the themes.

Following the thematic analysis, the data was interpreted to highlight key findings related to stakeholder dynamics. This process involved cross-referencing the coded data with existing literature to provide context and draw meaningful conclusions. The patterns of agreement and disagreement among stakeholders were also identified to better understand the areas of consensus and conflict in the downstream nickel industry. Finally, the results were organized into key categories and presented in the form of tables, figures, and qualitative narrative descriptions. This ensured that the findings were structured and supported by both primary data and relevant research.

Data collection can be conducted using three methods: in-depth interviews, observation, and document study. In-Depth Interviews were conducted with various stakeholders involved in Indonesia's downstream nickel industry. Government representatives included officials from the Ministry of Energy and Mineral Resources, as well as regional environmental protection agency members from North Maluku. Local community leaders interviewed consisted of village chiefs from both East and Central Halmahera, as well as local business advocates who are directly impacted by mining activities. Corporate executives from PT. Weda Bay Nickel and CSR managers from PT. Aneka Tambang Tbk were also interviewed to understand the companies' perspectives on compliance and community relations. Lastly, representatives from NGOs such as Walhi and JATAM contributed insights regarding environmental concerns and social advocacy related to mining operations. This diverse group of stakeholders provided a holistic view of the industry's challenges and opportunities.

Stakeholder Category

Stakeholder Category	Interviewees
Government Representatives	Ministry of Energy and Mineral Resources officials Regional Environmental Protection Agency representatives from North Maluku.
Local Community Leaders	Village leaders from East and Central Halmahera Local business advocates from mining areas.
Corporate Executives	Executives from PT. Weda Bay Nickel CSR managers from PT. Aneka Tambang Tbk.
NGO Members	Representatives from Walhi (Indonesian Forum for the Environment) Representatives from JATAM (Mining Advocacy Network).

Sources; In-Depth Interviews Category, (2024)

Observation involved visits to downstream mining sites to gain insights into field practices and their dynamics. A total of five field observations were conducted at key nickel mining locations in Halmahera and Morowali. These visits offered a direct understanding of stakeholder interactions and the operational dynamics within the downstream nickel industry. The observations aimed to clarify data collection methods, focusing on assessing field practices, environmental management, and the involvement of local communities in mining operations.

The document study involved analyzing official documents, annual reports, and other relevant publications to gather additional insights. During the research, several key documents were collected from various sources at the mining sites. These included government reports on nickel production and export regulations, corporate annual reports from PT. Weda Bay Nickel and PT. Aneka Tambang Tbk, and environmental assessments conducted by government agencies and independent auditors. Reports from NGOs such as Walhi and JATAM were also reviewed, focusing on the social and environmental impacts of nickel mining in the region. These documents played a vital role in complementing the qualitative data gathered through interviews and field observations. Government reports provided factual data on production volumes, regulatory frameworks, and compliance measures, helping to contextualize findings from stakeholder interviews. Corporate annual reports offered insights into companies' economic benefits, including financial investments in community development and

environmental management programs. Environmental assessments provided critical data on environmental degradation compared with concerns raised by local communities and NGOs. Incorporating these documents into the study enabled a more comprehensive understanding of the industry's economic, social, and environmental dynamics, enhancing the validity and reliability of the research findings.

This research focuses on the main stakeholders in Indonesia's nickel mining downstream industry, including mining companies, local communities, NGOs, and financial institutions. Key informants include representatives from government bodies, local community leaders, and executives from PT. Weda Bay Nickel and PT. Aneka Tambang Tbk. Government officials provided insights into policies and environmental regulations. At the same time, local leaders from Halmahera shared their perspectives on the economic benefits of mining, such as job creation, alongside concerns about environmental degradation and fair distribution of resources. Executives from the mining companies discussed challenges in complying with regulations and maintaining operations in remote areas, as well as their corporate social responsibility (CSR) programs aimed at supporting local communities.

Major mining companies studied include PT. Weda Bay Nickel, PT. Aneka Tambang Tbk (Antam), PT. Gag Nikel (a subsidiary of Antam), and PT. Trimegah Bangun Persada. These companies play critical roles in nickel exploration, extraction, and processing in Indonesia. The study also involved local communities living in key mining regions like Halmahera, Obi Island, and North Konawe, whose livelihoods depend on natural resources and are significantly impacted by mining activities.

