



**PRAKARSA**  
Welfare Initiative for Better Societies

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# Tracking Financing Footprint Environmental and Social Impacts of the Nickel Industry in Indonesia



2024

**Tracking Financing Footprint:  
Environmental and Social Impacts of the Nickel Industry in Indonesia**

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Welfare Initiative for Better Societies

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This report was prepared based on the findings of the research "Tracing the Footprints of Financing: Environmental and Social Impacts of the Nickel Industry in Indonesia". The contents of the research report are the sole responsibility of the authors.

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## List of Abbreviations

EIA	: Environmental Impact Assessment
SDGs	: Sustainable Development Goals
OJK	: Financial Services Authority
PLTU	: Coal-Fired Power Plant
PLTA	: Hydroelectric Power Plant
PLTMG	: Oil and Gas Fired Power Plant
ESG	: Environment, Social, and Governance
PNBP	: Non-Tax State Revenue
SDA	: Natural Resources
BKPM	: Investment Coordinating Board
GDP	: Gross Domestic Product
FDI	: Foreign Direct Investment
DDI	: Domestic Direct Investment
DNA	: Discourse Network Analysis
FPIC	: Free, Prior and Informed Consent
PPE	: Personal Protective Equipment
IDX	: Indonesia Stock Exchange
GFANZ	: Glasgow Financial Alliance for Net Zero
HAM	: Human Rights
JETP	: Just Energy Transition Partnership
ENDC	: Enhance Nationally Determined Contribution
KESDM	: Ministry of Energy and Mineral Resources
RUPTL	: Electricity Supply Business Plan
RE	: Renewable Energy
WTO	: World Trade Organization



- KIARA : People's Coalition for Fisheries Justice
- AEER : Ecological Action and People's Emancipation
- HMA : Reference Mineral Price
- USGS : United States Geological Survey
- APNI : Indonesian Nickel Miners Association
- IBC : Indonesia Battery Corporation
- IPO : Initial Public Offering
- COP : Conference of the Parties
- CFPP : Coal-Fired Power Plant
- HPAL : High Pressure Acid Leach

## Glossary

Compliance Advisor Ombudsman	Independent complaints mechanism for communities potentially affected by IFC and MIGA projects.
Corporate Loan	Financing facility provided to fund corporate business activities
Critical Mineral	Minerals, both metallic and non-metallic, with economic value but at risk of supply disruption.
Equity	Ownership rights to a company's assets after deducting liabilities on the balance sheet
Equity Financing	Company sells a portion of its ownership shares to external investors to raise additional capital.
Ferronickel	Material used in stainless steel production.
Guarantee Facility	Facility for issuing Guarantee Instruments provided by banks to borrowers.
Sustainable Finance	Comprehensive support from the financial sector to foster sustainable economic growth by aligning economic, social, and environmental interests.
Nickel Matte	Intermediate product used to produce nickel sulfate, an integral component in the battery raw material value chain.
Nickel Ore	Raw material processed into various types of nickel, such as ferronickel, used in stainless steel production
Nickel Pig Iron	Low-grade ferronickel, an alternative used as a raw material in stainless steel production.
Bonds	Interest-bearing loan securities that are tradable.
Pyrometallurgy	Mineral processing method using high temperatures, with heat obtained from coal-fired furnaces.
PLTU Captive	Coal-fired power plant operated and used outside the government's electricity grid by industry players.

Project Loan	Loan used to finance specific development activities.
Refinery	Process of purifying raw materials.
Smelter	Facility for processing mined products to increase metal content.

## Forewords

**Nickel**, one of the natural resources in the critical minerals category, is essential for energy transition. Exploration of nickel should ideally bring a multiplier effect for the community in the surrounding mining fields and nickel smelters. Not only by creating employment opportunities but also improving societal well-being.

However, the ongoing industrial activities associated with nickel mining remain susceptible to creating adverse environmental, social, and economic impacts on nearby populations. There are notable gaps that need to be addressed, including issues surrounding the permit process, potential corruption risks, delineation of authority between central governments and regional governments, as well as the standard of Environmental Impact Assessment (EIA), which should comprehensively assess societal conditions, including cultural factors, and adherence to responsible investment principles.

If the above preconditions cannot be met, an important question arises: is the use of nickel in the energy transition fair? Equitable energy requires considering aspects of equity and justice within the energy system more broadly rather than solely benefiting a select few. The energy transition process is also intricately linked to sustainable finance issues, with financial service institutions playing a role in providing working capital and overseeing production processes. Therefore, understanding the flow of financing and the financial actors involved in financing the nickel mining industry is crucial for tracking commitment and implementation. This serves as evidence for financial institutions to adopt a more responsible approach in their investments.

The Financial Services Authority (OJK) issued the Indonesian Green Taxonomy in early 2022, which regulates the classification of a list of environmentally friendly economic activities. This financial guideline aim to protect the environment and reduce greenhouse gas emissions. Reviewing the flow of financing within the nickel industry, this research identifies at least three types of financing by banks: loans, bonds, and equity. Nickel industry financing comprises mines, smelters, and coal-fired captive power plants. However, nickel processing reliance on captive PLTUs contradicts the commitment of

financial institutions, especially those from Europe, Japan, and China, to discontinue funding for coal development or the construction of new coal PLTUs.

This report provides information about how the Indonesian media portrayed nickel industry from the perspectives of different stakeholders. It is therefore not just providing readers with a one-sided reports on the role of the industry in economic growth but also about the problems and challenges faced by the community amidst extensive nickel exploitation in their region. The report also provides a critical note on the involvement of financial institutions and nickel processing practices that still rely on dirty coal energy.

Through this report, we intend to encourage companies, governments, and the financial services industry to engage in more responsible business practices by prioritizing environmental, social, and governance aspects. Furthermore, we aim to offer up-to-date information on how communities are impacted by the nickel industry, the companies associated with it, and the involvement of banks that need to implement commitments and policies for responsible financing. The findings from this research on financial tracking can also serve as a tool to monitor tax compliance for each relevant entity.

Finally, we would like to thank the PRAKARSA research team and all parties involved in preparing this report. We hope this report will enrich existing knowledge and encourage policymakers to commit to realizing sustainable finance, supporting a just, clean energy transition, and ensuring that community interests are not overlooked in economic improvement activities.

Jakarta, March 2024

**Ah Maftuchan**

The PRAKARSA Executive Director



## Executive Summary

This research found three financing types to nickel industry: loans, equity, and bonds. Nickel industry financing includes mines, smelters, and coal-fired captive power plants. In the period of 2009 - October 2023, loan was the highest financing type to the industry, with a value of USD 5.34 billion, equivalent to IDR 80.1 trillion.

Nickel is an essential component in the transition to renewable energy. The trend of increasing electric vehicle production worldwide has also encouraged an increase in nickel production because nickel is one of the main components of battery production. As the country with the highest nickel reserves in the world, Indonesia has been attempting to downstream nickel processing.

The nickel ore mining industry and its processed products provide significant economic benefits for the country, both in taxes and Non-Tax State Revenue (PNBP). In May 2022, the PNBP value of nickel royalties increased to IDR 4.18 trillion. The royalty value increased eight times from the royalties received by the state in 2015, which was recorded at IDR 531 billion. The realization of non-oil and gas Natural Resources (SDA) PNBP until May 2022 already reached IDR 31.67 trillion, meaning that nickel has contributed 13.19% to the realization of non-oil and gas SDA PNBP.

Data from the Investment Coordinating Board (BKPM) shows that the trend of foreign investment (PMA) referring to the bare metal, metal goods, non-machinery, and equipment industrial sectors reached USD 11 billion or 24% of the total incoming FDI. China dominates investment in nickel. In the 2012-2022-decade, China invested in nickel-producing islands in Sulawesi and North Maluku, amounting to USD 14.2 billion or the equivalent of IDR 213 trillion (exchange rate IDR 15,000). As for trends in investment destination locations recorded in 2019-2022, Central Sulawesi was the primary investment destination, amounting to 16.4% of total PMA or USD 7.5 billion. However, investment has little impact on increasing regional Gross Regional Domestic Product (GRDP) or reducing poverty rates in nickel investment destination areas such as Central Sulawesi.

Apart from that, nickel mining and smelters have negative impacts such as environmental issues and human rights (HAM). Since the nickel mining and refining processes do not respect human rights and disrupt environmental sustainability, the energy transition strategy using nickel cannot be categorized as a just energy transition.

Often, critical issues like this are not known to the broader public due to the lack of coverage on the impacts on human rights and the environment in various national media, compared to coverage of economic benefits and investment. In fact, the adverse effects of the nickel industry on indigenous communities in several regions, such as South Konawe, North Konawe, and Central Halmahera, are very significant, resulting in the loss of their traditional living spaces and sources of livelihood. In addition, nickel production process also produces an average of 58.6 tons of carbon dioxide from every ton of nickel produced in Indonesia (Ho and Listyorini, 2023). This amount is more significant than the global average of 48 tons. Apart from the negative impacts on the environment, nickel industry does not respect human rights either. For example, many nickel industry companies do not implement Occupational Health and Safety (K3) practices. As a result, there have been many work accidents that have caused many fatalities.

Discussions regarding a just energy transition cannot be separated from the issue of sustainable finance. Financial institutions worldwide have been committed to supporting the energy transition by no longer funding the construction of new coal-fired power plants. However, the commitment is often violated. Nickel industry in Indonesia is still very dependent on coal energy sources to support its operational activities, and many banks still support this activity under the pretext of supporting the green energy transition. Therefore, it is critical to know the flow of financing and the financial actors involved in financing the nickel industry as evidence to encourage financial institutions to be more responsible in their investments.

Against such background, this research aims to 1) examine the contents of the national mass media reports regarding nickel mines and smelters from environmental, human rights, economic, and political aspects in Indonesia and 2) understand the flow of financing for the Indonesian nickel industry distributed by financial service institutions during 2009-2015 (before the Paris Agreement) and 2016-2023 (after the Paris Agreement).

This research also reviews nickel industry in light of energy justice concept. Justice is referred to impacts and benefits arising from the energy development process, recognition of the interests and rights of individuals or groups, equality of stakeholders, and efforts to repair damage experienced by the affected group. Furthermore, this research employed content analysis method to analyze mass media depictions of nickel industry and "follow the money" method to track financial flows to nickel industry. Tracking of financial flows was carried out deductively and inductively, using reports from commercial financial databases, company financial reports, media reports, and company publications that can be accessed openly.

The results of media content analysis show that government actors, such as the President of the Republic of Indonesia, the House of Representatives, Regional Representatives Council, Central Government, Local Government, Law Enforcement Agencies, Judiciary, as well as corporate entities, predominantly discuss nickel industry activities from positive economic and political aspects. The issues discussed include downstreaming of the nickel industry, electric vehicle batteries, increased community income, and state revenue. Negative discourse on nickel mining and smelters, such as environmental degradation and human rights violations, is actually more extensively discussed by Civil Society Organizations (CSOs).

The research results show that at least five companies have significant nickel concessions in Indonesia. They are PT Vale Indonesia Tbk, PT Aneka Tambang Tbk, PT Bintang Empat Group, PT Weda Bay Nickel, and PT Merdeka Battery Materials Tbk. Three companies are publicly listed on the Indonesia Stock Exchange (BEI).

This research found three financing types to nickel industry: loans, equity, and bonds. Nickel industry financing includes mines, smelters, and coal-fired captive power plants. In the period of 2009 - October 2023, loan was the highest financing type to the industry, with a value of USD 5.34 billion, equivalent to IDR 80.1 trillion, then financing through equity worth USD 2.26 billion, equal to IDR 33.9 trillion, and financing through bonds worth USD 433 million, equivalent to IDR 6.5 trillion.

Specifically, this research also found that nickel industry financing experienced a significant increase after the Paris Agreement. In the period before the Paris Agreement (2009-2015), the amount of loans received by the nickel industry was only USD 1.4 billion. After the Paris Agreement (2016-2023), the amount jumped to USD 6.6 billion, or an increase of more than 300%.

Findings show that foreign sources dominated nickel financing. The most significant amount of loans flowed from Chinese banks. Banks from Singapore, such as DBS, are also involved in various loans to smelter projects. Europe-based banks that provided loans were Standard Chartered, Barclays, and BNP Paribas. On the other hand, several national banks, which are State-Owned Enterprise (BUMN) banks, are involved in the syndication, namely Bank Mandiri and Bank BRI.


Banks' involvement in financing is not only as a lender. The banking function in raising funds for public companies appears as the underwriter, as in the initial public offering of PT Trimegah Bangun Persada (Harita Group) on the Indonesia Stock Exchange. There are several banks as underwriters, namely Credit Suisse Group, BNP Paribas, Citigroup, Mandiri Sekuritas, DBS, OCBC Securities, and UOB Kay Hian (Asian Trends, 2023). Six underwriters, except Mandiri Sekuritas, are members of the Net Zero Banking Alliance from G-FANZ and are committed to the transition to clean energy.



European banks' involvement forms are varied, such as through syndicated loans and bonds. Syndicated loans also used to finance smelter construction. The syndicated lending group includes Standard Chartered Bank, BNP Paribas, Barclays Bank Plc, HSBC, Credit Agricole, ING Bank, and Natixis. Meanwhile, bond purchasing groups include UBS Group, Amundi, JP Morgan (Irish office), Fidelity Fund SICAV (Luxembourg office), and Manulife Global Fund.

In the broader context of energy justice, these challenges contest the basic principles of distributive justice, procedural justice, and recognition justice. The industry's negative footprints, from environmental degradation to human rights violations, raise questions regarding the ethics of energy production. Nickel industry in Indonesia must find the balance between economic progress and ethical responsibility. Finding sustainable solutions that respect the environment and human rights is critical to ensure that the nation's journey towards becoming "the World's Battery King" is not marred by social and environmental in justice.

This research recommends the media to shape public awareness about just energy concept, to balance the dominating coverage on energy transition that only emphasises economic growth aspect. Apart from that, the media also needs to mainstream justice, human rights, and the environment aspects when they report about nickel industry so that their reports also cover the negative impacts of the industry. Policy stakeholders, such as OJK, the Ministry of Energy and Mineral Resources, KLHK, and provincial/district/city governments, should monitor and ensure more sustainable and fair practices. In addition, LJKs and nickel industry companies must also comply and disciplined in implementing Environmental, Social, Governance (LST) and energy justice aspects in their business practices.



# Chapter 1

## INTRODUCTION: NICKEL DOWNSTREAM IN INDONESIA

Based on data from the Geological Agency (2020), Indonesia has the largest nickel reserves in the world, accounting for 52% or around 72 million tons of nickel. These nickel reserves surpass those of other countries with the largest nickel reserves, such as Australia (15%) and Brazil (8%). Indonesia's unique position is attributed to nickel being a primary component in lithium battery production. With the global increase in electric vehicle production, nickel can drive Indonesia's economic progress as the largest nickel-producing country worldwide (KESDM, 2022).

## 1.1 Background

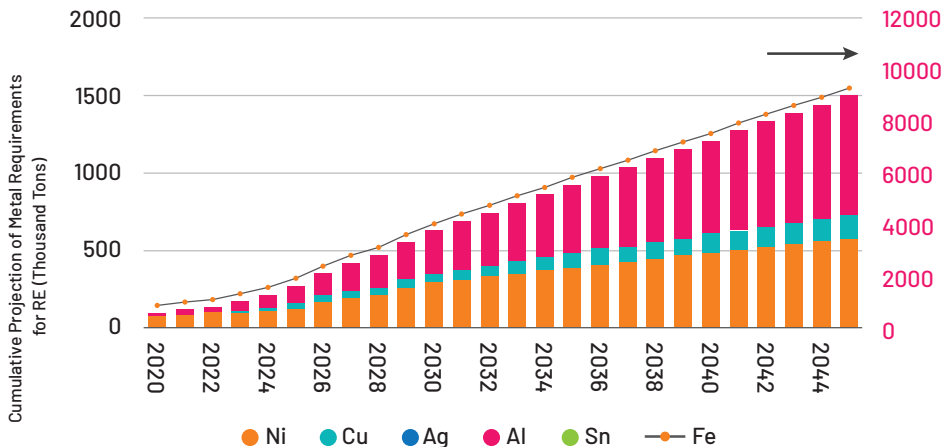
The energy transition narrative in Indonesia gained momentum with the agreement from developed countries to finance the energy transition. At the G20 Summit (G20 Summit) under the Indonesian presidency, the Just Energy Transition Partnership (JETP) and the Energy Transition Mechanism were agreed upon. Furthermore, Indonesia has published a commitment to reduce greenhouse gas emissions in a more ambitious Enhanced Nationally Determined Contribution (ENDC) document in which the energy mix target is 51% in the 2021 – 2030 Electricity Provider Business Plan (RUPTL). This target will encourage an increase in new renewable energy electricity generation capacity.

The ramp-up of new renewable energy technology (RE) necessitates a supply of various base metals. According to the Net Zero Emission (NZE) roadmap published by the Ministry of Energy and Mineral Resources (KESDM), nickel will become a critical mineral in the NZE agenda, which can be seen in the image below (IEA, 2022).



With the targets set, the cumulative need for nickel metal for EBT power plants in 2045 is estimated to reach 584 thousand tons of nickel (KESDM, 2021). This cumulative need is equivalent to the need for around 20 thousand tons of nickel per year, which can absorb about 3% of class 1 nickel products that have not been utilized or are planned to be exported (KESDM, 2021).

Figure 1 Cumulative Projection of Metal Requirements for RE (Thousand Tons)



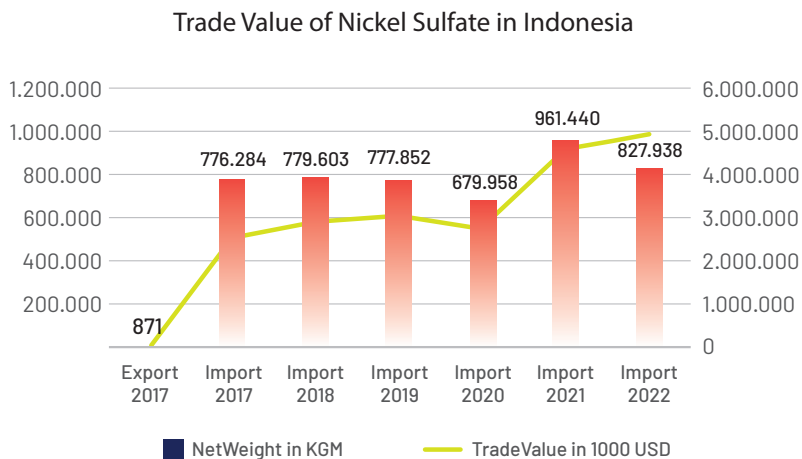
Source: ESDM, 2021

Based on data from the Geological Agency (2020), Indonesia has the largest nickel reserves in the world, accounting for 52% or around 72 million tons of nickel. These nickel reserves surpass those of other countries with the largest nickel reserves, such as Australia (15%) and Brazil (8%). Indonesia’s unique position is attributed to nickel being a primary component in lithium battery production. With the global increase in electric vehicle production, nickel can drive Indonesia’s economic progress as the largest nickel-producing country worldwide (KESDM, 2022).

Nickel is among the 21 commodities designated by the Indonesian Government for downstream development. The Government, through BKPM, has created a roadmap for strategic investment downstream in Indonesia until 2040, requiring an investment of up to USD 545.3 billion or the equivalent of IDR 8,200 trillion (at an exchange rate of IDR 15,200/USD) (Kominfo, 2023).

The Indonesian Government aims to establish Indonesia as the “World’s Battery King” through nickel down streaming. Since January 1, 2020, Indonesia has banned nickel ore exports as per Minister of Energy and Mineral Resources Regulation Number 11 of 2019. This decision faced opposition from the European Union through the World Trade Organization (WTO), resulting in a lawsuit against Indonesia. Despite losing the lawsuit, the Indonesian President instructed the acceleration of nickel down streaming, altering the investment landscape and setting investment targets in nickel down streaming until battery production reaches USD 6 billion or close to IDR 90 trillion.

Figure 2 Nickel Sulfate Trade Value in Indonesia from 2017 - 2022



Source : UN Comtrade, 2023

The data above indicates that Indonesia exported 871 kg of nickel sulfate in 2017, valued at USD 12.8 million. However, during the same period, Indonesia imported more, totaling 776 tons of nickel sulfate with a trade value of USD 2.56 billion. This trend continued until 2022, with South Korea being the largest importing country. The increase in import value suggests the commencement of battery production for electric vehicles, although Indonesia does not provide the core raw material in the form of nickel sulfate.

Several battery assembly companies operate in Indonesia, including LG, CATL, and BASF, among others. The presence of these downstream companies implies the importation of nickel sulfate raw materials. Currently, Indonesia can only produce nickel up to Mixed Hydroxide Precipitate (MHP), one stage before nickel sulfate. Harita Group is one company capable of this, collaborating with Chinese companies such as CATL and its subsidiaries.

UN Comtrade data (2020 - 2022) reveals that Indonesia has primarily exported nickel metal hydrate, used in rechargeable electronic device batteries, predominantly to Singapore and China. Additionally, various nickel derivatives, such as ferronickel, have been exported to China, totaling 17.22 million tons, serving as a basic material for stainless steel production.



However, Indonesia's nickel industry is marred by issues related to human rights violations, environmental degradation, corruption, and governance, particularly in the upstream sector of mining and smelting. Failure to uphold human rights and environmental sustainability in the nickel mining and refining process undermines the integrity of the energy transition strategy using nickel. Nevertheless, such issues are not widely discussed in national media, especially mainstream media, with coverage limited to downstream nickel industry aspects, particularly battery production for electric vehicles. Reporting and criticism of the nickel industry from an Environmental, Social, and Governance (ESG) perspective are primarily found in investigative news channels media.

Discussions surrounding a just energy transition cannot overlook the issue of sustainable finance, given the involvement of financial service institutions as capital providers in nickel mining industry. Understanding the flow of financing and the financial actors involved in financing the nickel mining industry is crucial to holding financial institutions accountable for their investments.

## 1.2 Research gaps

Previous studies have identified policies related to nickel mining, but the aspects studied are mostly industrialization and international policies (Kim, 2023; Gupta, 2022), as well as the value chain aspect (Leruth et al., 2022). Haryadi (2016) emphasized that nickel mining activities positively impact Southeast Sulawesi Province's economy, providing new job opportunities and increasing people's purchasing power.

Despite its economic contributions, nickel mining also brings negative impacts, as various studies have shown. The Action Association for Ecology and People's Emancipation (AEER, 2020; Teresa, 2021; Walhi, 2020; Kurniawan et al., 2021; Hudayana et al., 2020; Irawati, 2020) in their research found a reduction in income experienced by fishermen, as a result of seawater pollution, and post-mining ecological damage which causes a decrease in fish catch areas. Moreover, social conflicts and adverse effects on vulnerable groups, including women, children, disabled individuals, elderly people, and indigenous communities, have been observed.

In addition to impact assessments, research has also focused on the governance and corporate responsibility of nickel mining companies in natural resource exploitation activities (Bintang et al., 2023; Trireksani & Djajadikerta, 2016), as well as Corporate Social Responsibility (CSR) initiatives and their impact on the resilience of local communities (Rela et al., 2020). Tangngisalu (2020) examined the flow of CSR financing and its impact on company value, while Haryadi (2017) conducted a financial feasibility analysis of plans to build ferro-nickel smelting plants. Tangngisalu (2020) examined the flow of CSR financing and its impact on company value, while Haryadi (2017) conducted a financial feasibility analysis of plans to build ferro-nickel smelting plants.

Other research on nickel also examines the potential for corruption arising from mining licensing activities in Indonesia (Dinata et al., 2020). In this case, there is a risk of abuse of power by state officials in providing official assistance, such as the application of more flexible regulations and permits to business actors. This situation incentivizes business groups to seek political protection and support from government leaders by providing funds and/or other forms of support to policymakers in power circles (Dinata et al., 2020). This study is supported by research on mining activities and corruption in Africa. Although it does not explicitly mention nickel, the results of this research show that mining activities can increase bribery (Knutzen et al., 2017). Revenues from mining activities can provide incentives and enable local officials to demand more bribes (Knutzen et al., 2017).

Despite the extensive research about nickel industry, there is a gap in literature regarding trends in mass media reporting regarding nickel industry supporting just energy transition. Previous research also has yet to describe the identification of nickel industry financing flows by financial institutions in Indonesia. Thus, this research examines media content in reporting nickel industry and reviews the financial flows to the sector.

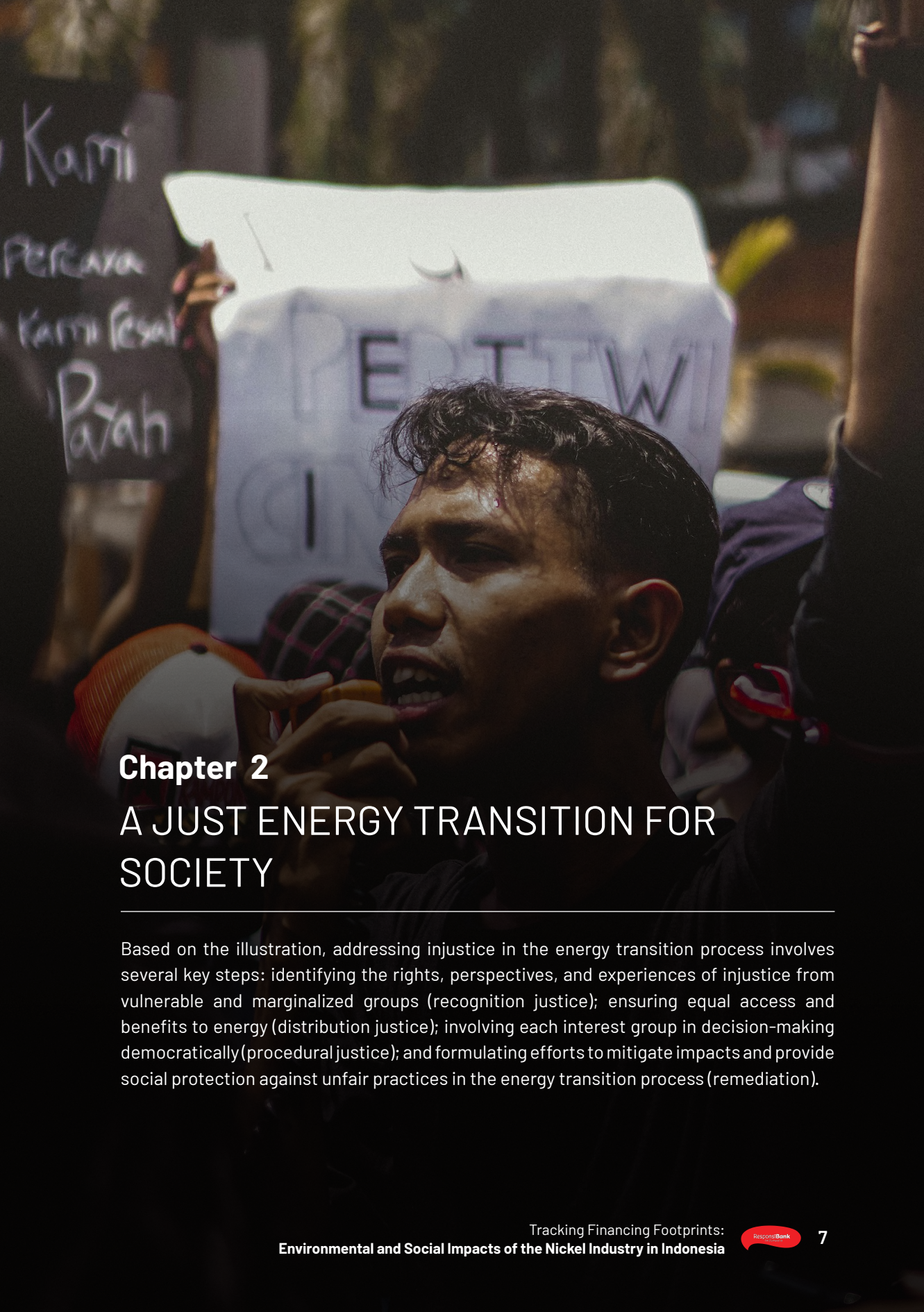
### 1.3 Research questions

1. What are the contents of the national media reports about nickel industry as an essential mineral to support energy transition?
2. How was the flow of financing for the Indonesian nickel industry distributed by financial services institutions during 2009–2015 (Before the Paris Agreement) and 2016–2023 (After the Paris Agreement)?

### 1.4 Research objectives

The aims of this research are:

1. To examine the contents of the media in reporting nickel as an essential mineral that supports energy transition.
2. To understand the flow of financing for the Indonesian nickel industry distributed by financial services institutions during 2009–2015 (Before the Paris Agreement) and 2016–2023 (After the Paris Agreement)



## Chapter 2

# A JUST ENERGY TRANSITION FOR SOCIETY

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Based on the illustration, addressing injustice in the energy transition process involves several key steps: identifying the rights, perspectives, and experiences of injustice from vulnerable and marginalized groups (recognition justice); ensuring equal access and benefits to energy (distribution justice); involving each interest group in decision-making democratically (procedural justice); and formulating efforts to mitigate impacts and provide social protection against unfair practices in the energy transition process (remediation).



## 2.1 Concept of Energy Justice

### Definition of Energy Justice

**Energy justice** is defined as a global energy system that distributes the benefits and costs of energy services reasonably and has a representative energy decision-making system.

*(Sovacool et al., 2017; Sovacool & Dworkin, 2015).*

In principle, equitable energy needs to consider aspects of equity and justice in the global energy system more broadly. Thus, the conceptual framework of energy justice includes consideration of the dangers, externalities, and burdens that a party will experience; benefits, access, and services to the energy that is distributed fairly; as well as procedures to ensure that the policy formulation process complies with rules, legal processes, representation, and recognition, especially for vulnerable or marginalized groups (Sovacool et al., 2017).

### The Concept of Energy Justice

According to Sovacool and Dworkin (2015), energy justice can serve as a conceptual, analytical, and decision-making tool. Conceptually, energy justice integrates issues related to distributive, procedural, and recognition justice. As an analytical tool, energy justice helps researchers understand how values are constructed or marginalized to solve general energy problems. As a decision-making tool, energy justice can help energy planners and consumers make informed energy choices. The function of energy justice as decision-making is based on eight principles consisting of availability, affordability, due process, transparency, accountability, sustainability, intra- and intergenerational equality, and responsibility (Feenstra & Özerol, 2021). In this research, energy justice as a conceptual tool will specifically aid in analyzing unfair practices that occur in relation to energy activities.

As a conceptual tool, energy justice, according to Sovacool and Dworkin (2015), comprises three key elements: costs, benefits, and procedures. The cost aspect examines the dangers and externalities of the energy system, which are disproportionately imposed on society, often borne by vulnerable and marginalized groups. From a benefits aspect, energy justice plays a role in assessing access to modern energy systems and services, which are often unequal. Lastly, the procedural aspect evaluates ongoing energy projects with a decision-making process that tends to be exclusive and lack adequate representation.

Moreover, other studies, such as those by Jenkins et al. (2016) and Heffron and McCauley (2014, 2017), propose three energy justice approach frameworks adapted from environmental justice research: distributional justice, recognition justice, and procedural justice. These frameworks aid in analyzing unfair energy policy practices (Heffron & McCauley, 2017; Jenkins et al., 2016; Lee & Byrne, 2019).

Furthermore, several other studies such as Jenkins et al (2016) and Heffron and McCauley (2014, 2017) highlight four energy justice approach frameworks adapted from environmental justice research, namely recognitional justice (recognition), distributional justice, as well as procedural justice and remediation justice, which help in analyzing unfair practices of energy policy (Heffron & McCauley, 2017; Jenkins et al., 2016; Lee & Byrne, 2019).

The first framework is pertaining to recognitional justice or acknowledgment of the interests and rights of every individual and group, especially the vulnerable and marginalized groups affected by the energy transition process (Lee & Byrne, 2019). Reflection on which parties experience the greatest impact from the energy transition is crucial (McCauley et al., 2019). In the context of energy justice, this entails paying attention to the needs and desires of vulnerable groups in society, such as women, children, disabled groups, indigenous communities, or other marginalized groups. Recognizing the perspectives of vulnerable and marginalized groups in decision-making is important to achieve justice. Recognition justice emphasizes that every view and experience of injustice experienced by vulnerable and other marginalized groups has the right to be used as a basis for consideration, especially in deciding policies related to a just energy transition (Jenkins et al., 2016).

The lack of recognition justice can manifest in various forms, such as cultural and political domination, humiliation, degradation, and devaluation (Jenkins et al., 2016). This discourse is not only evident in the form of failure to recognize but also as a form of misrecognition in the form of a distortion of a party's perspective that tends to be minimized (Jenkins et al., 2016). Fraser (1999) in Jenkins et al (2016) and Mc Cauley et al (2019) identified the main categories of misrecognition, which include cultural dominance and lack of recognition and respect. This highlights the need for sensitivity to differences in perspectives that are rooted in social, cultural, ethnic, racial, and gender differences. Additionally, the institutionalization of a broader perspective regarding who can be harmed by energy resources also needs to be implemented in enforcing recognition justice.

Secondly, distributional justice pertains to the fair distribution of responsibilities regarding costs and benefits arising from the energy transition process (Lee & Byrne, 2019). The distributional aspect focuses on equal distribution of access and benefits of energy to all individuals in society. This implies that energy policy must ensure equitable access to affordable and sustainable energy sources, regardless of an individual's social, economic, or geographic background. Some energy resources are inevitably distributed unevenly, and inequality in access to these energy resources emerges (Jenkins et al., 2016; McCauley et al., 2019). Therefore, it is necessary to consider the extent to which the placement of energy infrastructure will lead to distribution inequality.

Distributional justice not only concerns the placement of infrastructure but also access to energy services, as well as the possible impacts and risks that will arise from the processing of these energy resources in the future (Jenkins et al., 2016; McCauley et al., 2019). The process of distributing benefits and burdens, as well as unequal access to energy

resources, encourages the need to identify the scale of widespread impacts and their role in creating energy inequality. Additionally, redistribution of benefits is necessary to realize energy justice for each individual and society.

Thirdly, procedural justice refers to the equality and democratic involvement of each stakeholder in the decision-making process in the energy transition process (Jenkins et al., 2016; Lee & Byrne, 2019). This means that procedural justice is guided by the application of fair procedures and involving all stakeholders in a non-discriminatory manner (Jenkins et al., 2016). It emphasizes open, participatory, and transparent decision-making processes in the context of energy policy. Broad societal participation, including groups directly affected, must be promoted so that energy decisions can reflect the interests and aspirations of society as a whole.

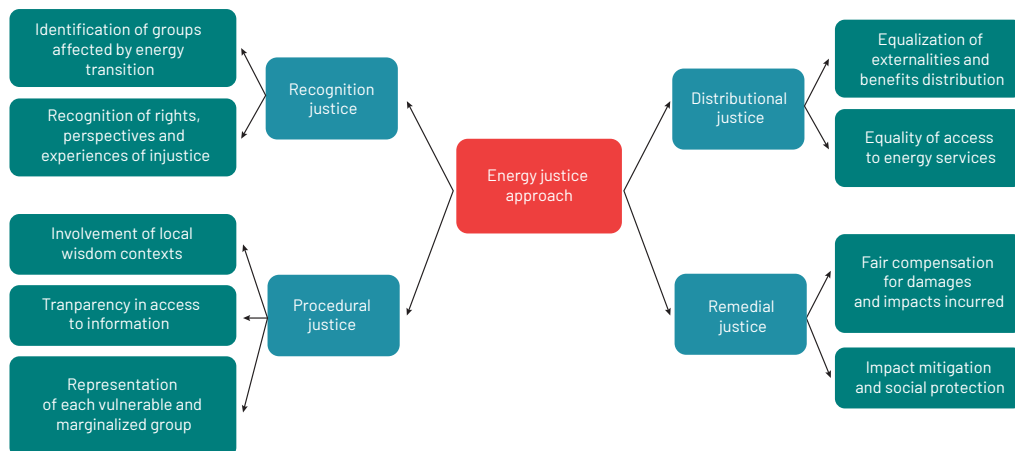
Jenkins et al. (2016) further formulate three inclusion mechanisms designed to achieve justice through the context of local wisdom, transparent access to information, and representative institutional representation. The context of local knowledge is an important factor in increasing inclusiveness and public involvement for affected parties, particularly indigenous communities. Elective participation, in this case, extends beyond physical involvement but includes local wisdom, discourse, and stories of indigenous peoples, as considerations so that they can have a significant impact on policy (Jenkins et al., 2016).

Moreover, procedural justice requires participation through transparent access to information from both government and private sectors, as well as mechanisms for inclusive engagement. Globally, open information is essential for ethical and sustainable consumption practices, as well as for considering energy production choices for society (Jenkins et al., 2016). Representation within an institution, including in business institutions, local, national, and international government structures, and other non-government sectors, also influences decision-making outcomes (Jenkins et al., 2016). Representation also encompasses gender and ethnic minority representation. Enhancing representation in these institutions promotes a proactive approach to achieving justice (Jenkins et al., 2016).

Fourthly, remediation justice aims to provide fair compensation to parties affected by the energy transition. It helps determine preventive measures needed and prompts communities and stakeholders to address injustice or damage and prioritize forms of injustice (Heffron & McCauley, 2017). Applying remediation justice in decision-making prompts policymakers to consider potential damage and injustice resulting from energy policy choices (Heffron & McCauley, 2017). Ultimately, remediation justice encourages stakeholders to contemplate the outcomes of policy decisions and how policies act to prevent or mitigate potential injustices or damages.

The four approaches to energy justice described above are illustrated in the following figure:

Figure 3 Energy Justice Approaches



Source: (Heffron & McCauley, 2017; Jenkins et al., 2016; McCauley et al., 2019; Sovacool et al., 2017)

Based on the illustration, addressing injustice in the energy transition process involves several key steps: identifying the rights, perspectives, and experiences of injustice from vulnerable and marginalized groups (recognition justice); ensuring equal access and benefits to energy (distribution justice); involving each interest group in decision-making democratically (procedural justice); and formulating efforts to mitigate impacts and provide social protection against unfair practices in the energy transition process (remediation).

## 2.2 Sustainable Finance and its Relationship to the Nickel Industry Sector

Financial services institutions play a crucial role in catalyzing sustainable development and addressing climate challenges by allocating funding to more environmentally friendly sectors. Without the involvement of financial institutions in promoting a more responsible business sector, climate change conditions will become increasingly difficult to control and, in the long term, will create an imbalance in the ecosystem, which will impact the economic supply chain, even threatening the stability of the financial system (Armintasari & Ramdlaningrum, 2021). This concern is echoed in a report by the World Meteorological Organization (WMO), which highlights that current climate conditions have hindered global efforts towards sustainable development (Arif, 2023).

Between 1970 and 2021, according to WMO data, nearly 12,000 reported disasters were attributed to extreme weather, climate events, and rainfall, resulting in over 2 million deaths and economic losses totaling 4.3 trillion US dollars (Arif, 2023). Moreover, over 90 percent of reported deaths and 60 percent of economic losses occurred in developing countries

(Arif, 2023). As a signatory to the Paris Agreement, Indonesia is committed to the collective goal of limiting the global temperature increase to below 1.5 to 2 degrees Celsius compared to pre-industrial levels and reducing emissions by 31.89 percent through domestic efforts and 43.2 percent with international support (Kementerian Keuangan RI, n.d.).

Support from a robust and responsible financial sector is crucial for allocating investment costs, devising risk-sharing solutions, and providing accessible financial services for all stakeholders (Laplane et al., 2023). If the resulting impact indicates otherwise, there is a concern that financing in this process could have unintended consequences and disproportionately affect vulnerable and marginalized groups.

**Civil society organizations also play a vital role in monitoring and preventing greenwashing practices, ensuring that products labeled as sustainable genuinely benefit the environment and surrounding ecosystem.**

Hence, there is a need for an assessment method for Financial Services Institutions (LJKs) to finance industrial sectors sustainably, such as through guidelines for sustainable financial system methods initiated by the international network of fair finance. This assessment mechanism aligns with various international standards, including the Equator Principles, IFC Environmental, Health and Safety Guidelines, IFC Performance Standards, OECD Guidelines for Multinational Enterprises, UN Global Compact, UN Principles for Responsible Investment, and UN Principles for Responsible Banking.

Based on Law No. 4 of 2023 concerning the Development and Strengthening of the Financial Sector, sustainable finance is defined as an ecosystem comprising policies, regulations, norms, standards, products, transactions, and financial services that balance economic, environmental, and social interests in financing sustainable activities and transitioning towards sustainable economic growth. The Indonesian Sustainable Finance Roadmap for 2015-2019 further defines sustainable finance as comprehensive support from the financial services industry to promote sustainable development, emphasizing the alignment of economic, social, and environmental interests.

The principles of sustainable finance programs in Indonesia are anchored in risk management, sustainable development of priority economic sectors, environmental and social governance and reporting, as well as capacity building and collaborative partnerships (Otoritas Jasa Keuangan, 2014). The aim is for the implementation of sustainable finance to enhance the role and contribution of financial institutions to national climate change targets through funding for mitigation, adaptation, and initiatives supporting the national development plans (RPJP and RPJM), characterized by pro-growth, pro-job, pro-poor, and pro-environmental outcomes, while increasing resilience and competitiveness.

The Financial Services Authority (OJK), mandated with banking supervision, has issued

several regulations related to sustainable finance, including the Sustainable Finance Roadmap Phase 1 (2015–2019) and Phase 2 (2021–2025). Specific regulations outlined in OJK Regulation Number 51/POJK.03/2017 require financial institutions to prepare and publish Sustainability Reports and Sustainable Financial Action Plans (RAKB), while also regulating the principles of implementing sustainable finance. OJK also issued Financial Services Authority Regulation Number 60/POJK.04/2017 concerning the Issuance and Requirements for Environmentally Friendly Debt Securities (Green Bonds).



Most recently, in January 2022, OJK published the Indonesian Green Taxonomy document as a guide for financial institutions to categorize financing and investments in the green sector, contributing to environmental improvement and climate change adaptation and mitigation. However, the implementation of sustainable financial policies in Indonesia is still in its early stages. From 2015 to 2019, total credit and financing distribution in the green sector reached IDR 809.75 trillion (Armintasari & Ramdlaningrum, 2021). In the same year, OJK published a Reference Book for Credit or Financing for Palm Oil Plantations and Industries as a guide for financial institutions in implementing a sustainable palm oil plantation financial system. Indonesia also faces challenges in implementing a sustainable financial system, such as business-as-usual indoctrination, minimal resource capacity in the field of Environment, Social, and Governance (ESG), differences in perceptions due to the absence of standardization of green classification, and overlapping cross-sectoral policies (Armintasari & Ramdlaningrum, 2021).

As nickel holds a strategic position in the global value chain and given Indonesia’s ambition to become the ‘King of Nickel,’ assessments of financial services institutions’ financing of this industry need to be studied further to ensure its sustainability aspects. Additionally, financial institutions, as critical actors that financing superior projects to realize national economic development, are expected not to lose focus on ensuring the sustainability aspects of development and guaranteeing and maintaining its continuity for future generations.

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## Chapter 3

# RESEARCH METHODS

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To address the first research question, this research employed content analysis method and for the second research question, it employed “follow the money” method. The data utilized in this research is secondary, including mainstream and investigative media reports, annual reports, data from Forest and Finance database, among others. Findings from the analyzed data will be presented descriptively.



### 3.1 Content Analysis

Content analysis is a research method used to identify words, themes, or concepts present in qualitative data, often in text form (Columbia University, 2016; Zuchdi & Afifah, 2019). In general, content analysis method is used to analyze frequency, meaning, and relationships between words, themes, or concepts (Columbia University, 2016; Krippendorff, 2004).

Data sources used in content analysis include interviews, open questions, field research notes, conversations, books, essays, discussions, news, media, speeches, and historical documents (Columbia University, 2016). In analyzing a text using the content analysis method, certain codes for a text are created. Then, the code is classified into codes with the same theme.

Content analysis can take two forms: conceptual analysis and relational analysis (Columbia University, 2016; Zuchdi & Afifah, 2019). Conceptual content analysis focuses on the frequency of presence of words, themes, or concepts. Data for conceptual analysis is typically explicit, non-interpretive, and surface level. Relational content analysis is an analysis method that delves deeper into the meaning and relationships between them. This type of analysis prioritizes the meaning and relationship of a word, theme, or concept. The data in this analysis is usually implicit and interpretive.

In this research, media reports on the nickel industry are examined using conceptual content analysis to explore the frequency and trends of words, themes, and concepts within the industry.

Conceptual content analysis involved gathering data from five mainstream media websites se-lected based on SimilarWeb, focusing on those with the highest monthly visits. Additionally, data from mainstream media with investigative news channels were collected. The research data from mainstream media and investigations were limited to publications from January 1, 2020, to March 31, 2023

Table 1. Five online mass media with the highest number of monthly visits

No	Website	Number of visits per month (million)	Total pages visited (million)
1	Kompas.com	153,2	405,9
2	Detik.com	149,8	453,9
3	Tribunnews.com	104,2	291,8
4	Pikiran-rakyat.com	59	169,2
5	Suara.com	53,5	88,88

Source: SimilarWeb (21 Maret 2023)

Data sourced from investigative media were determined based on investigative journalism criteria. The elements to consider in selecting investigative reporting based on Weinberg (1996, in Septiawan, 2022) were as follows: (1) subject of investigation, (2) hypothesis, (3) secondary sources, (4) documentation, (5) primary sources or sources, (6) research techniques, (7) containing organized information, (8) and freedom of thought.

Furthermore, indicators for determining investigative reporting sources included originality, clarity, containing irrefutable evidence, lack of ambiguity, and not merely fulfilling standard reporting elements like the 5W + 1H (what, when, why, where, who and how) like standard reporting in general (Aljazeera Media Institute, 2020; Ismail et al., 2014).

The investigative reporting selected met these criteria, being conducted in-depth, systematically, and documented in accordance with ethical and professional journalism standards. The sources of information from investigative reporting included news portals such as Project Multatuli, Tempo, Tirto.id, and Mongabay, which have investigative journalism channels and adhere to investigative journalism rules.

Next, the frequency of words appearing in the news was counted from each statement made by each actor. The frequency of occurrence of the words was analyzed and classified into themes based on ESG aspects, as outlined in Table 2. Additionally, the analyzed actors were classified into 13 categories, including academics, law enforcement officers, civil society organizations (CSOs), parliament members (DPR and DPRD), international organizations, political parties, central government, regional governments, companies, investigative journalists, citizens, and the judiciary.

Table 2. Categories or Statements Used in Media Analysis

Environment	Human Rights	Politics	Economy
Sea water cleanli-ness	Good relations be-tween workers	Corruption free	Electric vehicle battery
Groundwater cleanliness	Good company-citizen relations	Persuasive ap-proach of law enforcement officers	Downstreaming the nickel industry
Air cleanliness	Free, prior and in-formed consent (FPIC)	Legal mining	State revenue

Forest sustainability	Fulfillment of labor rights		Increase in community income
	Fulfillment of the rights of indigenous peoples		
	Fulfillment of wom-en's rights		
	Land transfer with-out dispute/conflict		

*Source: the researchers' identification results*

News source searches were conducted using the Google search engine with keywords like "nickel mine," "nickel smelter," followed by the name of the media outlet, and the respective year. For instance, searches were made for "nickel mine, Kompas.com, 2020" and "nickel smelter, Suara.com, 2021." Additionally, news searches were performed within each mass media's "search" feature using the keywords "nickel mine" and "nickel smelter." Investigative reports were identified and searched based on investigative reports produced by media outlets related to nickel mining and nickel smelting. The data were pre-processed within the period from January 1, 2020 at 00:00:00 to 31 March 2023 at 23:59:59.

The researchers screened the full texts of news items selected from mainstream media data sources and investigative reports and then annotated them (data crawling). Subsequently, the texts were organized in four categories i.e. environment, human rights, politics and economic. These categories are set based on the ESG and energy justice principles.

The data is then processed by describing:

1. The number of news regarding the four themes and sub-themes for each and their development from year to year.
2. The frequency of reporting in each media regarding the four themes and sub-themes.
3. The frequency of statements by each actor.
4. Network of debates between actors (agreement/disagreement)

Descriptive data from no. 1-3 were organized and visualized using Microsoft Excel, while to visualize data no. 4, researchers imported data from Microsoft Excel database to the VisOne software.

### 3.2 Tracking Financing Flows

This research also used the Follow the Money (FTM) method to examine financial flows. Funding from financial institutions generally has a layer of intermediary companies to disguise the involvement of an entity, so to identify the flow of financing, a secondary data

analysis approach was used, which was sourced from the Forest and Finance database, as well as company annual reports and stock exchange filings, media sources, and portfolio filings.

### 3.3.1 Financing Flow Data Collection Techniques

This research process used descriptive qualitative methodology with an inductive and deductive data collection approach. An inductive approach was used to search for funding and open sources. In this process, the two approaches complemented each other because, inductively, we would use database reports or financial reports while checking the details of fund distribution using deductive methods through media reports or company announcements.

### 3.3.2 Financing Flow Data Analysis Techniques

Investigations for nickel industry funding were carried out in a number of ways, including:

- Financial statements analysis. This financial report analysis was carried out on companies that run business on the upstream and downstream sides of the nickel industry or financial institutions. This was done to obtain information regarding the source, value of funding, and allocation of the funds.
- Transaction analysis. This analysis was carried out to track the flow of funds from one company to another, for example, from the parent company to subsidiaries or other related corporate entities. This analysis could be carried out using transaction data available from such companies or financial institutions.
- Shareholder analysis was carried out to identify individuals or entities who own shares or control over the company. This information can be used to carry out further investigations regarding funding flows or connections between parties in the mining business and downstream business, or related supporting facilities.
- Open data analysis. Open data analysis was carried out through media news sources, stock exchange announcements, information or data from the government, and data from non-governmental organizations, which could be used to complement data obtained from other sources.

## 3.3 Research Limitations

This research examines the content of media reports by mainstream media and media with investigative reporting from January 1, 2020, to March 31, 2023. The researchers acknowledge the possibility of data source bias, as the data are derived from both mainstream and alternative media sources, which may have specific interests influencing their reports. Additionally, the conceptual media content analysis method used cannot

elucidate the relationship between actors based solely on the statements made.

Furthermore, as the research aims to trace the flow of financing by financial service institutions to mining companies and/or nickel smelters in Indonesia from 2017 to 2022 using financial databases provided by several data provider companies. This may result in discrepancies between the financial figures obtained from the databases and the financial reports of the financial service institutions and nickel companies.

The study focuses on key business entities operating in the upstream nickel mining sector in Indonesia, selected based on concession holdings matching the production output of mining operations. Additionally, the downstream sector of the nickel industry, including smelters and related infrastructure, was examined. Key players in the downstream sector were identified based on criteria such as investment value, production capacity, operating smelter status, and downstream plans.

However, the study has limitations regarding its focus on publicly traded companies due to considerations of access and availability of information. Consequently, the research predominantly focuses on publicly traded entities within the Indonesian nickel industry.

Another limitation pertains to the analysis of the role of financial institutions as underwriters in initial public offerings. While some financial institutions are mentioned as underwriters, their specific roles and earnings were not further analyzed. This limitation is also influenced by the limited number of public companies in the Indonesian nickel industry.



## Chapter 4

# MEDIA REPORTING OF ENERGY INJUSTICE IN NICKEL INDUSTRY

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The high level of positive opinions regarding electric vehicle batteries and the downstream nickel industry was driven by Indonesia's ambition to develop the downstream nickel industry to increase its added value. Additionally, hopes for the entry of electric vehicle companies like Tesla into Indonesia contributed to positive opinions surrounding these topics.

## 4.1 Reporting on Nickel Mining and Smelters

Mainstream and investigative media reports regarding nickel mines and smelters from January 1, 2020, to March 31, 2023, yielded a total of 189 stories. Detik.com reported the most with 58 stories, followed by Suara.com with 32 stories. However, investigative media had the lowest number of reports, totaling 21 stories from Mongabay, Tempo, Tirto.id, and Project Multatuli. This difference may be attributed to the time-intensive nature of investigative reporting, impacting both the quantity and mainstreaming of news topics produced. It is worth noted that there may be additional investigative media reports not included in this research.

Table 3 Number of News from Mainstream and Investigative Media Regarding Nickel Mines and Smelters

Source of News	Number of News
Detik.com	58
Suara.com	32
Kompas.com	27
Pikiran Rakyat	25
Tribunnews.com	26
Berita Investigatif (Mongabay, Tempo, Tirto.id, dan Project Multatuli)	21
<b>Total</b>	<b>189</b>

Source: processed research data

In news related to the upstream nickel industry, there were 244 statements grouped into 19 concepts ranging from electric vehicle batteries to FPIC.