Additionally, NGOs such as Walhi, JATAM, and Greenpeace Indonesia act as independent monitors of the environmental and social impacts of mining. They advocate for the protection of local community rights and the environment. Financial institutions like Bank Mandiri and BNI are key funders, providing the necessary investments for downstream nickel processing projects. By engaging these diverse stakeholders, this research seeks to understand the industry's dynamics and interactions, aiming to offer more sustainable and inclusive policy recommendations.

Discussion of Research Results

The research findings are anchored in stakeholder theory, which emphasizes the importance of engaging all relevant parties in decision-making processes to ensure balanced outcomes. In this context, the theory provides a framework for understanding how the varying interests of government bodies, local communities, corporations, and NGOs influence the dynamics of Indonesia's downstream nickel industry.

Stakeholder Perception of Indonesia's Nickel Downstream Industry

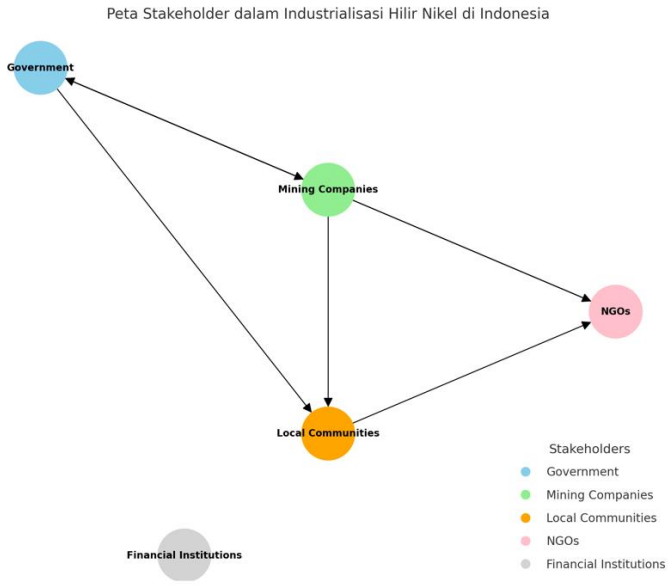
Stakeholder	Economic Benefits	Environmental Impact	Regulatory Needs
Government	High	Moderate	Moderate
Mining Companies	High	Low	Low
Local Community	Diverse	High	High
NGO	Neutral	High	High

Source; Interviews with stakeholders, (2024)

In several previous studies on the mining industry in Southeast Asia, it was found that positive perceptions of economic benefits are usually high among governments and companies. However, our findings suggest that, in the Indonesian context, local communities have more diverse views—something that may reflect the social and ecological dynamics unique to Indonesia.

According to them, local communities often feel marginalized in decisions related to various public economic activities, even though they are most affected. Our findings are consistent with this narrative, with many respondents from local communities expressing a need for greater involvement in the decision-making process (Braxton, (2010).

Map of Stakeholders in Downstream Nickel Industrialization in Indonesia



Source; Adapted from Indonesian Nickel Data, (2024)

Key Stakeholders

Government

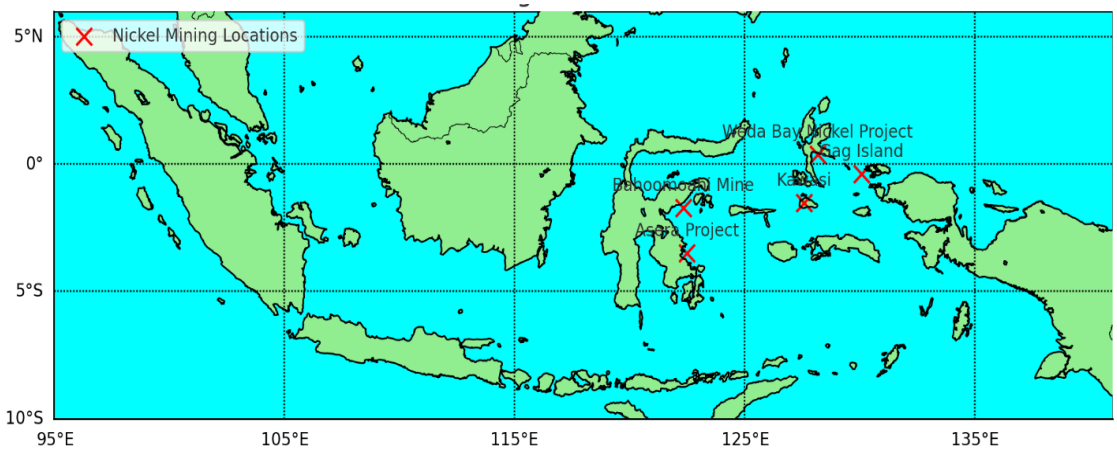
The government, both central and regional, plays an important role as a policy setter and regulator. They have a great influence on the direction and sustainability of the industry. The government is responsible for formulating regulations that support the downstream industrialization of nickel, including incentive policies, environmental protection, and improving the welfare of local communities. Government interaction with mining companies and local communities is critical in ensuring the interests of all parties are accommodated. A government official stated, The government is committed to ensuring sustainable mining practices while promoting economic growth.