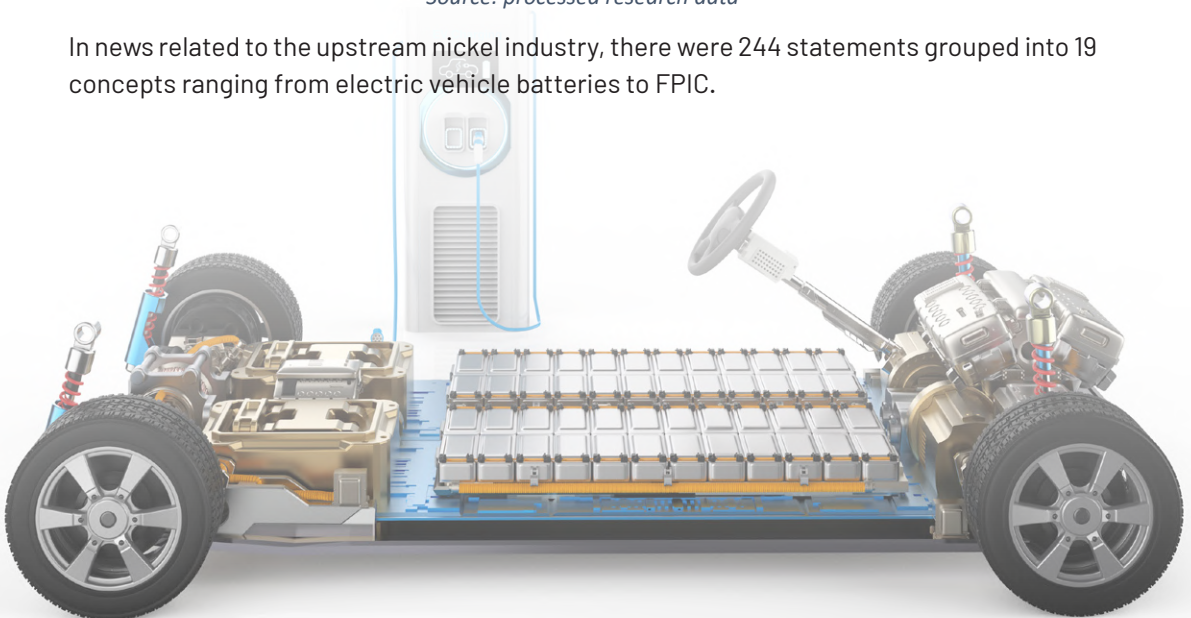
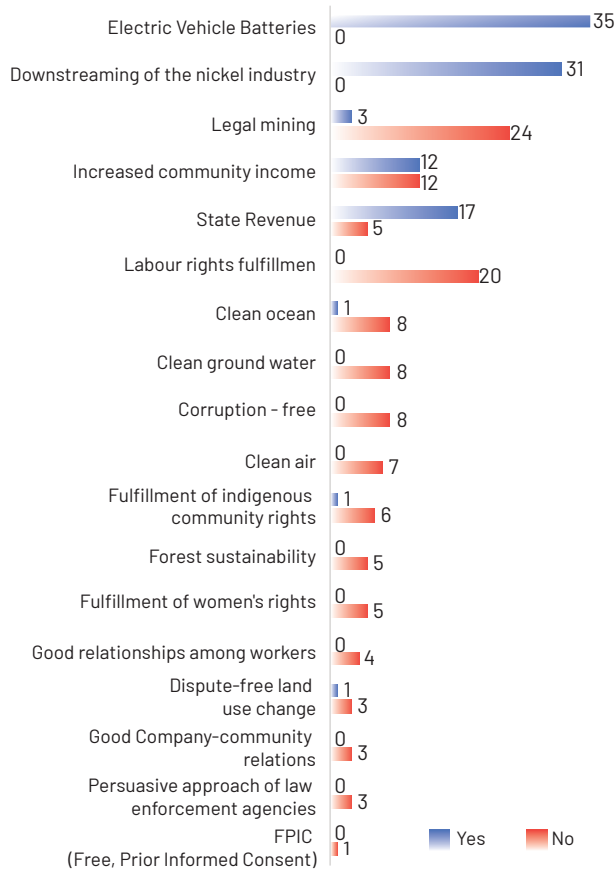


Figure 4 Distribution of Agree Statements (yes and no) to the Concepts



Source: processed research data

From Figure 4, it is evident that media content concerning nickel mining and smelting primarily focused on economic aspects, such as electric vehicle batteries and the downstream nickel industry. Conversely, negative impacts associated with the industry, such as indigenous people’s rights, women’s rights, and FPIC, received less attention. Issues surrounding the legality of mining and the fulfillment of labor rights were the two most negatively discussed topics

Electric vehicle batteries and nickel industry downstream were the issues most discussed positively in the mass media. At the same time, the legality of mining and the fulfillment of labor rights were the two issues most discussed negatively. The high level of positive opinions regarding electric vehicle batteries and the downstream nickel industry was driven by Indonesia’s ambition to develop the downstream nickel industry to increase its added value. Additionally, hopes for the entry of electric vehicle companies like Tesla into Indonesia contributed to positive opinions surrounding these topics.



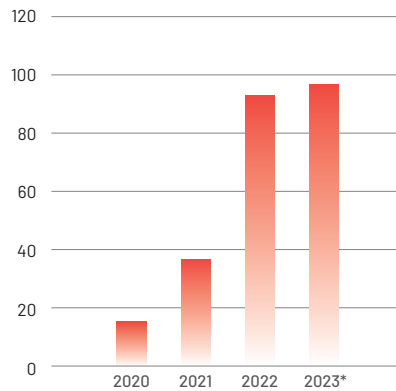
Negative statements regarding the legality of mining and the fulfillment of labor rights were triggered by several factors. In terms of mining legality, the issue being discussed was the absence of nickel mining companies' ownership of environmental management documents, Mining Business Permits (IUP), and Forest Area Borrow-Use Permits (IPPKH). For example, in Mongabay media coverage regarding illegal mining, of the 141 IUPs in the South Sulawesi region, almost 50 percent are in forest areas, and only 36 of them have IPPKH, occupying a forest area of 10,551 hectares (Chandra, 2022). On the other hand, 118,273 hectares of other forest areas have not received IPPKH (Chandra, 2022). Regarding labor rights, nickel mining companies had yet to fulfill obligations to provide personal protective equipment, adhere to Occupational Health and Safety (K3) standards, or offer decent wages.

Issues related to increasing people's income were equally divided between positive (yes) and negative (no). Some parties acknowledged the increase in community income through Corporate Social Responsibility (CSR) assistance provided by nickel mining companies. For example, PT Gag Nickel in the Gag Islands region, Raja Ampat, was reported by TribunNews to have established schools and provided scholarship assistance to students (Candraditya, 2022). The nickel mining industry was also believed to create a multiplier effect by generating employment opportunities. PT GNI in North Morowali, as reported by Detik.com, employed up to 5,200 local workers, with projections to employ up to 60,000 workers (Harlina, 2021). Additionally, residents established various businesses to cater to the needs of mining company employees.

Nickel mining industry produces waste that pollutes the sea, causing a decrease in fishermen's catches and forcing fishermen to look for fish in the middle of the sea, which requires higher operational costs. Investigative news coverage carried out by Tempo.co stated that fishermen in Tapungaya Village, North Konawe, experienced a decrease in the number of catches, namely 10 kilograms of fish with a selling price of IDR 200 thousand a night (Hermawan, 2023). In fact, previously, these fishermen managed to earn up to IDR 600 thousand a night (Hermawan, 2023). This situation was further corroborated by poverty profile data from the Central Statistics Agency (BPS) in March 2023, which showed an increase in the percentage of poor people in regions rich in nickel reserves, such as Central Sulawesi, South Sulawesi, Southeast Sulawesi, and North Maluku (Ahdiat, 2023). Southeast Sulawesi is the province with the highest increase in the poverty rate, reaching 11.43 percent; previously, in September 2022, it reached 11.27 percent (BPS, 2013; Yunus & Theodora, 2023). The increase in the percentage of poor people in Central Sulawesi reached 0.11 percent, South Sulawesi by 0.04 percent, and North Maluku by 0.09 percent (Yunus & Theodora, 2023).

Following President Joko Widodo's policy banning nickel ore exports on January 1, 2020, there was an increase in reporting on nickel smelters and mines. This policy was influenced by the downstream agenda's impact on the upstream nickel industry, particularly nickel mining and smelters.

Figure 5 Total Movement of Statements Related to the Nickel Industry

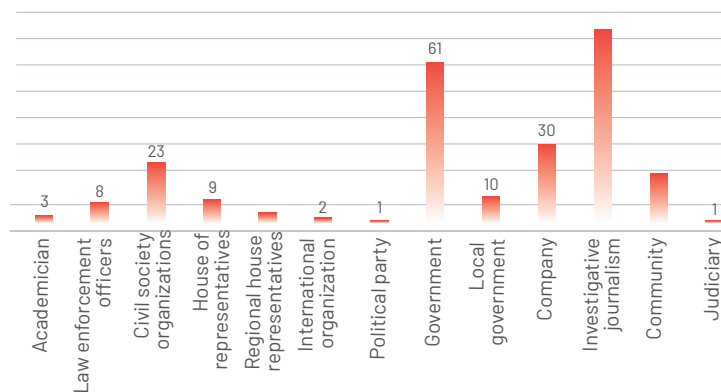


Source: processed research data, notes: \* 1 January – 31 March

Figure 5 explains the number of stakeholder statements in news related to the nickel industry in Indonesia. In 2020, the nickel industry began to be discussed until it peaked on March 31, 2023. The frequency of statements in the news regarding the nickel industry experienced a gradual increase from 2020 to March 2023. The concept of nickel drove the increase in statements in the news about the nickel industry as the main component of electric vehicle batteries. Along with the topic of electric vehicle batteries, statements regarding social and environmental impacts in the upstream nickel sector (mining and smelter) are starting to emerge. One of the social issues that has triggered an increase in social impact is the issue of work accidents at PT Gunbuster Nickel Industry (PT GNI).

Moreover, analyzing the distribution of statements based on the actors analyzed from the media, it is evident that the government and investigative journalists dominated, accounting for 61 and 73 statements, respectively. Figure 6 illustrates the number of statements based on organization categories.

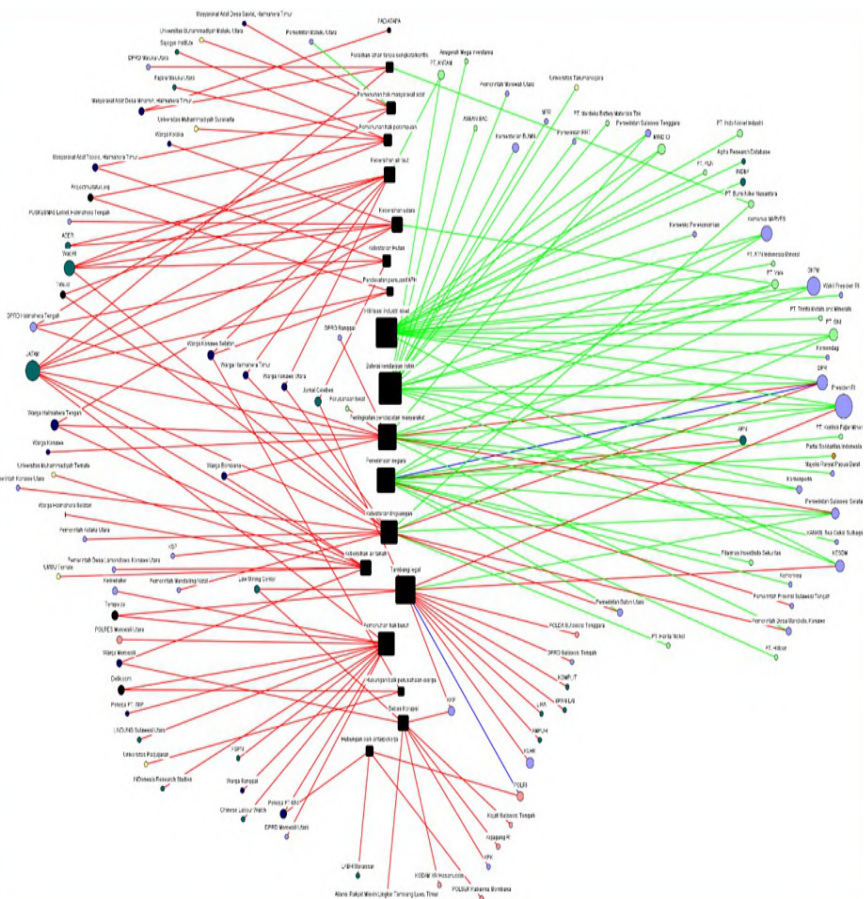
Figure 6 Distribution of Statements by Organization Categories



Source: processed research data

The debate and agreement between actors on each issue can also be seen from the visualization in Figure 7 below. The green line shows support, while the red line shows disagreement with the topic being discussed. The blue line shows debate within the same group of actors on a topic. The sizes of the box icons (topics being discussed) and circles (actors) are in line with the frequency of the topics and actors who make the most statements.

Figure 7 Debate and Agreement between Actors



Source: processed research data

In this picture, the President of the Republic of Indonesia is the actor with the highest frequency of mentioning nickel mines and smelters, which contribute to state revenues, downstream nickel industry, electric vehicle batteries, and illegal nickel mining. Two actors showed that there was debate on different topics, namely the POLRI and the DPR. In this case, POLRI actors have different views regarding the issue of legal mining. Some POLRI actors stated that there were illegal nickel mining and smelter practices, while other

POLRI actors did not agree with this idea. Furthermore, the issue being debated between DPR actors was related to state revenue. Some DPR actors stated that nickel mines and smelters contributed to state revenues, but some did not agree with this statement due to certain cases.

Most statements regarding nickel mines and smelters were published in 2023 (January-March), with each statement attributed to the word “nickel”. State organizations (President of the Republic of Indonesia, DPR, DPRD, Central Government, Regional Government, Law Enforcement Officials, and Judiciary) and companies tended to convey topics related to economic and political issues. Government organizations were the ones that most frequently make statements regarding economic issues. The President of the Republic of Indonesia has consistently stated that nickel mines and smelters are positive for the downstream nickel industry, electric vehicle batteries, increasing people’s income and state revenues. There is only one issue that the President of the Republic of Indonesia was concerned about regarding nickel mines and smelters’ the existence of illegal mines.

Even though they had the same opinion as the President of the Republic of Indonesia, the DPR RI had different opinions regarding nickel mining and smelters. The DPR RI agreed that nickel mines and smelters have a positive influence on downstream and electric vehicle batteries. However, the DPR RI stated that nickel mines and smelters have a negative impact on increasing people’s income and environmental sustainability. Meanwhile, one concept being debated by the DPR RI was the concept of state revenue. Some individuals from the DPRI RI assessed that nickel mines and smelters are positive for state revenues, while others did not.

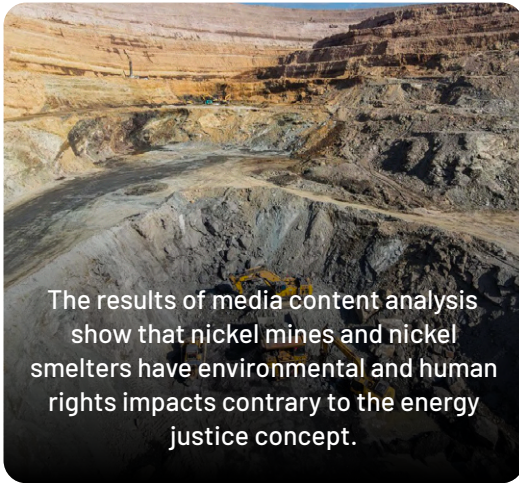
In contrast to state organizations at the central level, which tend to have the same view of a concept, the views of state organizations towards a concept at the regional level tend to vary. The regional-level state organization’s agreement with the concept can be seen in Attachment 2.

Regional-level state organizations sometimes have some conflicting perspectives. One representative of the South Sulawesi Government, for example, stated that nickel mines and/or smelters had a positive impact on the concepts of state revenue, environmental sustainability, and legal mining but had a negative impact on increasing people’s income. Apart from that, the government of Mandiolo Village, Konawe, stated that nickel mining and/or smelting had a positive impact on the concept of increasing people’s income but had a negative impact on the concept of environmental sustainability. Likewise, the North Buton Government stated that nickel mining and/or smelters had a positive impact on the concept.

Civil society organizations, on the other hand, tended to highlight the negative impacts of nickel mines and smelters, particularly in environmental, human rights, political, and economic aspects. WALHI and JATAM are the CSOs that dominated discussions on the

negative impact of nickel mines and smelters. In this category, environmental sustainability was the most affected concept; in the human rights category, the concept of fulfilling labor rights was the most affected; for the political category, the concept of legal mining was the most affected; and from the economic category, the concept of increasing people's income was the most affected .

## 4.2 Capturing Unjust Energy Practices in Nickel Mining and Smelters



The environmental impacts caused by the upstream nickel industry include seawater pollution, groundwater pollution, air pollution, forest damage, and other environmental pollution. Meanwhile, in the human rights aspect, the impacts comprise land disputes/ conflicts, violations of workers' rights, no FPIC, violations of women's rights, and violence. This research also looks at aspects of governance in the nickel industry, one of which is corrupt practices.

### 4.2.1 Injustice from Environmental Aspect

Civil society organizations stated that the risks of nickel mining extraction in various regions had caused environmental damage, from deforestation, water, land, and air pollution to taking away people's living space (Mongabay.co.id, 27/02/23). From field research conducted by the People's Coalition for Fisheries Justice (KIARA) organization, it was stated that the nickel mining project had destroyed springs which were the source of drinking water for the community in several areas in the highlands of Wawonii Island, especially Southeast Wawonii and South Wawonii in the Wawonii Islands (Detik. com, 02/15/21).

In South Konawe, nickel mining has polluted sea water and triggered reactions from local residents. Hundreds of fishermen from Sangi-sangi and Ulu Sawa villages demonstrated on the PT Pintu Multi Sejahtera hauling road on Saturday (18/9/2021). They asked the mining company to take responsibility for marine pollution by stopping its activities. This was because fishermen's catches had decreased drastically over the last five months. After all, the sea was polluted by mining materials, which made the seawater reddish yellow (Tribunnews.com, 14/10/21).

In North Konawe, Southeast Sulawesi, nickel mining has a significant environmental

impact. The mining activities of PT Lawu Agung Mining (LAM) and PT Trimega Pasifik Indonesia (TPI) in the Mandiodo Block are increasingly disturbing the community around the mine. The clean water currently consumed is no longer suitable; it is thought to be mixed with waste containing nickel metal, thus polluting the ecosystem and water sources of the Lamondowo Village community (Pikiran-rakyat.com, 07/03/22).

Nickel mining activities have also polluted the groundwater in North Konawe. Landslides hit two schools. Mining activity was then accused of being the cause of this incident. A teacher who did not want to be named suspected that the landslide occurred due to the activities of the mining company PT Bumi Nickel Nusantara (BNN), where it rained overnight and brought mining materials towards the school. The teacher revealed that PT BNN's mining activities were only 500 meters from the school area. He said the company had come to the school and stated it would be responsible for the impact (Detik.com, 15/03/23)..

Apart from environmental problems on land, nickel mining in North Konawe has also harmed the sea. It was found that the underwater conditions and coastal coral reefs of Boedingi Village in Lasolo Islands District were covered in nickel ore sedimentary mud at 10 meters. The sea water on the coast of the village is now reddish brown. (Tribunnews.com, 03/23/23).

Still in Southeast Sulawesi, PT Tonia Mitra Sejahtera (TMS) mining activities on concession land around Mount Sabanano, Kabaena Island, and Bombana Regency have resulted in alleged environmental pollution. Around 1,200 residents living in Balo Village and Bungi-Bungi Village, East Kabaena District, complained that the condition of the clean water used for their daily needs suddenly became cloudy, unlike usual. One of the residents of Balo Village, Eldiyatri Sultansyah, said that the water turbidity was thought to be caused by the eroding of the spring on Mount Sabanano as a result of mining activities (Pikiran-rakyat.com, 05/09/22). Illegal deforestation in Southeast Sulawesi also occurred throughout 2018-2020, reaching 1,700 hectares (Majalah Tempo, 29/01/22). Gunawan et al. (2015) show that the water around nickel mines and outside the mine is contaminated with the heavy metal lead (Pb) exceeding the specified threshold. As in Southeast Sulawesi, nickel mining has also created environmental damage in Central Sulawesi. Specifically in Morowali, a 2019 study by Action for Ecology and People's Emancipation (AEER) found that coal-fired power plants used for nickel production in Morowali had caused respiratory tract infections (ARI) in residents (Suara.com, 24/05 /22).

Apart from that, residents around the Indonesia Morowali Industrial Park (IMIP) bear the impact of environmental pollution due to the nickel industry. Drinking water must be shared with the large companies in the Indonesian Morowali Industrial Park (IMIP), so residents often do not get it. Even if the residents get it, the water is murky and can only be used for bathing and washing dishes. To drink, they buy bottled water instead. This kind of thing never happened before nickel mines operated on a large scale (Projectmultatuli.org, 11/14/22).

Mining concessions pursued by operations in nickel industrial areas have also caused environmental damage in North Maluku. In East Halmahera, red-brown PT Alam Raya Abadi (ARA) waste flooded fields, rice fields, fish ponds, and even the houses of residents of Baturaja Village, Wasile District, East Halmahera, North Maluku (Tirto. id, 12/07/21). In Weda, Central Halmahera, the rivers and sea are polluted, as are the residents' clean water sources. Previously, they could consume clear river water, but now they have to buy gallons of water (Mongabay.co.id, 28/08/22). In South Halmahera, since PT Trimegah Bangun Persada (TBP) entered and operated in Kawasi Village, Obi Island – where residents originally lived peacefully, farming and fishing to meet their family's economic needs – the region has turned into a mining area that has devastated land and coastal areas. Residents' lands have been annexed, plantation crops have disappeared, water sources have been polluted, the air is filled with dust and pollution, the sea water is murky and brownish, and even the fish have been contaminated with heavy metals (Suara.com, 03/25/23).



**The findings on the environmental impacts of nickel mining mean that nickel mining practices in the areas mentioned are contrary to the concept of energy justice, especially recognition justice and restorative justice.** It contradicts the concept of recognitional justice because nickel mining activities harm other parties, in this case the local residents, due to the environmental damage caused. Environmental damage due to nickel mining activities indicates that the companies involved do not have an environmental sustainability perspective in their production processes. Apart from that, the environmental damage that occurred also indicates that the nickel mining companies involved do not have preventive efforts in the environmental sector and do not mitigate the impacts caused. From the concept of restorative justice, there has been no attempt at social accountability for the impacts suffered by the residents.

#### 4.2.2 Energy Injustice from the Human Rights Aspect

Apart from environmental impacts, nickel mines and smelters also impact human rights. One of the impacts on human rights is the occurrence of land disputes and conflicts. One good example of land conflict written about by Project Multatuli (31 January 2022) is the eviction of residents' land in South Halmahera, North Maluku, by PT Trimegah Bangun Persada . The encroachment of residents' lands was carried out by evicting and then negotiating the price. Landowners were not recognized as having rights to land ownership; instead, the lands were claimed as state lands. Consequently, the company only compensated for losses from guava plants based on the Decree (SK) of the Regent of South Halmahera Number 117 of 2017. The Regent's Decree regulates the price for guava plants, with details: per one fruitful guava tree for IDR 75,000, non-fruiting fruitful guava tree for IDR 35,000, and small ones or saplings cost IDR 6,000. Other crops, such as coconuts, are not regulated. From the area of land owned by a resident named Lily, the company only offered compensation worth IDR 129.7 million - a price that she said was not commensurate with the sweat she and her husband had spent so far. This land conflict case contradicts the energy justice concept in the recognition justice dimension, where the company does not have a fair compensation perspective, and the vital justice dimension because the company does not restore the rights of residents who have lost their source of livelihood.

In East Halmahera, nickel mining operations have violated the rights of indigenous communities. The reason is, as reported by Mongabay.co.id (18/02/23), the nickel mining corporation and the East Halmahera regional government never asked for the consent of the Tobelo indigenous community regarding the opening of mining areas that have destroyed their customary forests. The forests of the Tobelo Dalam indigenous community, who live in the Halmahera forest, are slowly being lost and turned into nickel mining and nickel industrial areas. Some residents still survive, and some have been forced to move to look for a new place to live because their living environment is no longer comfortable. After all, the river water and forests have been damaged. The absence of FPIC and the transfer of forest functions to the Tobelo indigenous community for nickel mining contradicts the entire concept of energy justice (distributional justice, procedural justice, recognition justice, and restorative justice). The impact of the nickel mining process results in the loss of living space, namely forests, for indigenous communities. This is also due to the absence of social mapping carried out by the company to see the local context, such as community culture. Thus, when the business enters, there will be culture shock or unpreparedness in the local community.

In addition, the opening of mining and industrial areas without the consent of indigenous communities reflects the lack of consideration from mining companies and local governments in making business and political decisions. The non-involvement of the Tobelo Dalam community regarding the use of forest areas for mining and nickel industrial



areas is a reflection of recognition injustice. Also, the impacts felt by the Tobelo Dalam indigenous community, such as river pollution and forest destruction, so that some had to move, reflect the lack of rights restoration sought by companies and the local government.

Not all nickel smelter companies have harmonious industrial relations. One example occurred at PT Gunbuster Nickel Industry (GNI) in North Morowali. In January 2023, there was a clash between local workers and foreign workers, which resulted in the death of two workers, 1 Indonesian citizen and 1 foreigner each. Quoted from Detik.com (18 January 2023), Minister of Manpower Ida Fauziyah said that the chaos was caused by employment issues demanded by representatives of the National Workers' Union, including demands regarding K3, wages, and layoffs. Industrial relations conflicts between local workers and companies and local workers and foreign workers illustrate that PT GNI's business practices are not following the concept of restorative justice because they do not have preventive and mitigation efforts related to industrial relations conflicts, as well as minimal implementation of social protection which ultimately gives rise to violation of workers' normative rights.

Previously, in December 2022, a 20-year-old female worker working at night was trapped in a crane that caught fire due to an explosion. Tempo. co (20/02/2022) reported that the female worker was reported to have "burned to death" along with other workers. This incident illustrates the high risk of work at PT Gunbuster Nickel Industry (GNI). Another PT GNI female worker said that the company did not provide workers with Personal Protective Equipment (PPE) such as masks, suits, and shoes that met standards, so they had to buy them themselves. Apart from that, data collected by the Mining Advocacy Network (JATAM) recorded that there were 10 employees of PT. GNI, who died in 2020. JATAM said the deaths were caused by, among other things, being buried by landslides, drowning, falling into hot dumps, and truck accidents (Tempo. co, 20/02/23). Information related to work accidents illustrates the low level of K3 standards. This is, of course, contrary to the concept of recognition justice because the company does not have K3 preventive and mitigation efforts.

Various previous studies have found negative impacts resulting from nickel mining in Central Sulawesi. Several studies show that local communities are directly affected through reduced income due to disruption of livelihoods from mining activities. For example, the people of Tamainusi Village, North Morowali, who work as stone crushers, can no longer work because the area has been controlled by a mining company. Also, fishermen around the mining area have experienced a decline in fish catches. They were previously able to catch up to 5,000 fish but now only managed to catch 1,000 (Teresa et al., 2021). Farmers in the village have also experienced crop failure due to climate change, such as high rainfall. Other environmental damage, such as air and dust pollution, which has an impact on the respiratory system and the growth of agricultural plants, is also experienced by residents around the mine.

Apart from social and decent work problems, the upstream sector of the nickel industry also raises environmental problems. In Southeast Sulawesi, illegal deforestation occurred throughout 2018–2020, reaching 1,700 hectares (Majalah Tempo, 29/01/22). Gunawan et al. (2015) show that the water around nickel mines and outside the mine is contaminated with the heavy metal lead (Pb) exceeding the specified threshold.

WALHI (2020) also obtained field findings related to the impact of nickel mining on environmental damage located on Wawonii Island. Nickel mining in this area has caused damage to coral reefs, resulting in the loss of coral fish species (Parid, 2020). This is also in line with research from Nancy (2022) which shows that post-mining operations are the phase with the highest damage impact on environmental conditions and balance with a score of 4.75 points. This means that ecological, cultural damage and even economic losses resulting from post-mining activities have a significant impact on the lives of surrounding communities, especially the lives of indigenous communities and other vulnerable groups (Nancy, 2022).

The impact of mining activities on the lives of indigenous communities and other vulnerable groups is discussed in more detail in research by Glynn and Maimunah (2023). This study examines the impact of nickel mining, specifically on the lives of Karonsie Dongi traditional women in South Sulawesi, and the resistance they are carrying out regarding the adverse effects of mining activities. In this case, the male population benefits more from the existence of the mining sector than the indigenous female population because men are needed in large numbers and dominate the labor sector of mining companies. The mining sector, still interpreted as a male-dominated world, makes it difficult for women to find work (Glynn & Maimunah, 2023). Other vulnerable groups, such as children, are also affected by the presence of nickel mines. Every year, some accidents happen to children when they go to school due to the lack of safety on roads converted as heavy mining equipment routes (Glynn & Maimunah, 2023).

#### 4.2.3 Energy Injustice from the Governance Aspect

The poor governance of the nickel industry can be seen in the massive corruption cases. These corruption cases usually involve abuse of authority by public officials in granting Forest Area Utilization Permit (IPPKH) and Mining Business License (IUP) to mining companies. For example, a case of alleged abuse of authority reported by Pikiran Rakyat on February 7, 2022, befell the Head of the Southeast Sulawesi Energy and Mineral Resources Service due to the lack of synchronization between company documents deed number 27 dated 2021-06-16 with the Production Operational IUP (IUP OP) with the SK number owned by PT. Kurnia Degess Pratama 540.3/SK.008/DESDM/V/2011 effective date of SK 5/23/2011 and expiration date of SK 5/1/2031 (Pikiran Rakyat, 2022). Thus, a company founded only in 2021 is unlikely to have had an OP IUP since 2011 (Pikiran Rakyat, 2022). Apart from that, corruption in granting nickel mining permits was also carried out by the Regent of North

Konawe, which caused state losses of up to IDR 2.7 trillion (Pradila, 2021).

In this regard, the results of the researchers' Incremental Capital Output Ratio (ICOR) calculation to see investment efficiency in the nickel industrial area show a high value. In Southeast Sulawesi province, the ICOR value obtained in 2021 reached 10.6% and decreased to 7.5% in 2022. A high ICOR value indicates greater investment required to achieve additional output or economic growth. The high ICOR value also indicates illegal levies and corruption occurring in Southeast Sulawesi's nickel industry processing chain.

Furthermore, various previous studies have found the negative impacts resulting from nickel mining in Central Sulawesi. Some studies indicate that the surrounding communities are directly affected, such as reduced income due to disrupted mining activities. For example, the community of Tamainusi Village, North Morowali, who work as stone breakers, cannot return to work because the area has been taken over by mining companies. Furthermore, fishermen around the mining area have experienced a decrease in their catch, which was originally able to catch up to 5,000 fish, but now only manage to catch 1,000 fish (Teresa et al., 2021). Farmers in the village also experience crop failure due to climate change, such as high rainfall. Other environmental damages such as air pollution and dust affecting respiratory systems and agricultural plant growth are also experienced by the residents around the mine.

The background of the page is a dark orange-red color. It features a faint world map in the center, overlaid with a grid of binary code (0s and 1s) in a lighter shade. In the foreground, there are several stylized financial charts: a bar chart on the left, a candlestick chart in the middle, and a line graph on the right. The charts are rendered in a semi-transparent, glowing style.

## Chapter 5

# BANK INVOLVEMENT IN THE NICKEL INDUSTRY FINANCING VORTEX IN INDONESIA

In light of the substantial demand for nickel minerals, mining companies and capital owners, including investors, investment managers, and financial institutions, have initiated extensive financing activities. This trend has also spurred companies from various countries to enter the Indonesian market through sub-holding entities.



## 5.1 Increased Nickel Investment

The downstream plan has garnered favorable attention from foreign investors, as evidenced by PMA throughout 2022. Data from BKPM (2022) reveals that foreign investment in the basic metal, metal goods, non-machinery, and equipment industrial sector surged to USD 11 billion, constituting 24% of the total FDI.

Regarding investment destinations, **Central Sulawesi** emerged as the primary recipient, attracting 16.4% of the total incoming FDI, amounting to **USD 7.5 billion** from 2019 to 2022.

### Country of origin of the largest investor



Singapore



China



Hongkong

In light of the substantial demand for nickel minerals, mining companies and capital owners, including investors, investment managers, and financial institutions, have initiated extensive financing activities. This trend has also spurred companies from various countries to enter the Indonesian market through sub-holding entities. Evidence from investment data released by BKPM in 2022 indicates that PMA dominates over Domestic Investment (PMDN), accounting for 54.2% or IDR 654.4 trillion (a 44.2% YoY increase) compared to domestic capital of IDR 552.8 trillion or 45.8% (a 23.6% increase).

The distribution of PMA locations aligns with the nickel mining map in Indonesia. As of June 2021, the Directorate General of Mineral and Coal reported a total of 338 active permits, including 4 Mining Exploration Permits/Exploration Work Contracts (Exploration IUPs/KKs) and 328 Production Operation Permits/Operation Work Contracts (OP IUPs/KKs), spanning approximately 866 thousand hectares. Sulawesi holds the majority of permits, with 282 IUP/KK OP or 83% of the total nickel mining permits in Indonesia. The mining area in Sulawesi covers 611 thousand hectares, accounting for 70% of Indonesia's total nickel mining area. Specifically, there are 2 Exploration IUPs in Southeast Sulawesi and 2 in South Sulawesi,

while OP/KK IUPs are distributed across various provinces, including 170 in Southeast Sulawesi, 100 in Central Sulawesi, 4 in South Sulawesi, 45 in North Maluku, 2 in Maluku, 2 in South Kalimantan, 4 in West Papua, and 1 in Papua.

According to the Directorate General of Mineral and Coal (2021), the nickel ore mining industry and its processed products contribute significantly to the country's economy through taxes and Non-Tax State Revenue (PNBP). In 2022, nickel PNBP surged to IDR 4.18 trillion, marking an eightfold increase from the royalties received in 2015, which amounted to IDR 531 billion. This growth was also prompted by the rise in the Nickel Reference Mineral Price (HMA) in May 2022.

The downstream plan has led to a substantial increase in investment rates in Central Sulawesi, translating into significant GDP growth, with a rise of 11.7% in 2021 and 15.17% in 2022. This growth mirrors the FDI trend towards the nickel sector, particularly in Central Sulawesi. However, the investment has not substantially impacted regional GDP or poverty levels. The poverty rate in Central Sulawesi remained high at 13% in 2021, only marginally decreasing to 12.33% in 2022. The open unemployment rate in September 2022 stood at 3%, a decrease of 0.75% from September 2021. Additionally, heightened investment interest in the metal industry sector, such as nickel, has led to extensive construction of smelters and nickel mining activities.

## 5.2 Landscape of the Nickel Industry in Indonesia

### 5.2.1 Nickel Mining in Indonesia

Indonesia and Australia each boast nickel reserves of 21 million metric tons from global nickel deposits (Garside, 2023). However, Indonesia stands out as the largest producer globally. Indonesia leads in nickel production, accounting for nearly half of the global output, approximately 48%, while Australia contributes only 5% to global nickel production (Ho and Listiyorini, 2023). With production on the rise, Indonesia is projected to supply over 60% of the world's nickel by 2030 (Lee, 2023).

According to estimates from the U.S. Geological Survey (USGS), Indonesia's nickel production in 2022 was expected to reach 1.6 million metric tons (Garside, 2023), marking the apex of nickel production in Southeast Asia. In 2023, Indonesia aimed to add 500,000 tons of annual production capacity (Listiyorini, 2022).

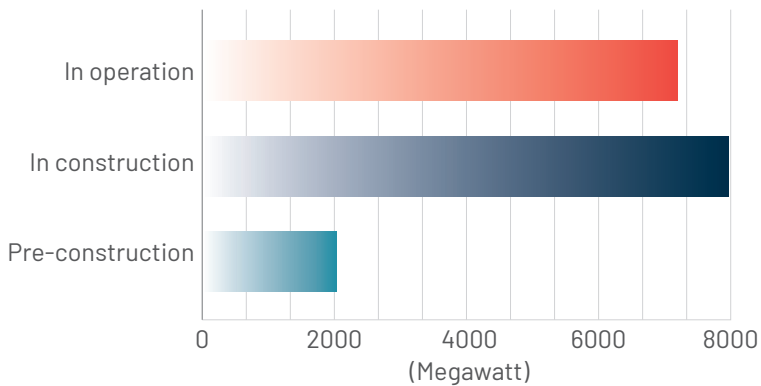
With the escalation in nickel production and governmental initiatives to promote downstream projects, the number of smelters has increased. The Indonesian Nickel Miners Association (APNI) reported that as of January 2023, there were 43 operating nickel processing factories (smelters) (Muliawati, 2023) with 199 furnaces (Rahayu, 2023). Nickel ore consumption for these 43 smelters reached 145 million tonnes per year, and by 2025, it is projected that there will be a total of 136 smelters with nickel ore requirements reaching 400 million tonnes per year.

Almost all nickel smelter furnaces, totaling 99% of ownership, are affiliated with China (Muliawati, 2023). This aligns closely with the Skarn Associates report (2023), which states that around 92.5% of nickel smelter furnaces, 137 out of 148, are affiliated with China.

China’s dominance in nickel smelter ownership in Indonesia results in the majority of nickel downstream products flowing to that country. Nickel exports from Indonesia to China surged by almost 700% during the January–November 2022 period compared to the same period in 2021 (Kusnandar, 2023). Total nickel exports to China during January–November 2022 amounted to 581,664 tonnes, while in 2021, they were 82,353 tonnes. Indonesia also exports nickel to Japan, totaling 83,162 tonnes in 2021 and 71,250 tonnes during January–November 2022. Additionally, exports to South Korea amounted to 248 tons in 2021 and 19,441 tons during January–November 2022. Other exports were recorded to Malaysia, Norway, India, Singapore, Hong Kong, Brazil, and the United States.

Indonesia’s significant nickel production poses severe environmental risks. Each ton of nickel produced in Indonesia emits an average of 58.6 tons of carbon dioxide (CO<sub>2</sub>) (Ho and Listiyorini, 2023), surpassing the global average of 48 tons of carbon dioxide. These emissions arise from the mining process, transportation, and the utilization of coal-fired steam power plants (PLTU) for nickel processing. Presently, the nickel smelting process remains heavily reliant on coal energy sources.

Figure 8 Status and Capacity of Captive PLTU for Nickel Smelters in Indonesia in 2023



Source: Global Energy Monitor et al., 2023, prepared by the researchers.

Indonesia is reported to have captive PLTU for nickel smelters totaling 7.2 Gigawatts (GW) already in operation. Additionally, there are 8 GW under construction and 2 GW in pre-construction status (Global Energy Monitor et al., 2023).

Nickel processing in Indonesia is dispersed across various industrial areas and smelters as follows:

Figure 9. Industrial Areas and Nickel Downstreaming in Indonesia

Industrial Park	Indonesia Morowali Industrial Park (IMIP)	Virtual Dragon Nickel Industrial Park (VDNIP)	Obi Island Industrial Park	Industrial Weda Bay Industrial Park (IWIP)	Luwu Industrial Park	Batang Industrial Park	Green Industrial Park North Kalimantan	Pomalaa Industrial Park
Construction	2014	2015	2018	2018	2021	2021	2021	On Plan
Location	Morowali, Central Sulawesi	Konawe, Central Sulawesi	Obi Island, Halmahera, Maluku Utara	Weda Bay, Halmahera, North Maluku	Luwu, South Sulawesi	Batang, Central Java	Bulungan, North Kalimantan	Pomalaa, Southeast Sulawesi
Land Area	2,000 hectare	1,537.17 hectare		538 hectare		500 hectare	30,000 hectare	
Shareholders	Shanghai Decent Investment Group 49.7% (Tsingshan Group);	Jiangsu Delong	Harita Group	Perlux Technology Co. Ltd 40% (Tsingshans Group)	Kalla Group with possible collaboration with Posco	Intiland	China and the United Arab Emirates (UAE), and local tycoon Garibaldi Thohir	Vale Indonesia and its partners are projected as shareholders because Vale holds a nickel concession covering 24,000 hectares in the area.



Shareholders	Sulawesi Mining Investment (Shanghai Decent 46.55%, Bintang Delapan Investama 26.65%, Reed International and Fujuan Decent Industrial)	Xiamen Xiangyu Group	Huayou Group 30%			Ford Motor
Shareholders	Bintang Delapan Investama 25.3%	China First Heavy Industries Group	Zhenshi Group 30%		Huayou	
Other Companies Known Invest in The Area	Huayue, Dexin Steel, Brunp Recycling Technology, Hanwa, Hengjaya, GEM, etc	Zhejiang Lygend Investment (Lygend Resources & Technology), Xinxing Ductile Iron Pipes	Eramet	Posco, Lygend Resources*	LG Energy Solution, CATL*	CATL*
Investment	\$22 bln in June 2023	\$ 2,2 bln in 2023	\$7,5 bln in 2018	\$2 bln in 2022	\$9,8 bln in 2022	\$4.5 bln in 2023

Notes: \*Investment in this industrial area is projected.

Sources: D-Insights Katadata, Wood Mackenzie, Kemenperin, Investor, Bloomberg, CNBC Indonesia, Nikkei Asia, Reuters, and data processed by the researchers

## 5.2.2 Key Business Entities for Nickel Mining in the Upstream Sector

Indonesia is an important home for the global nickel industry landscape. There are various types of nickel industry. In this context, the upstream sector of the nickel industry is mining. Determination of key entities in the upstream sector is based on concession ownership. The data source for key player criteria is from mining permits issued by the Ministry of Energy and Mineral Resources (ESDM) and data from related companies.

There are at least five companies with the largest number of nickel concessions in Indonesia. The five are PT Vale Indonesia Tbk, PT Aneka Tambang Tbk, PT Bintang Empat Group, PT Weda Bay Nickel, and PT Merdeka Battery Materials Tbk. Three of the five companies are public companies listed on the Indonesian Stock Exchange.

These five companies have parent companies, but not all of them are in Indonesia. In this case, for example, the final beneficiary of PT Vale Indonesia Tbk is Vale SA in Brazil, PT Weda Bay Nickel is Eramet SA, a mining company from France. The beneficiaries based in Indonesia are PT Aneka Tambang Tbk: the Indonesian government; PT Bintang Empat Group: Halim Mina, entrepreneur from Indonesia; and PT Merdeka Battery Materials Tbk.

The following is a breakdown of key players by number of nickel concessions:

### 1. PT Vale Indonesia Tbk

PT Vale Indonesia Tbk has a concession area covering 118,017 hectares. It is distributed in Bahodopi Block, Central Sulawesi, covering 22,699 hectares; Sorowako Block, South Sulawesi, covering 70,566 hectares; Pomalaa Block, Southeast Sulawesi, covering 20,286 hectares; and Sua-Sua Block, Southeast Sulawesi, covering 4,466 hectares (Annual Report PT Vale Indonesia Tbk, 2022). Shareholders as of 2022 are Vale Canada Limited 43.79%, Public 20.64%, PT Indonesia Asahan Aluminium (Persero) 20%, Sumitomo Metal Mining Co Ltd 15.03%, Vale Japan Limited 0.54%. The ultimate beneficial owner is Vale SA.

### 2. PT Aneka Tambang Tbk

PT Aneka Tambang has nickel concessions spread across several locations and companies. The total area of PT Antam's active concession or production operation status is 81,424.50 ha. Details of the concession area under PT Antam directly are 33,104.50 ha (MODI ESDM, 2023) covering Konawe Regency and North Konawe Regency in Southeast Sulawesi Province. Under its subsidiaries, PT Sumberdaya Arindo has a concession area of 14,421 ha and PT Nusa Karya Arindo has an area of 20,763 ha in East Halmahera Regency, North Maluku Province (ANTAM, 2023). PT Gag Nickel has a concession area of 13,136 ha in Raja Ampat Regency, West Papua Province. The shareholder is the Indonesian government through PT Indonesia Asahan Aluminium (Persero) which owns 65% of the shares in PT Aneka Tambang. As many as 35% of the shares are with the public (Annual Report 2022 PT Antam).

### 3. PT Bintang Delapan Group

According to PT Bintang Delapan Mineral, a part of the Bintang Delapan Group, the total concession area of PT Bintang Delapan Group is 47,000 hectares (Bintang Delapan Mineral, 2019). However, according to Minerba One Data Indonesia (MODI), the active concession area or production operation status is 20,765 hectares (MODI, 2023). All concessions are located in Morowali Regency, Central Sulawesi Province. The ultimate beneficiary of Bintang Delapan Mineral is the businessman Halim Mina (RS and Kurniawan, 2018).

### 4. PT Weda Bay Nickel

The French company Eramet SA entered the nickel business in 2006 after acquiring shares in PT Weda Bay Nickel (WBN) (Eramet, 2023). The share composition of PT WBN is 90% owned by Strand Mineralindo Pte Ltd and 10% by PT Aneka Tambang Tbk. Currently, Strand's shareholders (Eramet, 2017) consist of Eramet SA with 43% and Tsingshan with 57%. PT WBN's nickel concession area covers 45,065 hectares (MODI ESDM, 2017) in Central Halmahera Regency and East Halmahera Regency, North Maluku Province.

### 5. PT Merdeka Battery Materials Tbk

PT Merdeka Battery Materials, through its subsidiary PT Sulawesi Cahaya Mineral, holds a nickel concession area of 21,000 hectares (MODI ESDM, 2018) in Konawe Regency, Southeast Sulawesi Province. The ultimate beneficiary of PT MBM is PT Merdeka Copper Gold Tbk (Merdeka, 2023), with shares partially owned by the Indonesian Minister of Tourism, Sandiaga Uno, through PT Saratoga Investama Sedaya, and Garibaldi "Boy" Thohir, the older brother of BUMN Minister Erick Thohir.

#### 5.2.3 Key Business Entities for Nickel Mining in the Downstream Sector

The downstream nickel policy in Indonesia, coupled with the government's ban on raw material exports, has spurred massive investment in nickel processing. Currently, there are several key business entities operating in the downstream nickel sector in Indonesia, particularly in smelters for the electric battery industry. The criteria for identifying key players are determined based on investment value, production capacity, number of operating smelters, and downstream plans.

Based on these criteria, 11 related companies or consortia are the subject of analysis. Some companies own nickel mines directly, integrating both upstream and downstream activities, while several others operate solely as smelters, sourcing materials from different companies.

These 11 companies or consortia can be classified based on the countries of origin:



Below is the business portfolio of downstream nickel companies, including consortia, and their smelter expansion plans aimed at manufacturing batteries for electric vehicles.

### 1. PT Vale Indonesia Tbk

PT Vale Indonesia Tbk is a subsidiary of VALE SA in Brazil. According to data from the Ministry of Energy and Mineral Resources, Vale holds the largest nickel mining concession in Indonesia, covering 118,000 hectares in the provinces of Central Sulawesi, Southeast Sulawesi, and South Sulawesi. Of this area, approximately 16,000 hectares of nickel concessions are currently being exploited. Presently, Vale owns and operates one smelter in Sorowako, South Sulawesi, with an annual capacity of around 70,000 tons of matte nickel.

Vale has expansion plans for three smelters with a total investment value of USD 8.6 billion by 2023. Vale will expand in the Pomalaa Block, Kolaka, Southeast Sulawesi, in collaboration with United States car manufacturer Ford Motor (Ford, 2023) and Chinese battery manufacturer Zhejiang Huayou Cobalt Co to construct an HPAL nickel smelter with an annual production of 120,000 tons of mixed hydroxide precipitate (MHP). The total investment value of this collaboration between the three companies is USD 4.5 billion (Reuters, 2023).

Vale is also collaborating in the Sowowako Block, East Luwu, South Sulawesi (Riyandanu, 2022), with Zhejiang Huayou Cobalt Co and PT Huali Nickel Indonesia to build a High Pressure Acid Leaching (HPAL) smelter with an annual production target of 60,000-ton MHP (Vale, 2023). The investment value for this project is estimated at USD 1.8 billion. Additionally, Vale is constructing an 80,000-ton annual ferronickel product smelter in the Bahodopi Block (Agung, 2022), Morowali, Central Sulawesi, in collaboration with Taiyuan Iron & Steel Co Ltd (Tisco) and Shandong Xinhai Technology Co Ltd, with an investment value of USD 2.1 billion.

## 2. Tsingshan (IMIP and IWIP)

Tsingshan Group owns two of the largest nickel industrial areas in Indonesia, where several smelter companies operate. Under the Tsingshan Group, there are two industrial areas, namely Indonesia Morowali Industrial Park (IMIP) and Indonesia Weda Bay Park (IWIP). In the IMIP area (Eternal Tsingshan Group Co., Ltd., 2018) located in Morowali Regency, Central Sulawesi Province, there are three smelter clusters (IMIP, 2022). These clusters produce nickel pig iron and stainless steel, carbon steel, and battery cathodes.

IMIP hosts a captive/industrial PLTU with a capacity of more than 2,000 MW. The annual ferronickel production capacity for companies under the Tsingshan Group at IMIP reaches 1.8 million tonnes, ferrochromium 300,000 tonnes, steel production 3 million tonnes, and hot rolled steel 3 million tonnes. The second area under the Tsingshan Group is IWIP (Eternal Tsingshan Group Co., Ltd., 2017), located in Central Halmahera Regency, North Maluku Province. IWIP is integrated with a nickel mine on Halmahera Island, which has nickel reserves of 9.3 million tons. In 2017, Tsingshan collaborated with Eramet Group, based in France, to build a smelter at IWIP.

## 3. PT Bintang Delapan Mineral (IMIP)

The final beneficiary of PT Bintang Delapan Mineral is businessman Halim Mina. Bintang Delapan Minerals holds shares in a smelter company in collaboration with Tsingshan. In 2009, PT Sulawesi Mining Investment (SMI) was formed with a 55% stake held by Shanghai Decent Investment (a subsidiary of Tsingshan Group) and 45% by Bintang Empat Group (Ministry of Industry, 2013). By 2010, investment into SMI (Tsingshan, 2013) had reached USD 1 billion. The production target was to reach 300,000 tons/year of Nickel Pig Iron (NPI) and 1,000,000 tons of stainless steel.

In 2016, Bintang Delapan Mineral and Tsingshan also established PT Tsingshan Steel Indonesia (TSI). The share ownership comprised 80% held by Shanghai Decent Investment and 20% by Bintang Delapan Minerals. The investment in TSI amounted to USD 119 million. The smelter's production capacity was set at 500,000 tons/year of Nickel Pig Iron (NPI) and 1,000,000 tons/year of Carbon Steel.

## 4. Jiangsu Delong Nickel (Dragon Virtue)

There are three smelter companies under the Jiangsu Delong Nickel group, namely PT Virtue Dragon Nickel Indonesia (VDNI), PT Obsidian Stainless Steel (OSS), and PT Gunbuster Nickel Indonesia (GNI). In 2019, Jiangsu Delong Nickel established an industrial area in Morosi, Konawe Regency, Southeast Sulawesi Province with an area of 2,253 hectares. Within the industrial area, VDNI and OSS operate. Investment for VDNI reached USD 1.4 billion (Maskur, 2019), while for OSS it was USD 2 billion (Amali and Aziz, 2020).

VDNI's production capacity target is 1,000,000 tons of ferronickel, and OSS aims for 3,500,000 tons of stainless steel. Meanwhile, in 2021, GNI began operating in North Morowali Regency, Central Sulawesi Province, with an industrial area of 1,907 hectares

(Harlina, 2021). The investment value of GNI reached USD 3 billion (Yessy, 2021). The annual production target is 1,800,000 tons of ferronickel.

## 5. Harita dan Lygend Resources

Harita Group is collaborating with Lygend Resources to form an electric battery smelter company. Lygend is one of the major players in the nickel supply chain in China. To finance nickel expansion with Harita, on December 1, 2022, Lygend conducted a share offering (Initial Public Offering/IPO) on the Hong Kong Stock Exchange. Lygend raised USD 470 million from the IPO, making it the fourth largest IPO of 2022 on the Hong Kong Stock Exchange (Li and Pacheco, 2022). As much as 56.4% of the funds from Lygend's IPO will be used for the smelter project with Harita on Obi Island. On April 12, 2023, Harita also conducted an IPO on the Indonesian Stock Exchange (Pacheco & Ho, 2023). Harita received USD 659 million, equivalent to almost IDR 10 trillion, the largest for an IPO in Indonesia in 2023 (Ruehl, 2023).