Mining Companies

Mining companies play a major role in nickel exploration, extraction, and processing. They have a significant influence and high importance in the development of this industry. The company's relationship with the government is important to ensure regulatory compliance and get support in the form of incentives or legal protection. In

addition, the company also needs to maintain good relations with local communities to avoid conflicts and ensure smooth operations.

Nickel Mine Locations in Indonesia, 2024



Source; Indonesian Nickel Data, (2024)

Nickel Mining Companies in Indonesia 2024

Indonesia has several major nickel mining locations spread across various regions. One of the main locations is the Weda Bay Nickel Project, which is located in Central Halmahera and East Halmahera, North Maluku. The project is operated by PT. Weda Bay Nickel, a joint venture between Chinese company Tsingshan and French company Eramet, with participation from Indonesian government-owned PT. Aneka Tambang Tbk (Climate Rights International, 2024).

The next location is Gag Island, which is located in Raja Ampat, West Papua. The mine is operated by PT. Gag Nikel, a subsidiary of PT Antam Tbk. The mine's contract area reaches 13,136 hectares with nickel resources of 315.57 million metric tons of wet (wmt), showing how significant the nickel resources are in the region (Jong, 2024). Kawasi is another nickel mine located on Obi Island, South Halmahera, North Maluku. PT. Trimegah Bangun Persada Tbk holds a mining business license for this mine which covers an area of 4,247 hectares. Kawasi has a total mine reserve of 108.4 million metric tons (mt), making it one of the most important nickel mines in Indonesia (Climate Rights International, 2024).

Furthermore, Asera Project is located in North Konawe, Southeast Sulawesi. The Asera deposit covers an area of about 2,000 hectares and uses open-pit mining methods. The estimated nickel resources in this deposit are more than 16 million metric tons with an average nickel content of 1.5%, indicating great potential for further development (Climate Rights International, 2024). Finally, the Bahoomoahi Mine is located in Morowali, Central Sulawesi. This mine is owned by Solway Investment Group through PT Sulawesi Resources. The mine has an estimated resource of around 14 million metric tons with the potential for an additional 13 million metric tons of nickel ore with an average nickel content of 1.9% (Climate Rights International, 2024).

These nickel mining sites demonstrate the breadth of nickel mining activities in Indonesia, as well as the importance of good environmental management and local community involvement to ensure the sustainability of the industry. The development and exploitation of these mines play a critical role in the national and global economy, especially in supporting the electric vehicle industry that requires nickel as a key material for batteries (Jong, 2024).

Local Community

Local communities around mining areas are the parties that feel the most direct impact of mining activities, both positive and negative. They have high interests but have more limited influence compared to governments and companies. Their interests include economic benefits, such as employment and infrastructure improvements, as well as environmental impacts that must be managed properly to avoid long-term losses. A local community leader said, Our primary concern is that the economic benefits from mining should reach the people most affected by it.

Non-Governmental Organizations (NGOs)

NGOs function as independent supervisors who are often critical of mining activities. They have a significant influence on environmental and social issues, and are often a bridge between local communities and companies or governments. NGOs encourage responsible and sustainable mining practices, as well as advocacy for the benefit of affected communities.

Financial Institutions

Financial institutions play a role in supporting the financing of projects in the nickel downstream industry. Although their direct influence may not be as large as that of governments or corporations, they are still crucial in providing the necessary funds for the development of infrastructure and processing technology.