PT Halmahera Persada Lygend (HPAL) smelter produces mixed hydroxide precipitate (MHP) as raw material for electric batteries. HPAL's annual production target is 37,000 tons of MHP. Harita has an electric battery smelter expansion plan for phase II and phase III. The total annual production target is 83,000 tons. Another Harita smelter operating since 2016 is PT Megah Surya Pertiwi (MSP). The final product is ferronickel with a capacity of 25,000 tons/year with four lines. PT Halmahera Jaya Feronikel (HJF) has been operating since October 2022 with a production target of 95,000 tons/year with 8 production lines.

## 6. Contemporary Amperex Technology Ltd (CATL)

CATL is one of the largest battery manufacturing companies in China. In Indonesia, CATL has collaborations with a number of companies. The current collaboration in 2023 is at the Conditional Share Purchase Agreement (CSPA) stage between CATL, Antam, and Indonesia Battery Corporation (Investor ID, 2023). The total value of this agreement reaches USD 5.69 billion. The project is part of a large program in Project Dragon, which combines upstream and downstream from mining, smelting, batteries to recycling (Maulia, 2022).

Details show that PT Aneka Tambang Tbk (Antam), through its subsidiary PT Sumber Daya Arindo (SDA), will collaborate with Ningbo Contemporary Brunp Lygend (CBL), a subsidiary of CATL and Lygend Resources. Antam and CBL plan to collaborate on nickel mining worth USD 226 million, construction of a ferronickel smelter worth USD 1.8 billion, and construction of an HPAL technology smelter for electric batteries worth USD 1.3 billion.

Then CBL and IBC collaborate for battery, cathode, and battery cell recycling facilities worth USD 114 million each, a cathode recycling plant of USD 647 million, and a battery cell recycling plant of USD 1.6 billion. CATL is also taking part in the HPAL smelter project at IMIP, namely PT QMB New Energy Materials, together with Tsingshan and the Chinese battery recycling company, GEM. CATL through Brunp has a 10% stake in QMB (GEM, 2023).

## 7. LG Corporation

LG Corporation, a South Korean company that produces electric batteries, is involved in upstream and downstream investment cooperation in Indonesia. According to the Ministry of Investment/BKPM (2023), LG is involved in a partnership worth USD 9.8 billion for the electric battery project consisting of LG Energy Solution, LG Chem, Zhejiang Huayou Cobalt, LX International, POSCO Future M, with PT Aneka Tambang (Antam) Tbk and Indonesia Battery Corporation (IBC).

This project consists of building a battery cell factory in Karawang, West Java, worth USD 1.1 billion with a battery cell production capacity of up to 10 Gigawatt-hours (GWh) in April 2024. The next project is the construction of a smelter, precursor, and cathode, as well as mining with Antam in Buli, Halmahera.

## 8. Zhejiang Huayou Cobalt

Zhejiang Huayou Cobalt is a battery supply chain company in China with a market capitalization of USD 9.45 billion (Markets FT, 2023) and operates smelters at IMIP and IWIP, with plans for two additional smelters in Pomalaa and Sorowako. In 2022, Huayou collaborated with Vale and Ford on the Pomalaa smelter project (Bushey et al., 2023), worth USD 4.5 billion, expected to be completed in 2025. Huayou will be the majority shareholder with 53%, Ford 17%, and Vale 30%. The nickel supply from this project, powered by fossil gas, will support Ford's ambition to produce 2 million electric vehicles per year.

Zhejiang Huayou Cobalt Co and CNGR Advanced Materials Co, which operate a smelter at IMIP, also collaborate with the large United States automotive company, Tesla (Lee, 2022). The total value of the agreement is USD 5 billion over five years. Zhejiang supply materials for lithium batteries from 1 July 2022 to the end of 2025, while CNGR supply materials from 2023 to 2025. In Tesla's supply chain report (2021), since 2021, Huayou has been a supplier of nickel and cobalt to Tesla.

## 9. Posco

Pohang Iron and Steel Company (Posco) is a major steel producer in South Korea. Posco is beginning to enter the nickel supply chain. Previously, Posco had entered the steel business in Indonesia. Posco is involved with the Kalla Group, a company affiliated with Jusuf Kalla, a national conglomerate (Sunardi, 2021). Posco is the off-taker (buyer) of nickel sulfate produced by the Kalla Group subsidiary smelter factory, namely PT Bumi Mineral Sulawesi.

Posco and Lygend Resources are also involved in cooperation to build a smelter for electric batteries in Sulawesi starting construction in 2023 with an operational target of 2025 (Hyun-bin, 2023). The annual production capacity is 60,000 tons—enough for the needs of 1.2 million electric vehicles—and the annual production capacity can be increased to 120,000 tons (Chea, 2023). Posco has also invested USD 441 million in building a smelter for electric batteries at IWIP, Halmahera (Seung-yeon, 2023). The smelter's capacity is 52,000

tonnes of battery raw material nickel per year, equivalent to powering around 1 million electric vehicles (EV).

## 10. Kalla Group

Kalla Group, a national company affiliated with Jusuf Kalla (Kalla, 2023), will build a nickel industrial area to produce ferronickel with a capacity of 33,000 tons/year and 31,400 tons/year nickel sulfate at the Luwu Industrial Park in Luwu Regency, South Sulawesi for its smelter through PT Bumi Sulawesi Minerals (Siddiq, 2023). The total investment value for these two types of smelters reaches USD 2 billion (Listyorini, 2022).

By 2030, Kalla Group plans to build 14 furnaces at the smelter with a total investment value of IDR 10 trillion. The first stage is to build two furnaces with an investment value of IDR 2.88 trillion. In the context of generating power for the smelter, Kalla will utilize the hydroelectric power generation (PLTA) it owns, namely the 515 MW Poso PLTA and the 90 MW Malea PLTA. Kalla has collaborated with LG through Posco to absorb the nickel sulfate produced because LG plans to process nickel sulfate into a cathode precursor for battery materials in Indonesia.

## 11. Indonesia Battery Corporation

The government-owned company formed a consortium to downstream nickel, named the Indonesia Battery Corporation (IBC). There are four state-owned enterprises (BUMNs) in it, namely MIND ID, PLN, Pertamina, and Antam, each holding 25% shares. IBC has collaborated for end-to-end electric batteries from mining to batteries with two large companies, namely Contemporary Amperex Technology Ltd (CATL) and LG, with a total investment of both reaching USD 15 billion. Another IBC project is an energy storage system between PLN and MIND ID to support renewable energy power plants which require large capacity batteries to store energy (Afriyadi, 2023). IBC also plays in electric vehicles with majority share ownership in Gesits.

## 5.3 Financing Flows for the Nickel Industry in Indonesia

### 5.3.1 Aggregate Aliran Investasi Industri Nikel

Data on nickel investment in Indonesia in aggregate amounts face challenges for data collection, due to dynamic data, differences in data between ministries, and the diversity of data sources. Aggregate information on nickel industry investment in 2023 was released from a statement by the Ministry of Industry (Kemenperin). In August 2023, the Ministry of Industry (2023) stated that 34 nickel smelters were operating and 17 smelters were in the construction stage.

The investment value for the pyrometallurgical smelter reached USD 11 billion, equivalent to IDR 165 trillion (assuming an average USD exchange rate in 2020 of IDR 14,525). Meanwhile, the investment value for hydrometallurgical smelters reached USD 2.8 billion, equivalent



to almost IDR 40 trillion. Thus, the combined investment for all types of smelters in Indonesia as of 2023 reached at least USD 13.8 billion or the equivalent of IDR 205 trillion. This data differs from that of the Coordinating Ministry for Maritime Affairs and Investment which notes that there are 66 nickel smelters that have permits. This data comes from two institutions, namely the Ministry of Energy and Mineral Resources and the Ministry of Industry. The estimate for the 66 smelters is that the total demand for nickel ore (ore) is 119 million tons/year and the total production capacity is 23.71 million tons/year.

The Coordinating Ministry for Maritime Affairs and Fisheries detailed that out of the 66 smelters, 26 smelters are operational, 37 smelters are in the construction stage, and 3 smelters are in the planning stage. The total investment in 66 smelters reached USD 29.79 billion or IDR 432 trillion (average USD exchange rate in 2020 IDR 14,525). Aggregate nickel investment data is also provided by Katadata's D-Insights calculations. In the table below, we can see the aggregate smelter investment in the six-year period from 2017 to 2022. Total smelter investment was recorded at USD 1.8 billion. This value is certainly smaller than the smelter investment information from the two ministries above.

In terms of foreign direct investment (FDI) in nickel-rich provinces, it was recorded that in the six-year period, the highest was Central Sulawesi at USD 16 billion, then North Maluku Province at USD 11.3 billion, followed by Southeast Sulawesi Province at USD 6.1 billion, and lastly, South Sulawesi Province, namely USD 2.6 billion. If calculated on an island basis, namely Sulawesi Island for three provinces, the total FDI amount is USD 24.7 billion.

In Indonesia, the basic metals industry (which includes iron and steel products that are also closely related to nickel downstream) has achieved high Gross Domestic Product (GDP) (Ministry of Industry, 2023). In Semester I-2023, the GDP of the basic metal industry would reach IDR 66.8 trillion. Previously, during 2022 GDP reached IDR 124.29 trillion, higher than in 2021 of IDR 108.27 trillion.

### **Central Sulawesi Province is the province with the highest foreign investment.**

This reflects the existence of a nickel area in Morowali (Kemenperin, 2021). The export value of base metals, including nickel, from Morowali for 6 years (2016-2021) from Kolonodale Port, reached a total of USD 18.06 billion, equivalent to a contribution of 22.8% of the total exports of the base metal industry nationally.

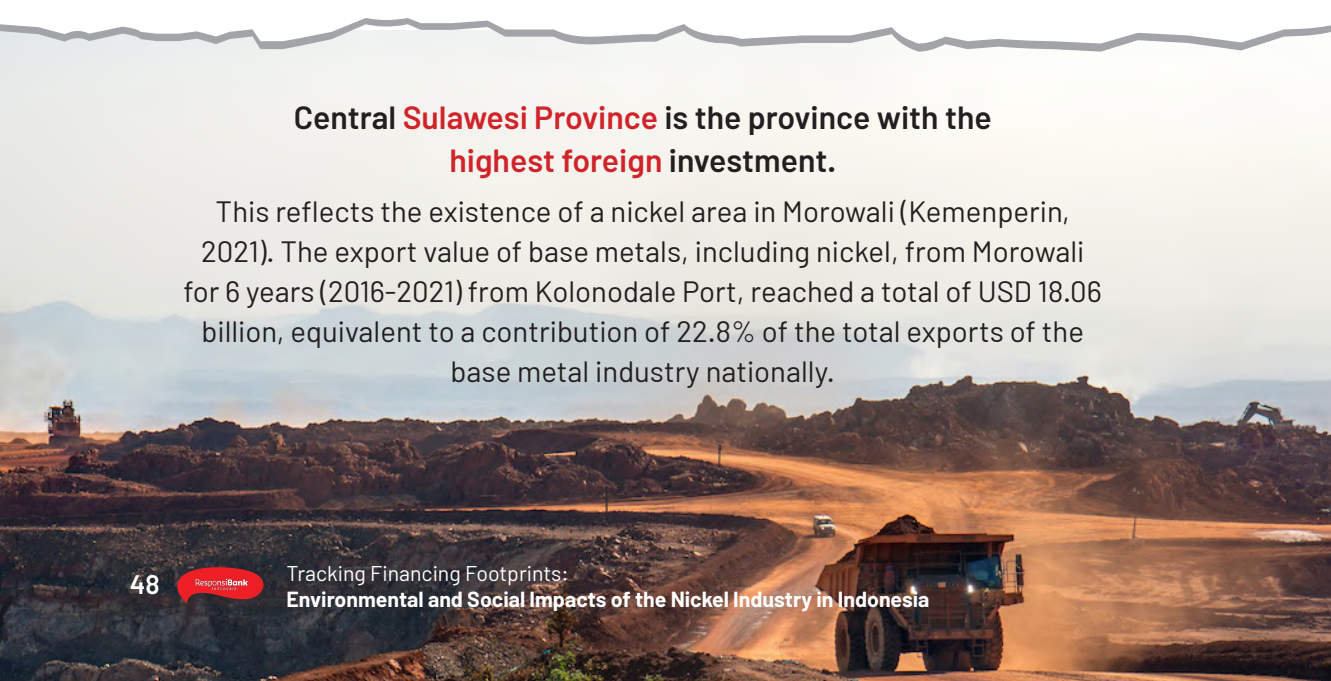


Table 4: Smelter Investment and Foreign Investment in Nickel-Rich Provinces (in million USD)

Value of Investment & Year	2017	2018	2019	2020	2021	2022	Total
Smelter Investment	0,42	311,9	430,91	776,34	224,94	57,7	1.802,21
Value of Foreign Direct Investment per region							
Central Sulawesi	1.545,60	672,4	1.805	1.779,10	2.718,10	7.486	16.006,20
South Sulawesi	712,8	617,2	302,6	236	309,9	469	2.647,50
Southeast Tenggara	693	672,9	987	1.268,60	1.616,40	877,9	6.115,80
North Maluku	228,1	362,8	1.008,50	2.408,90	2.819,80	4.487,50	11.315,60

Source: D-Insights Katadata, 12 February 2023

Meanwhile, the investment in nickel by country can be observed in the dominance of ownership of nickel concessions and smelters, with China ranking first in investment in nickel-producing islands in Indonesia. According to Bloomberg data (2022), the value of Chinese investment in two nickel-rich islands in Indonesia has significantly increased in the last decade (2012–September 2022). This investment is associated with the construction of smelters, refineries, and other related infrastructure such as a new metallurgical school and a nickel museum.

The value of China’s investment in Sulawesi Island (including its provinces) and Halmahera Island (administratively included in North Maluku Province) amounts to USD 14.2 billion. In comparison, other countries, namely Australia, Canada, South Korea, and the United States, reached an investment value of USD 1.5 billion in the same period and on the same two islands. These four countries combined represent approximately 10% of the value of China’s investment in the two nickel-rich islands in Indonesia. This data also highlights the key nickel players by country as China, Canada, Australia, the United States, and South Korea. Additionally, there are smaller nickel industry players from Europe, namely Eramet, a mining company from France, and BASF, a chemical company from Germany. Eramet and BASF are collaborating on a nickel and cobalt smelter project in Indonesia, specifically the Weda Bay Industrial Park (IWIP), in Halmahera and North Maluku, with an investment value of USD 2.6 billion (Bloomberg, 2023).

Table 5. Investment in Sulawesi and Halmahera (North Maluku) Islands by Country

Country & Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
China	31,8 million	5,8 million	126 million	137,2 million	1,5 billion	1,9 billion	665,4 million	2,3 billion	2,4 billion	1,9 billion	3,2 billion
Korea Selatan	22,5 million	1,8 million	4,4 million	9,9 million	32,7 million	5,8 million	10,3 million	16,9 million	231.100	6 million	719.600
Australia	29,8 million	30 million	17,7 million	14,4 million	26,8 million	94,6 million	5,5 million	2,3 million	23,4 million	28,1 million	17,8 million
Kanada	0	94,2 million	155.700	72,3 million	94,4 million	68,5 million	101,6 million	166,4 million	159,1 million	168,8 million	141,9 million
United States	680.800	253.300	1 million	37,4 million	14,4 million	6,5 million	602.500	775.300	1,2 million	363.200	11,2 million
Total	84,8 million	132 million	149,2 million	271,2 million	1,7 billion	2,1 billion	783,4 million	2,5 billion	2,6 billion	2,1 billion	3,4 billion

Source: Bloomberg, 2022 and data processed by the researchers

In the next two years, there are dozens of plans to build smelters, including nickel; there are at least 22 plans until 2026 (Ayu, 2022). The total investment value reaches USD 22.078 billion, equivalent to IDR 331 trillion (based on an exchange rate of IDR 15,000/USD). Smelters include critical minerals, ranging from nickel to aluminum (Komalasari, 2022). The locations are spread across the islands of Kalimantan, Sulawesi, and Maluku.

Table 6. Smelter Investment Plan Until 2026

Company	Investment Value (Million USD)	Island	Type
Adaro Aluminium Indonesia	2.000	Kalimantan	Alumunium
Anugrah Barokah Cakrawala	453	Kalimantan	Nikel
HPAL Pomalaa (Vale-Ford-Huayou)	3.500	Sulawesi	Nikel
CNGR Pomalaa New Energy Materials	1.200	Sulawesi	Nikel
Zhongxing New Energy	787	Sulawesi	Nikel
QMB HPAL Expansion	777	Sulawesi	Nikel
BTR Anode Project	478	Sulawesi	Baterai Lithium
Chengkok Lithium Project	350	Sulawesi	Baterai Lithium
IKIP HPAL Project	2.750	Sulawesi	Nikel
HPAL Sonic Bay (Eramet-BASF)	2.200	Maluku	Nikel
Huasan Nickel Cobalt	2.082	Maluku	Nikel
CNGR Xingquan New Energy	502	Maluku	Nikel
CNGR Xingqiu New Energy	500	Maluku	Nikel
CNGR Xingqiu New Energy	488	Maluku	Nikel
Nickel Metal Industry	460	Maluku	Nikel
Maluku Utara Metal Industry	437	Maluku	Nikel
Jaman New Energy	428	Maluku	Nikel
Chengmach Nickel Indonesia	424	Maluku	Nikel
Universe Smelters Metal Industri	417	Maluku	Nikel
Westrong Metal Industri	389	Maluku	Nikel

Jade Bay Metal Industri	256	Maluku	Nikel
Halmahera Persada Legend Expansion	1.200	Maluku	Nikel
<b>Total</b>	<b>22,078</b>		

Source: Data processed from the Coordinating Ministry for Maritime Affairs and Investment, 2023

### 5.3.2 Flows and Forms of Financing for the Nickel Industry in Indonesia

The nickel industry in practice utilizes various forms of financing. In this research, financing is categorized into three main forms:

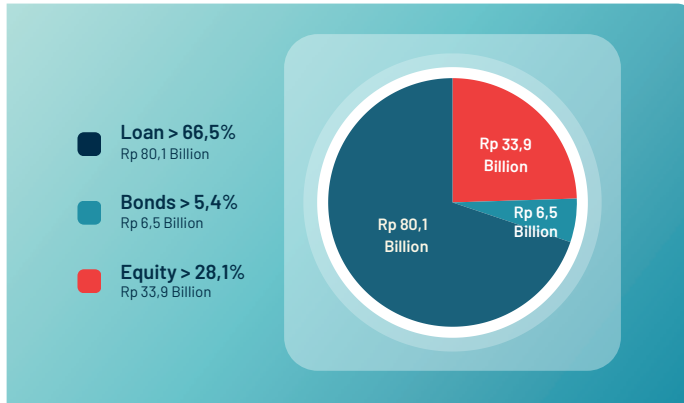
1. Financing through loans;
2. Financing through bonds; and
3. Financing through equity.

Regarding financing flows, this research found that financing for the Indonesian nickel industry is predominantly sourced from abroad. This is due to the substantial capital requirements of smelter infrastructure, making reliance solely on national banks with limited capacity unfeasible. Additionally, the nickel industry, considered a part of the low-carbon development solution, has garnered support from global financial institutions, especially during the transition away from coal financing. With its abundant nickel reserves and extensive production, Indonesia has attracted investment from global financial institutions in various forms.

In this study, the total financing from financial service institutions, analyzed successfully by the researchers, amounted to USD 8.03 billion, equivalent to IDR 120.5 trillion. The breakdown of financing for the nickel industry, encompassing mines, smelters, and coal-fired captive power plants, includes loans as the highest form of financing at USD 5.34 billion, equivalent to IDR 80.1 trillion, followed by equity financing worth USD 2.26 billion, equivalent to IDR 33.9 trillion, and financing through bonds totaling USD 433 million, equivalent to IDR 6.5 trillion.



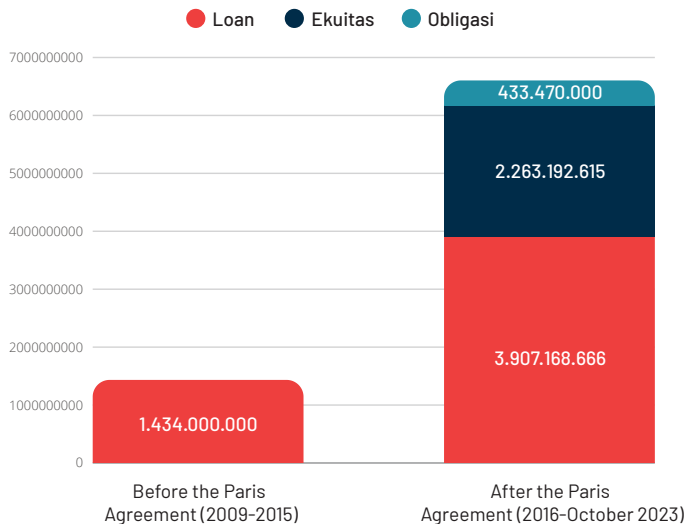
Figure 10. Form and Value of Nickel Industry Financing in Indonesia (unit: Trillion Rupiah) 2009-2023



Source: The researchers' processed results

Specifically, analysis of the nickel industry's financing flow indicates a significant increase after the Paris Agreement. Prior to the agreement (2009-2015), the nickel industry received loans totaling only USD 1.4 billion. Post-Paris Agreement, this figure surged to USD 6.6 billion from various financing types, including loans, equity, and bonds, marking an increase of over 300%. Equity financing also became a notable component during this period, amounting to USD 2.26 billion.

The escalation in financing flows for the nickel industry reflects the investment and financing dynamics aimed at critical mineral commodities to "facilitate" the energy transition outlined in the Paris Agreement. Throughout this process, various observations have been made regarding the financing practices within this industrial sector.



Source: The researchers' processed results

## 1. Financing through Loans

The nickel industry utilizes various financing schemes. This research reveals that financing for the construction of nickel industry supporting facilities, such as smelters, is predominantly facilitated through direct loans tailored for specific project financing, known as project loans. Additionally, smelter companies require loans for their business activities (corporate loans) and general company operations (general loans). These loans can originate from financial service institutions or from parent companies to subsidiaries.

During the loan process, bank guarantees are often utilized. These loans are provided by both domestic and international banks, with the largest volume of loans stemming from banks in China. Banks from Singapore, such as DBS, have also been involved in financing various smelter projects. Indonesian banks that have participated in syndicated loans include Bank Mandiri and Bank BRI. Banks based in Europe, such as Standard Chartered, Barclays, and BNP Paribas, have also acted as lenders.

This research identified 31 loan transactions and 1 bank guarantee, totaling USD 5,341,168,666 or equivalent to IDR 80.1 trillion (estimated at an exchange rate of IDR 15,000) for nickel companies during the research period. However, it is believed that the actual total number of loans may be higher, but much of the data pertains to transactions with private companies that are not publicly available.

### ***Guarantee Facility***

Within these loans, certain institutions provide guarantee facilities for projects. These guarantees are crucial as they ensure that in the event the borrower defaults on the debt, the guarantor bank will assist in settling the outstanding amount.

Since 2010, the Multilateral Investment Guarantee Agency (MIGA), a member of the World Bank, has been involved as a guarantor bank for the Weda Bay project in Indonesia's Weda Bay Industrial Park, located in Central Halmahera, North Maluku. The guarantee value from MIGA amounted to USD 207,000,000 (CAO, 2011). Initially, Eramet, a French mining company, and Mitsubishi were recipients of this bank guarantee. However, there have been changes in shareholders at Weda Bay, with Eramet and Tsingshan currently holding shares.

MIGA also plays a role in conducting due diligence in the nickel mining process. Indonesian environmental organizations once reported MIGA's involvement to the Compliance Advisor Ombudsman (CAO), an agency that handles complaints against MIGA. However, the case did not proceed due to failure to meet the criteria (CAO, 2011).

### ***Project Loan dan Corporate Loan***

An example of project-based financing (project loan) is PT Aneka Tambang Tbk obtaining loans from domestic and foreign banks for a smelter construction project. In 2012 and 2015, PT Antam received loans totaling USD 750 million. Apart from the smelter, the loan

also covered the construction of a coal-fired power plant (PLTU) to provide power for the smelting of nickel ore.

Smelter projects initiated by Chinese companies often rely on loans from their home country. For instance, Tsingshan received a corporate loan for the development of the Indonesian Morowali Industrial Park (IMIP) in Morowali, Central Sulawesi. China's development bank, China Development Bank (CDB), disbursed loans totaling USD 1.168 billion to Tsingshan for various smelter projects at IMIP, including PLTU (China Aid Data, 2017). Project loans are also used for the acquisition of nickel mines and smelter companies. PT Merdeka Battery Materials Tbk obtained a loan of USD 300 million for this expansion.

### **General Loans and Affiliated Loans**

In the context of general loans, the loans are not restricted to a specific project but can be utilized for various purposes. This designation of general loans can be observed in affiliated loans, although it does not exclude the possibility of loans from financial service institutions to companies.

For instance, a loan from PT Merdeka Battery Materials Tbk to its subsidiary, PT Sulawesi Cahaya Mineral, amounted to USD 35,950,000 and was allocated for working capital, including employee costs, professional service fees, royalty payments to the state treasury, transportation and loading and unloading costs, maintenance and repair costs, and nickel mining expenses (Desfika, 2023).

Likewise, PT Trimegah Bangun Persada Tbk (TBP, 2023) provided a loan to PT Jikodolong Megah Pertiwi amounting to IDR 114,280,000,000 (Desfika, 2023), which is equivalent to USD 7,618,666 (estimated at an exchange rate of IDR 15,000). The purpose of the loan is for purchasing heavy equipment, repairing and increasing the capacity of other supporting infrastructure, and exploration costs. This loan carries an interest rate of 8% per month for 5 years. Despite being an affiliate loan within one group, the parent company still imposes interest charges. The interest percentage charged is considerably higher than that set by the LJK. A list of loan financing for the nickel industry in Indonesia (including smelter projects, mines, and nickel smelter power plants) from 2015 to 2023 based on company, region, and expansion can be found in Appendix 2.