Interaction Dynamics

This stakeholder map shows that governments and mining companies have mutual influence. The government regulates policies that affect the company's operations, while the company makes a significant economic contribution to the country. Local communities and NGOs, despite their high stakes, often face challenges in amplifying their influence. Relations between local communities and NGOs are often based on advocacy and collective efforts to improve welfare and environmental protection (Krupa, 2018 &Ferretti, 2016). Multiple dialogues have been facilitated by the government to mediate conflicts between companies and communities, some leading to mediation or lawsuits when agreements were not reached. This interaction highlights the importance of dialogue and collaboration between all parties to achieve a common goal, namely sustainable and inclusive industrial development. A more inclusive approach to policymaking, involving all stakeholders, can help reduce conflict and maximize benefits for all parties (Raum, 2018).

Discussion

Table Stakeholder Perceptions of Indonesia's Nickel Downstream Industry, which displays stakeholder perceptions of Indonesia's Downstream Mining Industry, shows that local communities and NGOs have more varied perceptions of the economic benefits of the industry compared to the Government and Mining Companies. In the context of economic benefits, the Government and Mining Companies consider these benefits to be higher. Local Communities and NGOs, meanwhile, seem to question how much economic benefit the local community actually receives, especially those near mining areas. Although the downstream mining industry has great potential to boost Indonesia's economy, there are real concerns from some stakeholders regarding how the wealth is distributed and the resulting environmental impact.

Figure provides a geographical illustration of the nickel mining area in Indonesia, while Table presents stakeholder perceptions. By comparing these two data representations, we can see the relationship between geographical location and stakeholder perception.These results are important because they show that there is a perception gap between various stakeholders, which can affect future policies and practices. Understanding the views of all parties is key to ensuring a fair and sustainable mining industry (Winans, 2021). What is surprising is how a large number of NGOs, which are usually very critical of the mining industry, have shown a relatively neutral response to economic benefits, indicating a possible change in their approach. According to Jones et al., (2019), in other developing countries, it is often found that local communities' perception of the mining industry is generally negative. However, in the Indonesian context, our results show more complex nuances.

In addition to differences in perceptions of economic benefits, there are also significant differences in perceptions of environmental impacts and regulatory needs. Most stakeholders consider the environmental impact to be significant and require further action. This study focuses on perception and does not consider direct quantitative data on the economic and environmental impacts of the downstream mining industry. In addition, the geographical sample is limited to a few regions in Indonesia.

Indonesia's nickel downstream industry is complex, with great potential but also serious challenges. Stakeholder perceptions are diverse, pointing to the need for more inclusive dialogue and more integrated policies. There is an urgent need to consider the views and interests of all stakeholders in developing policies and practices for the downstream mining industry in Indonesia. With a more inclusive approach, the industry can thrive in a more equitable and sustainable way.

Conclusion

This study provides a comprehensive analysis of the dynamics between key stakeholders in Indonesia's downstream nickel industry, revealing significant differences in their perceptions of the industry's economic, environmental, and social impacts. Government bodies and corporate stakeholders generally view the industry as a critical driver of economic growth, while local communities and NGOs emphasize the negative

environmental consequences and uneven distribution of economic benefits. The study underscores the importance of adopting a more inclusive policy framework that engages all stakeholders, ensuring that local communities' voices are heard and their concerns are addressed, particularly in environmental management and economic equity.

One limitation of this study is its geographical scope, which focuses primarily on key mining sites in Halmahera and Morowali. While these sites are significant, they may not represent the full spectrum of stakeholder experiences across Indonesia. Additionally, the reliance on qualitative data such as interviews may introduce bias, as respondents could be influenced by personal interests or external pressures. Future research could benefit from expanding the geographical scope to include a broader range of mining locations and incorporating quantitative methods to provide more generalizable insights.

Based on these limitations, future studies should consider exploring stakeholder dynamics in a wider range of mining regions across Indonesia to capture more diverse perspectives. Additionally, incorporating mixed-method approaches, combining both qualitative and quantitative data, could help to strengthen the findings and provide a more comprehensive understanding of the long-term impacts of the downstream nickel industry on both economic development and environmental sustainability. By addressing these limitations, future research can contribute to more effective policy-making and improved stakeholder engagement strategies.

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