## **2. Financing through Bonds**

The types of funding diversified during the share acquisition period from PT Vale Indonesia Tbk, which received a mandate to divest 20% of shares in 2020. MIND ID, as the holding company of the state-owned mining company, executed the share acquisition. PT Indonesia Asahan Aluminum (Inalum), a part of MIND ID, sought funding through the issuance of debt securities or bonds globally to acquire the 20% shares from PT Vale. The price of this stake amounted to IDR 5.5 trillion (Sembiring, 2020). On May 12, 2020, Inalum issued a global bond worth USD 2.5 billion, equivalent to IDR 37.5 trillion.



The global bonds issued by Inalum, with the code IDASAL, were divided into three parts: a USD 1 billion bond maturing on May 15, 2025, with a coupon rate of 4.75%; a USD 1 billion bond maturing on May 15, 2050, with a coupon rate of 5.45%; and a USD 500 million bond maturing on May 15, 2050, with a coupon rate of 5.8%. BNP Paribas assisted in the issuance as a financial consultant (MIND ID, 2020). A list of buyers of PT Indonesia Asahan Aluminum (Inalum) Global Bonds can be found in Appendix 3. The number of buyers could not be analyzed due to the unavailability of public data.

Buyers of Inalum bonds, contributing to funds for the acquisition of a 20% stake in PT Vale, originated from asset managers and investment firms in the United States, Europe, and Asia. The total value of PT Inalum bonds obtained from public data and databases amount to USD 433,470,000, equivalent to IDR 6.5 trillion (at an exchange rate of 1 USD = IDR 15,000). However, Inalum's total bond funds could potentially exceed this amount. The researchers have limited access to data beyond what is publicly available. Nonetheless, the recorded funds are deemed sufficient for the acquisition of a 20% stake in PT Vale.

### 3. Equity Financing

Equity financing represents a significant avenue for expanding the nickel industry. This form of financing is typically pursued for expansion and acquisition purposes and can involve both institutional and individual investors. The findings of this research identify three primary types of equity financing: initial public stock offerings (IPOs), private stock offerings (private placements), and the purchase of shares in private companies (private equity). The total equity value of all transactions obtained in this research amount to USD 2,263,192,615, equivalent to IDR 33.9 trillion (using an exchange rate of 1 USD = IDR 15,000).

#### Initial Public Offerings (IPOs)

Initial public offerings (IPOs) serve as instruments to raise fresh capital for companies. Through an IPO, a relationship is established between the company and investors who purchase shares, with investors potentially receiving dividends as profits. Additionally, certain collaborations may offer advantages in achieving production goals. In the nickel industry, several companies have pursued IPOs recently.

For instance, PT Trimegah Bangun Persada Tbk, a company under the Harita Group, entered the Indonesian Stock Exchange (BEI) in April 2023 through an IPO. This IPO garnered funds from investors totaling nearly IDR 10 trillion, equivalent to approximately USD 666,466,666, making it one of Indonesia's largest IPOs (TBP, 2023). Foreign investors such as commodity company Glencore International AG (Switzerland), investment company Fidelity International (United States) (Ruehl, 2023), and sovereign wealth funds (SWF) in Asia also participated in purchasing shares.

Banking institutions play a role beyond lending in financing for public companies. They also act as underwriters in IPOs, such as in the case of PT Trimegah Bangun Persada (Harita Group) on the Indonesia Stock Exchange. Several banks, including Credit Suisse Group, BNP Paribas, Citigroup, Mandiri Sekuritas, DBS, OCBC Securities, and UOB Kay Hian, serve as underwriters (Asian Trends, 2023). Six of these underwriters, excluding Mandiri Sekuritas, are members of the Net Zero Banking Alliance from G-FANZ, committed to the clean energy transition.

Additionally, Lygende Resources, in collaboration with the Harita Group, conducted an IPO on the Hong Kong Stock Exchange. The banks involved as bookrunners and lead managers included CICC, CMB International, BOC International, DBS, ABC International, and BNP Paribas. These banks facilitated share offerings as transaction intermediaries. Nickel companies' IPOs in Indonesia are considered substantial compared to other industries. Following PT TBP's IPO, PT Merdeka Battery Materials Tbk pursued an acquisition valued at up to IDR 9.2 trillion, equivalent to USD 612,150,000.

### **Private Share Offerings (Private Placements)**

Private share offerings typically occur in public companies through private transactions, excluding public offering. Private placements are often utilized for strategic acquisitions. For instance, in the smelter project in Kolaka, Southeast Sulawesi, PT Vale Indonesia Tbk established PT Kolaka Nickel Indonesia in partnership with PT Huaqi Pte Ltd, a registered investor in Singapore. Huaqi purchased 764,000 shares from PT Vale worth IDR 764 billion (Djakarta Mining Club, 2023).

Following the purchase, Vale retained 191,000 shares valued at IDR 191 billion. The Kolaka project represents an expansion for Vale in constructing a smelter, with Vale also collaborating with companies set to become buyers. Private placement financing was also utilized by PT United Tractor Tbk, a mining and construction company, to acquire shares from Nickel Industries, a nickel company listed on the Australian Stock Exchange (ASX). This private placement took place on June 9, 2023. Nickel Industries issued 857 million new ordinary shares at AUD 1.10 per share, equivalent to 19.99% of nickel industry shares. The transaction value reached AUD 943 million, equivalent to USD 628 million.

## Private Equity

Financing through private share purchases (private equity) occurs in closed companies and differs from private placements, which typically involve publicly listed companies. This form of financing is commonly pursued for expansion or acquisition needs. An example is the expansion of Eramet SA, a French mineral company, which has been involved in the Indonesian nickel business since 2006 when Eramet acquired a majority stake in PT Weda Bay Nickel through Strand Minerals Pte Ltd.

In 2009, Mitsubishi, a Japanese automotive company, extended support for the nickel project by acquiring a 33.4% stake in Strand shares from Eramet, with a transaction value of USD 145 million (Mitsubishi Corp, 2009). This collaboration aimed to establish a nickel smelter in Weda Bay, North Maluku Province. However, in 2016, before the smelter's construction commenced, Mitsubishi withdrew from the partnership, citing a desire to shift focus away from nickel-related ventures. Mitsubishi's shares were subsequently sold back to Eramet SA for USD 112 million (Amri, 2016).

Following Mitsubishi's departure, Eramet revised its investment strategy and sought new investors for the Weda Bay project. Eventually, Tsingshan, a Chinese steel producer with significant control over the nickel industry in Morowali, emerged as a new investor (Eramet, 2017). In 2017, Tsingshan and Eramet reached an agreement whereby Tsingshan acquired a 57% stake in Strand Minerals, while Eramet retained 43%. Unfortunately, the total transaction value of this acquisition remains undisclosed. Post-acquisition, the roles were divided, with Eramet focusing on mining operations while Tsingshan assumed responsibility for constructing and operating the smelter. The first smelter at Weda Bay commenced operations in April 2020 (NS Energy, 2023). The equity financing model has been pivotal in driving the Weda Bay project. Detailed insights into the equity financing model can be found in Appendix Table 4.

### 5.3.3 Business Relations between Companies (Shareholders or Subsidiaries)

This research employs various analyses of nickel industry business entities utilizing corporate structure and "follow the money" methods. Corporate structure analysis is crucial for understanding the ultimate beneficiary of a company, namely the final shareholder. The "follow the money" method is integral to tracing funding for a company's project.

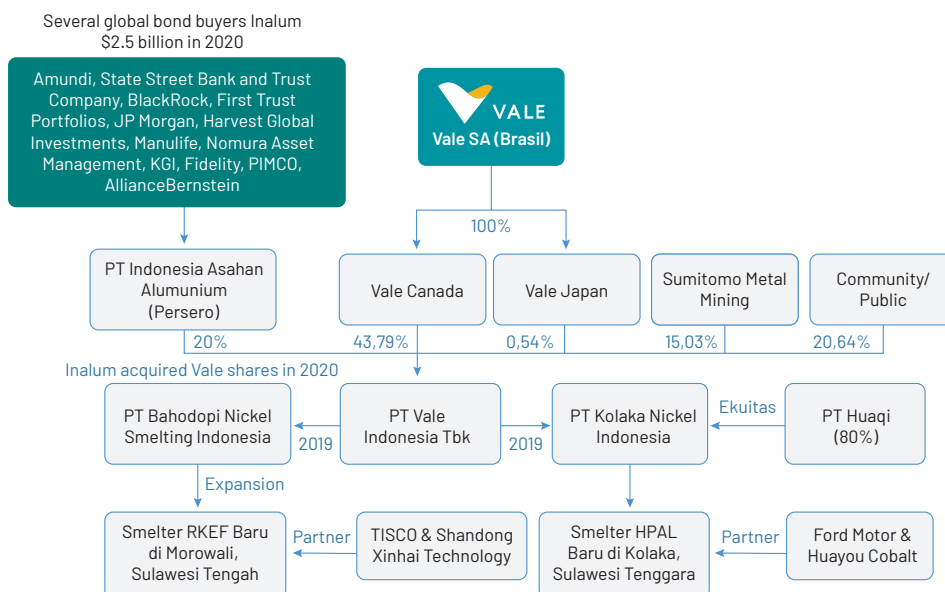
Both methods are applied to identify the nickel industry's entities with open company status or those listed on the Indonesian Stock Exchange (IDX). Data from the IDX serves as material for constructing company structure diagrams. Public companies are chosen due to their relatively transparent information on final beneficiaries compared to closed or private entities. While most legal entities in the Indonesian nickel industry are private, there are several public companies. These companies were initially private but transitioned to public status in response to the high global demand for nickel and efforts to secure

financing through initial public offerings (IPOs).

Below is an analysis of four case studies of nickel companies listed on the Indonesia Stock Exchange: PT Vale Indonesia Tbk, PT Trimegah Bangun Persada Tbk, PT Aneka Tambang Tbk, and PT Merdeka Battery Materials Tbk.

## 1. PT Vale Indonesia Tbk

Figure 11. Intercompany Business Relations at PT Vale Indonesia Tbk



Source: data processed by researchers

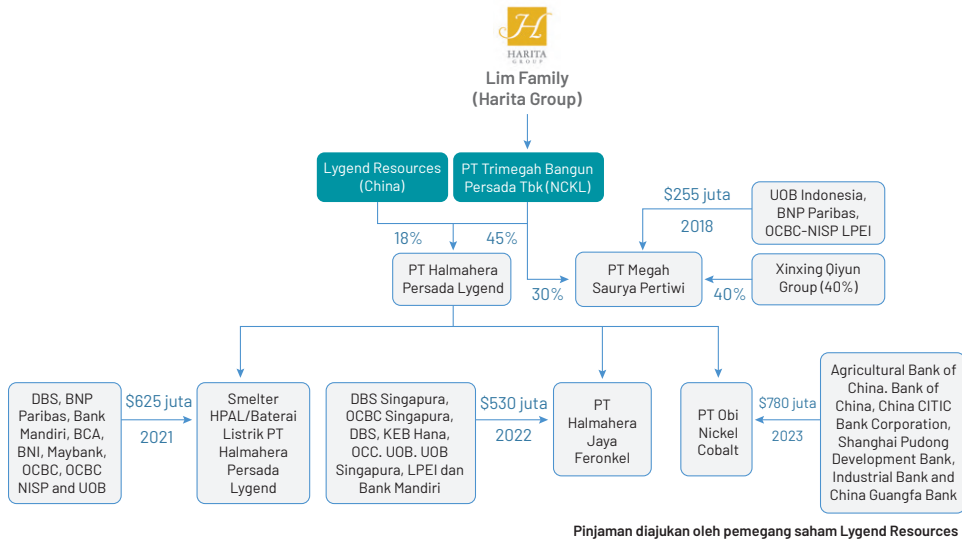
This figure describes some of PT Vale Indonesia Tbk (INCO)'s financing. The final beneficiary of INCO is Vale SA which is based in Brazil and is registered with the United States Securities and Exchange Commission (SEC) or the United States Securities and Exchange Commission (SEC, 2022). The diagram shows that Vale SA's share ownership through Vale Canada is 43.78% and Vale Japan is 0.54%, for a total of 44.33% (Vale, 2022). Vale Canada and Vale Japan are wholly owned by Vale SA. Then Sumitomo Metal Mining owns 15.03% and the public holds 20.64%.

Furthermore, PT Indonesia Asahan Aluminium (Inalum) share ownership is 20%. These shares were obtained from the divestment of INCO shares as a condition for extending the contract. To obtain funds for the acquisition of 20% shares, PT Inalum issued global bonds or global bonds (Septianto and Thomas, 2020). The box displayed the names of several buyers of the bonds.

INCO is expanding to build a new smelter. There is an interested partner, namely PT Huaqi, registered in Singapore, acquiring 80% shares worth IDR 764 billion for PT Kolaka Nickel Indonesia (Djakarta Mining Club, 2023). This acquisition model is part of the financing of the new smelter. This new smelter will produce nickel for electric battery needs. Even though the smelter is in the pre-construction stage, there are automotive companies and battery manufacturers who are interested in becoming off takers or buyers. The financing process at Vale is something different because it involves a state-owned company, namely Inalum, which has the right to acquire shares.

## 2. PT Trimegah Bangun Persada Tbk atau Harita Group

Figure 12. Intercompany Business Relations at PT Trimegah Bangun Persada Tbk



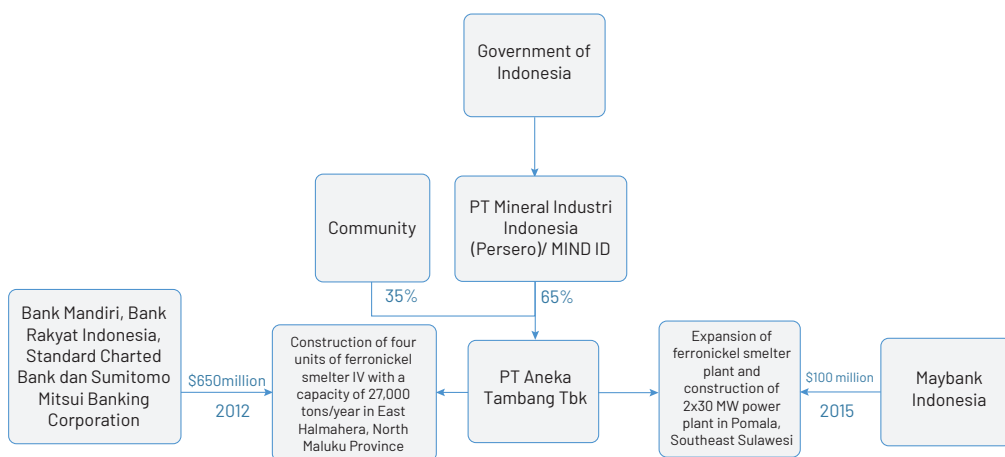
Source: data processed by the researchers

The Lim Hariyanto family or also known as the Harita Group is the final beneficial owner of PT Trimegah Bangun Persada Tbk (TBP, 2023). In running the nickel business, the Lim family collaborates with companies from China. The growing nickel market and accompanying cost requirements have encouraged companies to finance through loans. This diagram shows four corporate entities having loans from various banks, not only China, but also European countries such as BNP Paribas which is based in France.

One of Harita Group's financing strategies for nickel expansion is loans. Moreover, after receiving funds from the public stock offering (IPO), PT TPB allocated large loan payments. Financing through loans has become one of the main ways for the nickel industry to operate and develop.

### 3. PT Aneka Tambang Tbk

Figure 13. Intercompany Business Relations at PT Aneka Tambang Tbk



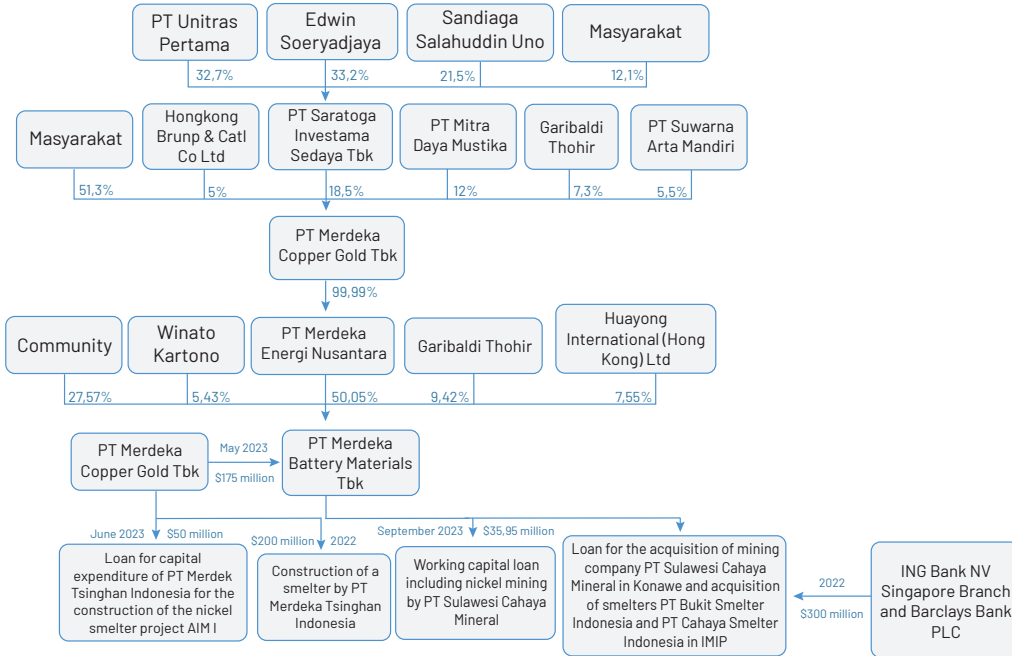
Source: data processed by the researchers

PT Aneka Tambang Tbk is a state-owned company under the holding group PT Mineral Industri Indonesia or MIND ID holding 65% of the shares (IDX, 2023), the remaining 35% of the shares are held by the public. The final shareholder of PT Antam is the Indonesian government. In the context of the nickel industry, PT Antam is recorded as having made at least two loans with a total of USD 750 million from banks for two different projects.

In 2012, PT Antam took out a loan of USD 650 million to finance the construction project of four ferronickel IV smelter units with a capacity of 27,000 tons/year in East Halmahera Province, North Maluku (Saeno & Aziliya, 2012). In 2015, PT Antam made a loan of USD 100 million to Maybank Indonesia (Nababan, 2015) for the Ferronickel smelter factory expansion project and construction of a 2 x 30 MW PLTU in Pomalaa, Southeast Sulawesi.

#### 4. PT Merdeka Battery Materials Tbk

Figure 14. Intercompany Business Relations at PT Merdeka Battery Materials Tbk



Source: data processed by researchers

PT Merdeka Battery Materials Tbk (MBMA) is a company that conducted a public stock offering (IPO) in April 2023 (IDX, 2022), raising funds from share sales reaching IDR 9.1 trillion or around USD 612 million (Adventy and Hafiyyan, 2023).

The company structure reveals that the final beneficiary with the largest share ownership in MBMA is Edwin Soeryadjaya, a well-known businessman. Edwin is reached through two companies that own shares, namely PT Merdeka Copper Gold Tbk (MDKA) and PT Saratoga Investama Sedaya Tbk, as shown in the diagram. MBMA has loan transactions from banks for various projects. On the other hand, MBMA, together with MDKA, also extends affiliate loans to subsidiaries to fund nickel projects.

## 5.4 Nickel Industry: Financing, Problems, and Dependence on Coal Energy

Technologically, nickel processing depends on large amounts of electricity (Yang et al., 2021). This relates to the process of separating nickel ore from other minerals such as iron, cobalt, or sulfur. This processing method differs from other minerals such as copper, which require less electricity. Consequently, nickel processing companies often construct their own generators to support their factories. Most of the generators for smelters in Indonesia are coal-based. So far, there is only one nickel company that uses renewable energy-based generation from water (hydropower).

The metal sector industry, including nickel processing in it, which uses coal-fired power plants is an industry that is quite difficult to decarbonize (hard to abate). High greenhouse gas emissions from nickel smelters are an environmental consequence that cannot be separated (Purdy et al., 2022). Therefore, the nickel industry produces a lot of emissions and is bad for the environment. As an illustration, 1-kilogram of processed nickel produces 13 kg of carbon dioxide (CO<sub>2</sub>) emissions (Nickel Institute, 2023). Moving towards a low-carbon nickel industry results in higher costs. As a comparison, according to PLN, the construction of hydroelectric power plants (PLTA) or hydropower is in the range of USD 3-4 million per Megawatt (MW) (Agung, 2021), while for coal power plants per MW it is around USD 1.8 million (EFSC, 2023 ). The high cost of decarbonization is an obstacle.



The existence of coal has encouraged nickel factories to obtain coal easily, thus making coal-fired power plants (PLTUs) in the nickel sector like mushrooms in the rainy season. PLTUs are also known as a captive plant, that is, the generator originates from and is for the industry itself. Global Energy Monitor data (2023) shows that the number of coal-fired power plants in the nickel sector in Indonesia reaching 7.2 Gigawatt (GW) has been operating. Meanwhile there is still 2-Gigawatt in pre-construction status, and 8 GW is under construction.



Several financial institutions, including banks, as well as world countries have committed to no longer funding the construction of coal power plants and related coal businesses. At the 26th Climate Summit (Summit) or Conference of the Parties (COP) in Glasgow in 2021 (UNFCCC, 2021) there were 40 countries committed to no longer funding coal in various forms of investment (UN, 2021). This is driven by environmental impacts. Coal is the highest contributor to global emissions (IEA, 2022). Financial institutions view nickel as a pathway to low-carbon development. So they plan to channel financing for nickel which is considered low carbon compared to coal.

Aggregate financing for the nickel industry, especially smelters, has shown a figure of IDR 432 trillion at least until 2020. Investment in critical minerals, including nickel, is planned until 2026 to reach IDR 331 trillion. In this nickel investment by country, China has dominated. In the decade 2012–2022, China invested IDR 14.2 billion in nickel-producing islands in Sulawesi and North Maluku, equivalent to IDR 213 trillion (USD exchange rate IDR 15,000).

#### 5.4.1 Coal Financing

Investment in nickel also extends to the construction of coal-fired power plants (PLTUs) to provide power for the smelters. Investors not only finance the construction of smelters but also PLTU projects. Financing sources can be separate for smelter and PLTU projects or combined into one project. For example, PT Megah Surya Pertiwi (MSP), a part of the Harita Group, secured combined financing of USD 380 million in April 2018 for the construction of a nickel smelter and PLTU with a capacity of 3 x 38 MW (Guitarra, 2018).

However, limited available information often results in unclear percentages of combined financing for smelter and PLTU projects. For instance, PT Halmahera Persada Lygend (HPL) (a part of the Harita Group) received a syndicated loan worth USD 625 million from DBS and eight banks in April 2021 (MarketScreener, 2019). The exact percentage allocated for PLTU construction from this loan for both phase I and phase II, totaling 360 MW, is not specified.

Separate financing can be observed in the construction of PLTU in the Morowali industrial area. The PLTU, named PT Sulawesi Mining Phase I-IV with a total capacity of 1,830 MW, received loans from various banks from 2015–2017 totaling USD 1.978 billion. All these loans originated from banks in China.

Chinese banks predominantly finance coal projects to support nickel smelters, reflecting the significant ownership of smelters by Chinese companies. Despite Chinese President Xi Jinping's commitment on September 21, 2021, stating that China would no longer build new coal-fired power plants abroad, captive PLTUs built by Chinese companies in Indonesia continued to emerge after this commitment. An example is the PLTU owned by the Harita Group and Lygend Resources on Obi Island, South Halmahera, North Maluku (Putri, 2022), constructed after September 21, 2021.

### 5.4.2 Sustainable Finance

The concept of sustainable finance in international banking integrates environmental, social, and governance aspects into banking activities, encompassing financing, investment, and operations (OJK, 2021). This concept aims to support sustainable development aligned with global agendas such as the Sustainable Development Goals (SDGs) and the Paris Agreement on Climate Change.

Several countries have implemented sustainable finance internationally through regulations, guidelines, standards, or incentives that encourage banks to consider the social and environmental impacts of their activities. For instance, in Indonesia, the Financial Services Authority (OJK) has published Sustainable Financial Roadmaps for 2015-2019 and 2021-2025, containing work plans for sustainable financial programs for the financial services industry, including banking (OJK, 2023).

In the European Union, the European Commission has issued a Sustainable Finance Action Plan, encompassing various initiatives to integrate ESG (Environmental, Social, and Governance) factors into the financial system (European Commission, 2023). The concept of sustainable finance has numerous benefits for banks, society, and the environment, fostering responsible and ethical financial practices.

Financial services institutions (LJKs) face serious challenges in financing the nickel industry in Indonesia. As nickel becomes a crucial component for the energy transition, LJKs are committed to supporting this industry compared to coal, which is starting to be abandoned. However, the nickel industry apparently has a high dependence on coal in its production process. On the other hand, coal is clearly categorized in the red category in the Indonesian Green Taxonomy (THI) (OJK, 2022). The red label indicates a negative impact from coal, requiring banks to avoid financing the coal sector. However, in the context of coal for nickel processing, this does not happen.

Coal is included in the red category in Indonesia's green taxonomy due to its status as a fossil energy source with negative environmental impacts, including greenhouse gas emissions, air pollution, land damage, and solid and liquid waste (OJK, 2022).



The Indonesian Green Taxonomy classifies economic activities based on their environmental impact, categorizing them as green, yellow, or red (OJK, 2022).



Green activities support environmental protection and climate change mitigation and adaptation.



Yellow activities have a positive impact on the environment but require certain prerequisites to meet standards.



Meanwhile red activities have a negative impact on the environment and cannot be upgraded to green or yellow activities.

Thus, coal falls into the red category in the OJK's Indonesian Green Taxonomy.



Despite this categorization, banks in Indonesia still finance the coal sector, arguing that regulations do not prohibit such financing as long as certain ESG (Environmental, Social, and Governance) aspects are met (Victoria, 2022).

The coal business remains profitable for banks (Mayasari, 2023), particularly those associated with steam power plants (PLTU), which present significant potential and profits. According to data from Urgewald (2021), six local Indonesian banks continued to provide loans to coal companies listed on the 2020 Global Coal Exit List (GCEL) between October 2018 and October 2020, amounting to IDR 89 trillion.

Violations of sustainable financial commitments by LJKs (financial institutions) in Indonesia stem from a lack of understanding and awareness regarding the importance of implementing Environmental, Social, and Governance (ESG) aspects in business and investment activities. This oversight can lead to insufficient attention to the social and environmental impacts of financed activities, such as forest destruction, air pollution, or human rights violations.

Furthermore, the absence of regulations, guidelines, standards, or incentives contributes to the reluctance of LJKs to adopt sustainable finance practices. This results in a lack of clear references or criteria for assessing the ESG performance of debtors, as well as inadequate incentives or sanctions to promote responsible behavior.

In terms of transparency, banking still lags in implementing sustainable finance principles, which leads to financial institutions failing to provide relevant and accurate information to stakeholders, including regulators, investors, customers, the public, or the media, regarding their ESG performance or that of their debtors.

The European Union has established robust regulations for managing investments with high environmental risks. The EU Taxonomy Regulation, which took effect on July 12, 2020, outlines criteria for identifying economic activities that contribute to environmental goals, including climate change mitigation and adaptation (EU Commission, 2023). This regulation also mandates financial institutions to report on the alignment of their portfolios with green economic activities.

European banks have committed to no longer financing coal projects, and the number reaches 20 banks (Sims et al., 2023). European banks involved in financing the nickel industry in Indonesia also have a commitment not to finance coal-related projects. In this research, it is known that the nickel industry has triggered coal financing because the industry is still very dependent on coal.

The forms of involvement of European banks are varied, divided into two groups, namely those involved in financing syndicated loans and purchasing bonds. In the group of syndicated lenders are Standard Chartered Bank, BNP Paribas, Barclays Bank Plc, Santander, HSBC, Credit Agricole, ING Bank, and Natixis. HSBC is also involved in financing the Indonesian Morowali Industrial Park (The Peoples Map, 2021), but the details of the value are not yet known. However, all of these financial institutions have a commitment to no longer provide coal funding. In the bond buying group are Europe-based asset managers including UBS Group, Amundi, JP Morgan (Irish office), Fidelity Fund SICAV (Luxembourg office), and Manulife Global Fund. All of these asset managers have a commitment to exit coal funding.

Cleaning portfolios of dirty energy is an ongoing commitment from global financial institutions. However, these commitments face challenges, as exposure to the coal business cannot yet be completely eliminated from the committed global financial

institutions.

- **Standard Chartered Bank:** This bank has committed to not providing new financing for coal-fired power projects worldwide since 2018 (Standard Chartered, 2018). The bank also plans to stop all financing activities related to thermal coal by 2032 (Reuters, 2022).
- **HSBC:** The bank is committed to withdrawing any financing and advisory services (HSBC, 2021) with clients that make new commitments to, or proceed with, thermal coal expansion after 1 January 2021 (unless such expansion has been contracted or is under construction before that date). The bank also plans to stop all financing activities related to thermal coal by 2030 in European Union and OECD countries, and by 2040 in other countries.
- **Credit Agricole:** This bank has committed to providing no new financing for coal-fired power projects worldwide since 2015 (Green, 2015). The bank also plans to end all relationships with clients involved in thermal coal activities by 2030 in European Union and OECD countries.
- **Santander:** The bank states it will cease financing for power customers if 10% of their income depends on thermal coal and aims to eliminate exposure to coal mining worldwide by 2030 (Santander, 2022).
- **ING Bank:** By the end of 2025, ING will no longer finance clients that are 5% dependent on coal-fired electricity supplies (Ettinger, 2022). Presently, ING provides loans to new clients only if their dependence on coal is 10% or less, with the caveat that they will seek to reduce their exposure to coal in the coming years.
- **Natixis:** Committed to discontinuing the financing of coal-fired power plants and thermal coal mines worldwide, considering current technological advances (MarketScreener, 2015). Natixis has also decided to no longer accept consultancy mandates or new arrangements related to this type of financing. Additionally, Natixis will not finance companies whose business is more than 50% dependent on the operation of coal-fired power plants or thermal coal mines.
- **BNP Paribas:** The bank also plans to end all relationships with clients involved in thermal coal activities by 2030 in European Union and OECD countries, and by 2040 in other countries.
- **Barclays Plc:** The bank also plans to cease all financing activities related to thermal coal by 2030 in the UK, Europe, and OECD countries (Reuters, 2023).
- **UBS Group:** This institution is committed to cutting coal financing by more than two-thirds from 2030 (Neghaiwi, 2022).
- **Amundi:** Europe's largest asset manager committed to providing no new investments to companies involved in thermal coal activities since 2019 (Reclaim Finance, 2021). The financial institution also plans to withdraw all investment from these companies

by 2030 in European Union and OECD countries, and by 2040 in other countries.

- **JP Morgan:** In May 2021, released a 2030 target committed to aligning financing with the Paris Agreement for oil and gas, electric power, and automotive (PRI, 2021). Some funding plans for fossil energy have been withdrawn (Ambrose, 2020).
- **Fidelity Funds:** Signed an agreement to exit coal financing at the 26th COP in 2021 (UNFCCC, 2021).
- **Manulife Global Fund:** Manulife Global Fund: Specifically, the Sub-Fund may not invest in companies that derive more than 25% of their revenues from fossil fuel generation (Manulife Global Fund, 2020).

This research found the enterprises were involved in a number of financing schemes. The most common form of financing flow for financial institutions in Europe is in the form of syndicated loans and bonds. This type of financing in the form of syndicated loan is also aimed at smelter construction.

Table 7 Involvement of European Financial Institutions in the Nickel Industry Supply Chain

Bank	Group Company	Head Office	Form of Involvement	Involvement in Project	Involved Company	Type of Involvement	Nilai Pinjaman Sindikasi/Nilai Obligasi
HSBC	HSBC	Inggris	Syndicated Loan	(1) Construction of a battery factory in Karawang, West Java. (2) Acquisition of the smelter PT Debonair Nickel Indonesia, which owns the RKEF nickel smelter at IWIP with a PLTU capacity of 380 MW. (3) Loan obtained by PT Merdeka Tsingshan Indonesia.	(1) LG & Hyundai (2) CNGR (3) PT Merdeka Battery Materials Tbk	Smelter Construction, Battery Industry Zone	1.091.000.000
Credit Agricole	Credit Agricole	Perancis	Syndicated Loan	(1) Acquisition of PT Debonair Nickel Indonesia's smelter, which operates the RKEF nickel smelter at IWIP with a PLTU capacity of 380 MW. (2) Loan obtained by PT Merdeka Tsingshan Indonesia.	(1) CNGR (2) PT Merdeka Battery Materials Tbk	Smelter Construction	380.000.000

ING Bank	ING Bank	Belanda	Syndicated Loan	(1) Loan obtained by PT Merdeka Tsingshan Indonesia. (2) Loans for the acquisition of the mining company PT Sulawesi Cahaya Mineral in Konawe and the acquisition of the PT Bukit Smelter Indonesia and PT Cahaya Smelter Indonesia smelters at IMIP.	PT Merdeka Battery Materials Tbk	Smelter Construction, Mining Acquisition	560.000.000
Natixis	Natixis	Perancis	Syndicated Loan	Loan obtained by PT Merdeka Tsingshan Indonesia.	PT Merdeka Battery Materials Tbk	Smelter Construction	260.000.000
Santander	Banco Santander	Spanyol	Syndicated Loan	Construction of a battery factory in Karawang, West Java.	LG & Hyundai	Battery Industry Zone	711.000.000
Standard Chartered Bank	Standard Chartered Bank	Inggris	Syndicated Loan	Construction of four ferronickel IV smelter units with a capacity of 27,000 tons/year in East Halmahera Province, North Maluku.	PT Aneka Tambang Tbk	Smelter Construction	650.000.000
BNP Paribas	BNP Paribas	Perancis	Syndicated Loan	Construction of a High-Pressure Acid Leach (HPAL) technology smelter on Obi Island, Kab. South Halmahera, Prov. North Maluku.	PT Halmahera Persada Lygend (Harita Group)	Smelter Construction	625.000.000



Barclays Bank Plc	Barclays Plc	Inggris	Syndicated Loan	Loan for the acquisition of the mining company PT Sulawesi Cahaya Minerals in Konawe and acquisition of the PT Bukit Smelter Indonesia and PT Cahaya Smelter Indonesia smelters at IMIP.	PT Hamparan Logistik Nusantara (anak perusahaan	Nickel Mining Development	300.000.000
UBS ETF (LU) Bloomberg Barclays USD Emerging Markets Sovereign UCITS ETF (Hedged To GBP) A-Dis (USD)	UBS Group	Swiss	Bond	Possession of the bond "15 May 2050 5.8% coupon" PT Indonesia Asahan Aluminium, one of which is for the acquisition of 20% shares in PT Vale Indonesia Tbk in 2020.	PT Vale Indonesia Tbk	Acquisition of PT Vale Indonesia Tbk shares	10.000

Amundi Index Barclays Global Agg 500M UCITS ETF DR - GBP Hedged (GBP)(Dist)	Amundi	Perancis	Bond	Possession of the bond "15 May 2050 5.8% coupon" by PT Indonesia Asahan Aluminium, one of which is for acquiring 20% shares of PT Vale Indonesia Tbk in 2020.	PT Vale Indonesia Tbk	Acquisition of PT Vale Indonesia Tbk shares	23.000
UBS ETF (LU) Bloomberg Barclays USD Emerging Markets Sovereign UCITS ETF (Hedged To GBP) A-Dis (USD)	UBS Group	Swiss	Bond	Possession of the bond "15 May 2050 5.45% coupon" by PT Indonesia Asahan Aluminium, one of which is for acquiring 20% shares of PT Vale Indonesia Tbk in 2020.	PT Vale Indonesia Tbk	Acquisition of PT Vale Indonesia Tbk shares	20.000

<p>"JPMorgan ETFs (Ireland) ICAV - USD Emerging Markets Sovereign Bond UCITS ETF CHF Hedged (Acc) (CHF)"</p>	JP Morgan	Irelandia	Bond	<p>Possession of the bond "15 May 2025 4,75% coupon" by PT Indonesia Asahan Aluminium, one of which is for acquiring 20% shares of PT Vale Indonesia Tbk in 2020.</p>	PT Vale Indonesia Tbk	Akuisisi saham PT Vale Indonesia Tbk	59,000
<p>"UBS ETF (LU) J.P. Morgan USD EM Diversified Bond 1-5 UCITS ETF (Hedged To GBP) A-Dis (USD)"</p>	UBS Group	Swiss	Bond	<p>Possession of the bond "15 May 2025 4,75% coupon" by PT Indonesia Asahan Aluminium, one of which is for acquiring 20% shares of PT Vale Indonesia Tbk in 2020.</p>	PT Vale Indonesia Tbk	Acquisition of PT Vale Indonesia Tbk shares	37,000

"Amundi Index Barclays Global Agg 500M UCITS ETF DR - GBP Hedged (GBP) (Dist)"	Amundi	Perancis	Bond	Possession of the bond "15 May 2025 4,75% coupon" by PT Indo-nesia Asahan Aluminium, one of which is for acquiring 20% shares of PT Vale Indonesia Tbk in 2020.	PT Vale Indonesia Tbk	Acquisition of PT Vale Indonesia Tbk shares	23.000
UBS ETF (LU) Bloomberg Bar-clays USD Emerging Markets Sovereign UCITS ETF (Hedged To GBP) A-Dis (USD)	UBS Group	Swiss	Bond	Possession of the bond "15 May 2025 4,75% coupon" by PT Indo-nesia Asahan Aluminium, one of which is for acquiring 20% shares of PT Vale Indonesia Tbk in 2020.	PT Vale Indonesia Tbk	Acquisition of PT Vale Indonesia Tbk shares	20.000

Fidelity Funds - Asian Bond Fund	Fidelity Funds SICAV	Luxembourg EU	Bond	Possession of the bond "15 May 2050 5,45% coupon" by PT Indo-nesia Asahan Aluminium, one of which is for acquiring 20% shares of PT Vale Indonesia Tbk in 2020.	PT Vale Indonesia Tbk	Acquisition of PT Vale Indonesia Tbk shares	23.300.000
Manulife Global Fund - Asian High Yield Fund	Manulife Global Fund	Luxembourg EU	Bond	Possession of the bond "15 May 2025 4,75% coupon" by PT Indo-nesia Asahan Aluminium, one of which is for acquiring 20% shares of PT Vale Indonesia Tbk in 2020.	PT Vale Indonesia Tbk	Acquisition of PT Vale Indonesia Tbk shares	1.900.000

### 5.4.3 Coal Policy and Commitment of European Financial Institutions Involved in Financing the Nickel Industry

This research describes several cases reflecting the involvement of European financial institutions in the nickel industry sector. It also analyzes the paradox of the policy of ending coal financing by examining their financing practices related to coal, both in direct exposure and indirect exposure.

Some European financial institutions identified in this context include Standard Chartered, BNP Paribas, Barclays Bank, ING Bank, HSBC, Crédit Agricole, Natixis, and Santander. In the six loan cases identified by researchers, there were

1. **Loan 1:** Financing to PT Aneka Tambang (Antam) for the construction of four ferronickel IV smelter units with a capacity of 27,000 tons/year in East Halmahera Province, North Maluku.
2. **Loan 2:** Financing to PT Halmahera Persada Lygend (HPL) for the construction of a High-Pressure Acid Leach (HPAL) technology smelter on Obi Island, Kab. South Halmahera, Prov. North Maluku.
3. **Loan 3:** Investment for PT Hamparan Logistik Nusantara (a subsidiary of PT Merdeka Battery Materials Tbk) to acquire the mining company PT Sulawesi Cahaya Mineral in Konawe and the acquisition of PT Bukit Smelter Indonesia and PT Cahaya Smelter Indonesia smelters in the IMIP area powered by a coal-fired power plant.
4. **Loan 4:** Financing to CNGR to acquire the PT Debonair Nickel Indonesia smelter.
5. **Loan 5:** PT Merdeka Tsingshan Indonesia, to settle debts to the parent company, namely PT Merdeka Copper Gold.
6. **Loan 6:** Funding to PT HLI Green Power, part of the Hyundai and LG consortium, for the construction of a battery factory in Karawang.

Table 8. Case Description: Loan 1

Loan 1
Loan Description
Syndicated loan from Bank Mandiri, Bank Rakyat Indonesia, Standard Chartered, and Sumitomo Mitsui Banking Corporation worth USD 650 million to PT Aneka Tambang (Antam) for the construction of four ferronickel IV smelter units with a capacity of 27,000 tons/year in East Halmahera Province, North Maluku. These smelters were originally planned to be powered by a self-built coal power plant, but the latest plan was to change it to oil and gas power (PLTMG) by PLN.

Loan	European Financial Institution
2012	Standard Chartered
Commitment Announcement	Commitment
2022	<p>2022: Standard Chartered will not provide financial services to clients who:</p> <ul style="list-style-type: none"> <li>• Build new thermal coal infrastructure (Standard Chartered, 2022).</li> <li>• Invest in new or additional thermal coal-fired power generation capacity.</li> <li>• Acquire stand-alone thermal coal power generation assets.</li> </ul>
Notes	
<p>The European financial institution, Standard Chartered, was involved in financing the construction of a smelter in Halmahera, North Maluku. In practice, the smelter uses coal as fuel.</p> <p>Standard Chartered’s latest coal policy does not adequately address this issue, despite its experience in financing nickel-related sectors as an ‘enabler’ of dirty coal energy projects. Standard Chartered only focuses on direct exposure to coal, without considering indirect exposure from loans to coal. This is a “big gap” which will most likely remain a problem in the future, for example in the context of financing the Indonesian nickel industry which is still closely connected to coal energy.</p>	

Table 9. Case Description: Loan 2

Loan 2	
Loan Description	
<p>BNP Paribas, together with DBS, Bank Mandiri, BCA, BNI, Maybank, OCBC, OCBC NISP, and UOB, provided a loan of USD 625 million to PT Halmahera Persada Lygend (HPL) for the construction of a High Pressure Acid Leach (HPAL) technology smelter on Obi Island, Kab. South Halmahera, Prov. North Maluku. PT HPL is a subsidiary of PT Trimegah Bangun Persada, which owns a smelter and operates a coal power plant for the smelter.</p>	
Loan	European Financial Institution
2021	Standard Chartered

Commitment Announcement	Commitment
<p><b>2020</b></p>	<p>Complete cessation of thermal coal use by 2030 in the European Union and OECD countries and by 2040 worldwide (Standard Chartered, 2022).</p> <ul style="list-style-type: none"> <li>• BNP Paribas policy applies to:           <ul style="list-style-type: none"> <li>Coal-Fired Power Plant (CFPP) Project: construction of a Coal-Fired Power Plant, as well as expansion and/or improvement of an existing CFPP seeking a lifetime extension or capacity increase.</li> </ul> </li> <li>• Power Generation Company (PG): a company involved in the power generation sector that owns or operates one or more coal-fired power plants (CFPP), including subsidiaries of diverse business groups.</li> </ul>
<p>Notes</p>	
<p>BNP Paribas' financing for the nickel sector and its coal policy shows several significant weaknesses that could hinder the effectiveness of green financing:</p> <p><b>1. Not considering indirect exposure:</b></p> <p>BNP Paribas' policy focuses only on direct exposure to coal, such as investments in PLTU projects and Power Generation Companies that own or operate coal power plants. However, a critical gap lies in the inability to consider 'indirect exposure' through loans made to entities connected to coal-related projects. In the case of the USD 625 million loan to PT Halmahera Persada Lygend (HPL), the bank appears to have ignored indirect exposure to coal through financing. This absence poses a significant risk, especially in the context of financing the nickel industry in Indonesia, which is still closely linked to coal energy.</p> <p><b>2. Not Including coal projects for industry (Captive PLTU):</b></p> <p>The policy's disregard for Captive PLTUs for industries owned by major clients or subsidiaries is another significant shortcoming. The nickel industry process often relies on captive power plants, and not including this kind of project in the company's coal policy is a big problem.</p>	



The loan given to PT Halmahera Persada Lygend for the construction of a High Pressure Acid Leach (HPAL) technology smelting plant is a clear example. By not considering captive coal project financing, BNP Paribas is connected to or inadvertently supporting coal projects indirectly.

### 3. Lack of urgency in the transition timeframe:

The policy implementation timeline, with a target of ending the use of thermal coal by 2030 in the European Union and OECD and by 2040 globally, raises concerns about the urgency of efforts to accelerate funding for the energy transition. While setting long-term goals is a good thing, the current global climate crisis demands more immediate action. Delaying crucial steps until 2040 will weaken the effectiveness of policies in reducing the impact of coal-related activities on climate change. Urgency is critical in addressing the rapidly growing threat posed by climate change, and a more accelerated timeframe for transitioning away from coal financing would be better suited to current environmental demands.

Table 10. Case Description: Loan 3

Loan 3	
Loan Description	
Barclays Bank PLC bersama ING Bank NV Singapore Branch pada 2022 memberikan pinjaman USD 300 million kepada PT Hambaran Logistik Nusantara (anak perusahaan PT Merdeka Battery Materials Tbk) untuk mengakuisisi perusahaan tambang PT Sulawesi Cahaya Mineral di Konawe dan akuisisi smelter PT Bukit Smelter Indonesia dan PT Cahaya Smelter Indonesia di kawasan IMIP yang ditenagai oleh pembangkit listrik batu bara.	
Loan	European Financial Institution
2022	Barclays Bank dan ING Bank
Commitment Announcement	Commitment
<b>Barclays Bank Commitment Year 2023</b>	<b>Barclays Bank's Commitments</b> Barclays Bank's commitment (Barclays, 2022) regarding coal power plants:
	<ul style="list-style-type: none"> <li>No project funding to enable the construction or expansion of coal-fired power plants worldwide.</li> </ul>

	<ul style="list-style-type: none"> <li>• No financing for general corporate purposes specifically for the development of coal-fired power plants or the expansion of coal-fired power plant materials.</li> <li>• No financing to clients generating more than 50% of revenue from coal-fired power plants.</li> <li>• No general corporate purpose financing to clients involved in developing new coal-fired power plants or materially expanding existing ones, unless approved by the borrower or if the company's objectives are satisfied that financing will not contribute to coal-related projects.</li> </ul>
<p><b>ING Bank Commitment Year 2017</b></p>	<p><b>ING Bank's Commitments</b></p> <ul style="list-style-type: none"> <li>• By the end of 2025, no longer finance clients in the utility sector that are more than 5% dependent on coal-fired power plants in their energy mix.</li> <li>• Will support new clients in the utilities sector only when their coal dependence is 10% or less, with a strategy to reduce coal percentage to near zero by 2025 (ING, 2017).</li> <li>• ING will phase out loans to individual coal-fired power plants by the end of 2025.</li> <li>• ING's coal policy focuses on thermal coal used in power generation, which can be easily replaced by gas as clients transition to renewable energy like wind and solar. However, for steel smelting, coking coal is used, which is indispensable, leading ING to concentrate on thermal coal.</li> </ul>

- ING's coal policy refers to thermal coal used in power generation, as it can easily be replaced by gas as clients transition to renewable energy sources such as wind and solar. However, when smelting steel, another type of coal known as coking coal is used to carry out the process. Given its indispensability, ING focuses on thermal coal.

### Notes

A critical analysis of the coal policies of Barclays Bank and ING Bank reveals several significant weaknesses that could pose substantial risks and hinder the effectiveness of green financing:

#### 1. Barclays Bank's prior involvement in coal projects:

It is noteworthy that in 2022, a year before the announcement of their coal policy, Barclays Bank was involved in financing the construction of a smelter in Halmahera, North Maluku. This smelter operates using coal as fuel. Despite Barclays Bank's experience in financing the nickel-related sector and being an 'enabler' of projects involving dirty coal energy, its latest coal policy fails to adequately address this risk.

Barclays Bank's focus solely on direct exposure to coal, without considering indirect exposure from loans, creates a significant gap that may persist as a problem in the future. This is particularly relevant in the context of financing the upstream-downstream (smelter) nickel industry in Indonesia, which remains closely linked to coal energy.

#### 2. Large exception threshold in Barclays Bank's policy:

Barclays Bank has set a threshold for exclusion, stating that it will not provide financing to clients generating more than 50% of their income from coal-fired power plants. While this may be seen as a positive step, the threshold still imposes considerable limitations.

Ideally, financing should be completely avoided for entities involved in coal-fired power plants without any exceptions. Allowing such a loophole could enable Barclays Bank to continue supporting significant projects directly or indirectly connected to coal.

### 3. Weak points in ING Bank’s policies and exceptions:

For ING Bank, addressing the risk of indirect exposure from their funding to coal is still inadequate. ING focuses solely on direct exposure to coal, neglecting the risk of indirect exposure from the loans they provide to coal-related projects. This creates a significant gap that may persist as a problem in the future, especially in the context of financing the nickel industry in Indonesia, which remains closely linked to coal energy.

Moreover, this risk may persist because ING’s coal policy still grants exceptions for ‘emission-intensive’ sectors, such as the nickel industry, specifically the steel sector, to continue using coal due to limited alternatives. This will undoubtedly hinder efforts to decarbonize the industrial sector, such as through direct electrification production options.

Table 11. Case Description: Loan 4

Loan 4	
Loan Description	
HSBC, in collaboration with Crédit Agricole CIB and China Construction Bank (Asia), provided a loan of USD 150 million to CNGR for the acquisition of the PT Debonair Nickel Indonesia smelter, which operates the RKEF nickel smelter in the Indonesia Weda Bay Industrial Park area in North Maluku. Within the IWIP area, the smelter is powered by a coal power plant.	
Loan	European Financial Institution
May 2022	HSBC dan Crédit Agricole
Commitment Announcement	Commitment
<b>HSBC Commitment Year 2021</b>	<b>HSBC’s Commitment</b>
<b>Crédit Agricole Commitment Year 2020</b>	<ul style="list-style-type: none"> <li>Phasing out financing of coal-fired power plants and thermal coal mining by 2030 in the EU and OECD, and by 2040 elsewhere (HSBC, 2022).</li> <li>Engaging with relevant clients on their transition plans and agreeing on financing termination timelines.</li> <li>Reviewing policies and reporting progress annually.</li> </ul>

	<ul style="list-style-type: none"> <li>Seeking to withdraw any financing and consulting services with clients committing to new or continuing thermal coal expansion after January 1, 2021, unless such expansion is contractually committed or under construction before that date.</li> </ul>
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<b>Crédit Agricole Commitment Year 2020</b>	<b>Crédit Agricole’s Commitment</b> <ul style="list-style-type: none"> <li>Aligning our portfolio’s exposure to the coal industry with the complete phase-out of coal by 2030 for EU and OECD countries; 2040 for the whole world (Crédit Agricole, 2020).</li> <li>The group also pledged to stop collaborating with companies that are developing or planning to develop new thermal coal capacity across the value chain (mining infrastructure, production, utilities, and transport).</li> </ul>
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**Notes**

**1. Indirect Exposure to Coal:**

The coal policies implemented by HSBC and Crédit Agricole show a limited focus on direct exposure to coal. This gap became significant when these two banks provided a loan of USD 150 million to CNGR to acquire the PT Debonair Nickel Indonesia smelter, which uses a coal power plant. Not considering indirect exposure from these loans creates risks, especially in the context of financing the nickel industry in Indonesia, which is still closely linked to coal energy. A more comprehensive scope needs to be implemented to address indirect risks that can arise from financing coal-related projects.

**2. Unambitious Implementation Timeframe:**

HSBC and Crédit Agricole’s policy set a relatively slow implementation timeline, with a target of phasing out thermal coal by 2030 in the European Union and OECD and by 2040 globally. This creates concerns about the lack of urgency in supporting accelerated financing for the energy transition. Delaying crucial steps until 2040 could reduce the effectiveness of policies in reducing the impact of coal-related activities on climate change. Accelerating the timing of policy implementation will be more in line with the urgent demands of the current environment.

### 3. Inconsistency Between Financing Policies and Practices:

Crédit Agricole committed to stop working with companies developing new thermal coal capacity across the value chain. However, in reality, this bank provided a large loan to CNGR in May 2022 to acquire the PT Debonair Nickel Indonesia smelter, which uses a coal power plant. There are inconsistencies between policy commitments and practical financing actions. Banks must ensure that their policies are properly reflected in financing decisions and undertake careful evaluation of the projects they support.

Table 12. Case Description: Loan 5

Loan 5	
Loan Description	
Crédit Agricole, HSBC, ING Bank, Natixis, OCBC, OCBC NISP, and UOB provided a loan of USD 260 million to PT Merdeka Tsingshan Indonesia to pay debts to the parent company, namely PT Merdeka Copper Gold (MTI is now under PT Merdeka Battery Materials, one group with Merdeka Copper Gold), financing capital expenditures such as construction and operational costs for the Acid Iron Metal Project, including other related projects that will be developed by MTI. PT MTI uses a coal power plant for its smelter business activities in the Morowali Industrial Park area.	
Loan	European Financial Institution
Loan Year August 2022	Credit Agricole, HSBC, ING Bank dan Natixis
Commitment Announcement	Commitment
Commitment Year 2020	<p><b>Commitment Credit Agricole (refer to Loan Description 4), HSBC (refer to Loan Description 4), ING Bank (refer to Loan Description 3).</b></p> <p><b>Natixis' Commitment:</b>            Natixis has now made a new commitment to completely withdraw from the coal sector. The agreement will no longer support companies developing new capacity in coal-fired power generation or thermal coal mining and will completely withdraw from the thermal coal sector by 2030 for EU and OECD countries, and by 2040 for other countries in the world (BPCE, 2020).</p>

### Notes

The Natixis coal financing phase-out policy faces significant challenges in terms of the implementation timeframe and lack of clarity in the scope of the policy. With a target of ending the use of thermal coal by 2030 in the European Union and OECD and by 2040 globally, this policy raises concerns about the urgency of accelerating financing for the energy transition.

Particularly regarding the USD 260 million loan to PT Merdeka Tsingshan Indonesia, there are gaps that show weaknesses in their coal policy. This policy does not specifically cover whether the termination of support applies only to the direct exposure level or also includes indirect exposures, which the parent company or subsidiaries may have. Until finally, the financing was used for smelter business activities powered by coal.

In the context of funding policy updates to exit coal and sustainable financing, clear updates or limitations are needed. This aims to prevent the use of funding, especially those that can trigger indirect exposure related to coal. Improvements in policy should include steps to identify and address coal-related financing risks, including the development of clear demarcations and identification of risks between direct and indirect exposures.

To achieve the goal of a sustainable energy transition, Natixis needs to accelerate the implementation of its policies and fine-tune provisions that ensure its financing is truly aligned with the commitment to transition away from coal globally.

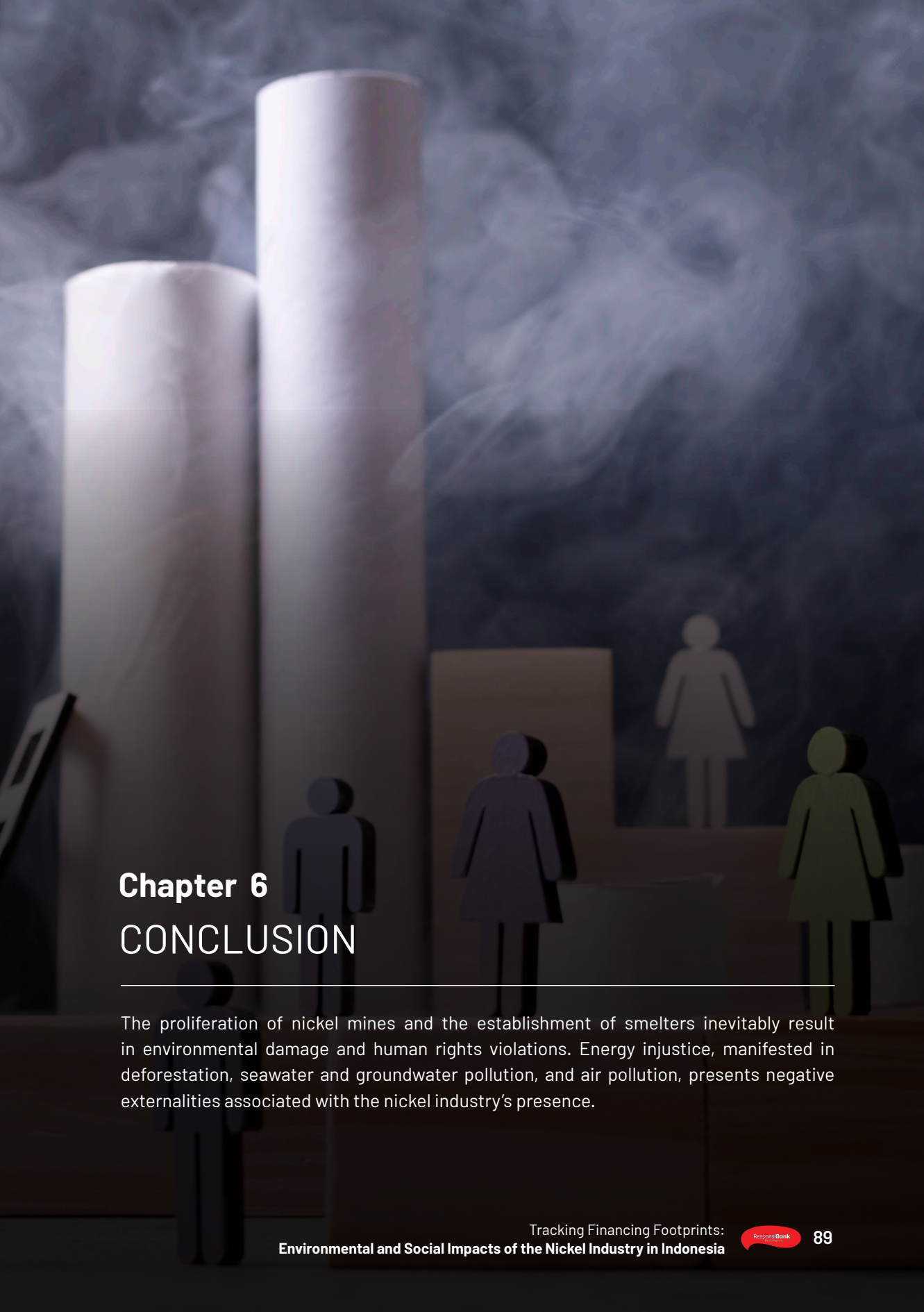
Table 13. Case Description: Loan 6

Loan 6	
Loan Description	
Santander, HSBC, ANZ, DBS, and JP Morgan provided a USD 711 million loan to PT HLI Green Power, part of the Hyundai and LG consortium, for the construction of a battery factory in Karawang, West Java. One of Hyundai's supply chains, namely aluminum from Indonesia, will be powered by coal power plants.	
Loan	European Financial Institution
October 2022	Santander dan HSBC
Commitment Announcement	Commitment
22 February 2021 (Santander)	22 February 2021 (Santander) HSBC Commitment (refer to Loan Description 4) <b>Santander's Commitment:</b>

	<p>Will end financing for commercial power plants if 10% of related companies' revenues depend on thermal coal (Santander, 2021); and eliminate exposure to coal mining worldwide by 2030.</p>
<b>Notes</b>	
<p>Santander's coal policy faces several challenges that need to be addressed, particularly regarding the implementation timeframe and lack of clarity in the scope of the policy. This policy does not apply immediately and will only reach its peak in 2030, apart from that, it is limited to the scope of coal mining.</p> <p>Furthermore, Santander's policy regarding ending financing for coal plants is still full of ambiguity and weak because it is not yet comprehensive. The prerequisite to stop providing new financing only applies if 10% of the relevant company's revenue depends on thermal coal. This leaves a huge gap that allows sustainability of financial support for coal projects to continue.</p> <p>Financing for the construction of a battery factory in Karawang, West Java, is an example of how Santander's coal policy still has weaknesses. This loophole allows indirect exposure to coal because the policy does not target the entire value chain from upstream to downstream, including facilities related to coal (such as those from the processing side of mineral raw materials).</p>	



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## Chapter 6

# CONCLUSION

The proliferation of nickel mines and the establishment of smelters inevitably result in environmental damage and human rights violations. Energy injustice, manifested in deforestation, seawater and groundwater pollution, and air pollution, presents negative externalities associated with the nickel industry's presence.

## 6.1 Conclusion

### Indonesia boasts the world's largest nickel reserves.

providing the foundation for the Indonesian government's ambition to establish the country as the **"King of World Batteries"** through a downstream strategy.

Efforts to achieve this goal involve attracting significant investment into the upstream nickel industry, spanning mines and smelters, with the ban on nickel ore exports implemented since early 2020. However, despite these initiatives, nickel downstream products remain categorized as "intermediate products" and have yet to fulfill the criteria necessary to serve as raw materials for electric vehicle batteries.

Investment in the upstream nickel sector encounters various challenges, particularly concerning sustainability and equity. The proliferation of nickel mines and the establishment of smelters inevitably result in environmental damage and human rights violations. Energy injustice, manifested in deforestation, seawater and groundwater pollution, and air pollution, presents negative externalities associated with the nickel industry's presence. Consequently, local residents, including indigenous communities, disproportionately bear the brunt of environmental harm, with some losing their homes as forested areas are converted into mining concessions without regard for their wishes. Media content analysis underscores the intensity of environmental damage and human rights issues stemming from nickel mining and smelting operations in the vicinity.

Furthermore, media content analysis highlights the prevalence of energy injustice from a human rights perspective, particularly regarding land conflicts, labor rights violations, lack of Free, Prior and Informed Consent (FPIC), and violence. Tragic incidents, such as worker fatalities in nickel mines and smelters, exemplify the inadequate commitment of business entities to occupational health and safety (K3) standards. This underscores the high incidence of workplace accidents in the upstream nickel sector and indicates nickel mining and smelting companies have yet to prioritize worker safety.

Tracing financial flows reveals that financing and investment in the upstream nickel sector are predominantly sourced from China. Among the major companies operating in the upstream sector are PT Vale Indonesia Tbk, PT Aneka Tambang Tbk, PT Bintang Empat Group, PT WedaBaya Nickel, and PT Merdeka Battery Materials Tbk. In the smelting segment, notable investors include PT Vale Indonesia Tbk, Tsingshan Group, PT Bintang Empat Mineral, Jiangsu Delong Nickel, Harita Group & Lygend Resources, CATL, LG Corporation, Zhejiang Huayou Cobalt, Posco, Kalla Group, and Indonesia Battery Corporation. This investment is concentrated in nickel-rich provinces on Sulawesi Island and Halmahera Island (North Maluku). Intriguingly, profits from financing originating from China tend to

repatriate to the investor's home country, resulting in an artificial nickel multiplier effect in Indonesia.

Financing for the nickel industry in Indonesia generally takes the form of loans, bonds, and equity, with most funding sources coming from financial institutions abroad. However, it is not only financial institutions from China that finance nickel companies in Indonesia; financial institutions from Europe also provide funding. In fact, the nickel industry still relies on captive coal-fired power plants (PLTUs). Therefore, the green commitment of European financial services institutions to reduce and stop funding coal projects must be questioned.

For example, PT Trimegah Bangun Persada (TBP), which operates in South Halmahera, has led to land conversion, water pollution, and increased air pollution resulting in acute respiratory infections. PT TBP has several subsidiaries financed by banks with green commitments, such as BNP Paribas, DBS, Bank Mandiri, BCA, BNI, Maybank, OCBC, OCBC NISP, and UOB. The banks provided a loan to PT Halmahera Persada Lygend (HPL) for the construction of a High-Pressure Acid Leach (HPAL) technology smelter on Obi Island, South Halmahera Regency, North Maluku Province.

In addition to financing practices, transparency in the company's business governance must also be a focus for banks. This is important because in 2022, there was a proven case of corruption in the issuance of Operational Production Permits (OP IUPs) by the Regent of North Konawe. The existence of this case does not rule out the possibility that similar instances may occur with regional heads at the provincial and district/city levels. Therefore, banks need to conduct regular monitoring of the companies they finance.

Worker safety aspects are also a concern. Data collected by the Mining Advocacy Network (JATAM) recorded 10 employees of PT. GNI who died in 2020 due to various factors such as landslides, drowning, falling into hot dumps, and truck accidents. Information related to work accidents illustrates the low level of occupational health and safety (K3) standards. This naturally contradicts the concept of recognition justice because the company lacks K3 preventive and mitigation efforts.

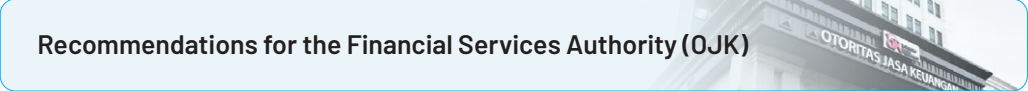
By financing the upstream nickel industry that has not implemented sustainable business principles, financial institutions are contributing to environmental destruction and human rights violations. The alignment between sustainable financial commitments and financing practices in the nickel industry, which show minimal respect for human rights and the environment, needs to be a serious consideration for financial institutions' commitment to ESG principles. Evaluation of sustainable financial and business practices is very important for financial institutions and nickel companies. The hope is that both financial institutions and nickel companies can contribute to realizing a just energy transition in Indonesia.

## 6.2 Recommendations

### Recommendations for the government:

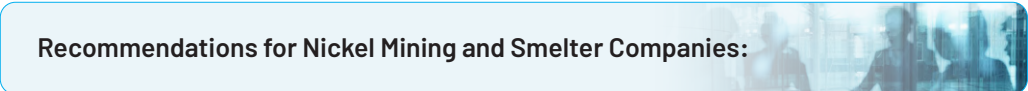


1. The Central Government should promptly issue a Government Regulation to establish a Sustainable Finance Committee in accordance with the mandate of Law No. 4 of 2023 concerning the Development and Strengthening of the Financial Sector (P2SK).
2. The Sustainable Finance Committee, consisting of Bank Indonesia (BI), the Ministry of Finance (Kemenkeu), and OJK, needs to develop and enact sustainable investment regulations that align with the Indonesian Green Taxonomy and international standards on sustainable finance.
3. The Coordinating Ministry for Maritime Affairs and Investment should evaluate the suitability of existing nickel mines and smelters with the principles of sustainable development. It should also regulate against the opening of new captive coal-fired power plants (PLTUs) for smelters by integrating on-grid transmission or by concentrating nickel processing in areas with electricity oversupply conditions.
4. The Ministry of Energy and Mineral Resources should revoke nickel mining business permits for companies whose practices damage the environment and violate human rights.
5. The Ministry of Environment and Forestry should revoke the Forest Area Borrow-Use Permits (IPPKH) held by nickel mining companies whose practices harm the environment and violate human rights.
6. Provincial, district, and city governments in areas around nickel mines and smelters should oversee nickel mining and smelting activities to ensure that business practices adhere to environmental sustainability and human rights. They should also ensure that there is a positive impact on communities in the vicinity of the mines.
7. The central and regional governments (provincial/district/city) must also provide information in the media regarding the impacts and multiple effects caused by nickel mining and smelters from the perspective of affected communities and vulnerable groups, such as disabled groups, women's groups, the elderly, children, and indigenous communities. The government must also raise the issue of Indonesia's readiness to produce nickel for batteries and its use for national electric vehicles.



### Recommendations for the Financial Services Authority (OJK)

1. OJK needs to prepare and publish a financing guidebook for the mining sector, especially critical minerals, to ensure that the financial industry and business actors understand and implement sustainable business activities by incorporating environmental, social, and governance aspects.
2. OJK needs to mandate banks to establish a complaint mechanism (grievance mechanism), receive complaints, and address grievances from affected communities, indigenous groups, vulnerable populations, and stakeholders regarding negative impacts resulting from their financing and investment activities in a transparent, fair, and cost-free manner.



### Recommendations for Nickel Mining and Smelter Companies:

1. Nickel mining and smelter companies planning to invest in Indonesia must carry out human rights due diligence and environmental impact assessment analyses to avoid human rights violations and environmental damage resulting from their business practices;
2. Nickel mining and smelter companies should establish mechanisms for complaints and redress of the impact of human rights violations and environmental damage caused by their business activities.



### Recommendations for Banks:

1. Banks must have a policy that prohibits financing and investment (exclusion list) for activities or businesses that violate human rights and contribute to gender inequality, in accordance with laws, regulations, and international best practice standards. Banks should also adopt policies containing minimum requirements for clients regarding environmental and social aspects, including human rights and gender;
2. Banks should establish an environmental and social risk management system (ESMS) consisting of policies, procedures, due diligence, and monitoring and evaluation processes to identify and manage the risks and impacts of their financing and investment activities;

3. Banks should have human rights due diligence procedures to identify, prevent, reduce, and address negative human rights impacts resulting from their financing and investment activities;
4. Banks should have a monitoring and evaluation system to periodically review clients' compliance with established policies and take decisive actions, such as rejecting or terminating financing and investments with clients found to be in violation. Banks should involve various stakeholders, including civil society organizations, to gather information on impacts on the ground and cases of human rights violations and environmental damage committed by clients;
5. Banks should facilitate a transparent, fair, and free complaints mechanism (grievance mechanism) for affected communities, indigenous groups, vulnerable populations, and stakeholders to submit complaints regarding negative impacts arising from their financing and investment activities. Banks should also require debtors to implement such mechanisms;
6. Banks and investors should cease financing and investing in mining companies and nickel smelters found to be involved in environmental damage and human rights violations if the companies fail to conduct assessments of the impact of human rights and environmental damage and do not undertake remediation efforts;

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# List of Appendices

Appendix 1. Actors' Statements on Concepts Related to Nickel News

Organizations	Concepts	Yes	No
North Morowali Government	Electric vehicle batteries	1	0
North Morowali Regional Representative Council (DPRD)	Labor rights fulfillment	0	1
Southeast Sulawesi Government	Nickel industry downstream	1	0
	Increase in community income	1	0
West Papua People's Assembly	Increase in community income	1	0
South Sulawesi Government	State revenues	1	0
	Environmental sustainability	1	0
	Legal mining	1	0
	Increase in community income	0	1
Central Sulawesi Government	State revenues	0	1
Central Sulawesi Regional Representative Council (DPRD)	Legal mining	0	1
Mandiolo Village Government, Konawe	Increase in community income	1	0
	Environmental sustainability	0	1
North Buton Government	State revenues	1	0
	Environmental sustainability	0	1
Mandailing Natal Government	Environmental sustainability	0	1
North Kolaka Government	Environmental sustainability	0	1
North Konawe Government	Environmental sustainability	0	1
Lamondowo Village Government, North Konawe	Groundwater cleanliness	0	1
Banggai Regional Representative Council (DPRD)	Increase in community income	0	1
Central Halmahera Regional Representative Council (DPRD)	Conflict-free land transition	0	1
	Indigenous community rights fulfillment	0	1
	Increase in community income	0	1
North Maluku Regional Representative Council (DPRD)	Conflict-free land transition	0	1
North Maluku Government	Indigenous community rights fulfillment	1	0

Source: Processed research data



Appendix 2. Table of Loan Financing for the Nickel Industry in Indonesia (Smelter, Mine, and Nickel Smelter Power Plant Projects)

No	Companies	Group	Loan Amount (USD)	Lender	Loan Year	Loan Purpose	Expansion Type	Expansion Year
1	PT International Nickel Indonesia (INCO)	Vale	300.000.000	Bank of Tokyo-Mitsubishi UFJ and Mizuho Corporate Bank	2009	Construction of Karebbe Hydroelectric Power Plant in South Sulawesi for nickel smelter		
2	PT Aneka Tambang Tbk	Antam	650.000.000	Bank Mandiri, Bank Rakyat Indonesia, Standard Chartered Bank and Sumitomo Mitsui Banking Corporation	2012	Construction of four units of ferronickel smelters IV with a capacity of 27,000 tons/year in East Halmahera, North Maluku Province	Smelter	2012
3	PT Aneka Tambang Tbk	Antam	100.000.000	Maybank Indonesia	2015	Expansion of ferronickel smelter plant and construction of 2 x 30 MW Power Plant in Pomalaa, Southeast Sulawesi	Smelter, Coal-Fired Power Plant (PLTU)	2015
4	PT Halmahera Per-sada Lygend	Harita	625.000.000	DBS, BNP Paribas, Bank Mandiri, BCA, BNI, Maybank, OCBC, OCBC NISP and UOB	22 February 2021	Construction of High Pressure Acid Leach (HPAL) nickel smelter in Obi Island, South Halmahera Regency, North Maluku Province	Smelter, Mine	2021

5	PT Halmahera Jaya Feronkel	Harita	530.000.000	DBS Singapura, OCBC Singa-pura, DBS, KEB Hana, OCBC, UOB, UOB Singapura, LPEI and Bank Mandiri	14 April 2022	To finance project costs and refinance the Bridge Loan Facility in the amount of USD 250,000,000	Smelter	2022
6	PT Obi Nickel Cobalt	Harita	780.000.000	Agricultural Bank of China, Bank of China, China CITIC Bank Corporation Limited, Shanghai Pudong Develop-ment Bank Co., Ltd, Industrial Bank Co., Ltd, and China Guangfa Bank Co., Ltd.	11 May 2023	Expansion of smelter for nickel sulfate and cobalt sulfate pro-duction operated by PT Obi Nickel Cobalt	Smelter	
7	PT Hamparan Logistik Nusantara	Merdeka Battery Materials	300.000.000	ING Bank NV Singapore Branch and Barclays Bank PLC	2022	Loan for the acquisition of mining company PT Sulawesi Cahaya Mineral in Konawe and acquisition of smelters PT Bukit Smelter Indonesia and PT Cahaya Smelter Indonesia in IMIP.	Smelter, Mine	2022
8	PT Sulawesi Mining Investment	Tsingshan	384.000.000	China Development Bank (CDB)	2015	Construction of PT Sulawesi Mining Phase I captive Power Plant with a ca-pacity of 2 x 65 MW in IMIP	Coal-Fired Power Plant (PLTU)	
9	PT Indonesia Rupu Nickel And Chrome Alloy	Tsingshan	320.000.000	Export-Import Bank of China	2017	Construction of PT Sulawesi Mining Phase IV captive Power Plant with a capacity of 2 x 350 MW in IMIP	Coal-Fired Power Plant (PLTU)	2017
10	PT Wanatiara Persada (Chi-na Jinchuan Group Ltd )	Tsingshan	34.000.000	China Development Bank (CDB)	2019	Loan for nickel mining and construction of 3 x 50 MW captive Power Plant in Obi Island, South Halmahera Regency, North Ma-luku Province	Mine, Coal-Fired Power Plant (PLTU)	2019

11	PT Indonesia Guang Ching Nickel And Stainless Steel Industry	Tsingshan	700.000.000	Bank of China (BOC), Export-Import Bank of China, Industrial Bank of China and Commercial Bank of China (ICBC)	2016	2016	Coal-Fired Power Plant (PLTU)	2016	Construction of PT Sulawesi Mining Phase II captive Power Plant with a capacity of 2 x 150 MW in IMIP
12	PT Indonesia Tsingshan Stainless Steel	Tsingshan	574.000.000	Bank of China (BOC) dan CDB	2017	2017	Coal-Fired Power Plant (PLTU), Smelter	2017	Construction of PT Sulawesi Mining Phase III captive Power Plant with a capacity of 2 x 350 MW in IMIP and nickel pig iron smelter
13	PT Bumi Mineral Sulawesi	Kalla Group	127.700.000	Bank Mandiri, Bank BRI	2022	2022	Smelter		Construction of nickel smelter
14	PT Ceria Metalindo Prima	Ceria Nugraha Indotama (CNI) Group	277.700.000	Bank Mandiri, PT Bank Pembangunan Daerah Jawa Barat and Banten Tbk (Bank BJB), and PT Bank Pembangunan Daerah Sulawesi Selatan & Sulawesi Barat (Bank Sulselbar)	6 March 2022	6 March 2022	Smelter		Term loan facility to support the construction and operation of RKEF (Rotary Kiln Electric Furnace) ferronickel smelter line 1 with a capacity of 23,000 tons/year in Lapao-Pao, Kolaka, Southeast Sulawesi
15	Obsidian Stainless Steel	Xiamen Xiangyu (51%) & Jiangsu De-long Nickel Industry (49%)	1.060.000.000	Bank of China, China Development Bank; China Construction Bank; ICBC; Agricultural Bank of China; CITIC bank; China Merchants Bank; and Tai Fung Bank	December 2020	December 2020	Smelter, Coal-Fired Power Plant (PLTU), Port		For smelter, 44 MW Power Plant and port

16	PT Harum Energy Tbk	Harum Energy	390.000.000	PT Bank UOB Indonesia, Oversea-Chinese Banking Corporation Limited, PT Bank OCBC NISP Tbk, PT Bank DBS Indonesia, DBS Bank Ltd, PT Bank CIMB Niaga Tbk, PT Bank BTPN Tbk, dan PT Bank QNB Indonesia Tbk	11 Oktober 2022	Salah satu upaya utama perseroan adalah mendiversifikasi usahanya melalui ekspansi ke usaha pertambangan dan pengolahan nikel, yang memerlukan pembiayaan yang cukup besar.	Tambang	2022
17	Zhenshi Holding Group Co Ltd	Zhenshi Holding Group Co Ltd	1.600.000.000	China Development Bank, Export Bank of China, Bank of China, Bank of Communications, ICBC, Everbright, CITIC, Beijing, Minsheng, China Construction Bank, Zhejiang Commercial Bank and Ping An	30 November 2022	Construction of an annual capacity of 126,000 tons smelter	Smelter	
18	PT Zhongtong New Energy	CNGR	120.000.000	Bank Central Asia	28 April 2022	Construction of nickel matte smelter in IMIP	Smelter	2021
19	LG Energy Solution Ltd & Hyundai Motor Group	LG & Hyundai	711.000.000	Australia and New Zealand Banking Group, DBS, HSBC, JP Morgan, Santander	August 2022	Construction of a battery factory in Karawang, West Java	Battery Factory	2023
20	PT Merdeka Tsingshan Indonesia 2022	Merdeka Battery Materials	200.000.000	PT Merdeka Copper Gold Tbk (MDKA)	August 2022	Construction of smelter		

21	PT Blue Sparking Energy		500.000.000	PT Tanito Harum Nickel (PT Harum Energy Tbk)	2 October 2023	This loan is to support the development of the high pressure acid leaching (HPAL) project and refinancing needs (debt repayment). PT BSE is currently building an HPAL nickel smelter in Weda Bay Industrial State		
22	PT COR Industry Omega	PT Central Omega Resources Tbk	58.500.000	Eximbank Indonesia	24 February 2016	Construction of nickel pig iron smelter in North Morowali. Central Sulawesi and working capital for smelter operations	Smelter	2016
23	PT Sulawesi Cahaya Mineral	PT Merdeka Battery Materials Tbk	35.950.000	PT Merdeka Battery Materials Tbk	September 2023	Including affiliate loans from parent company to subsidiaries. The loan purpose for working capital includes employee costs, professional service costs, royalty payments to the state treasury, transportation and handling costs, maintenance and repair costs, and nickel mining costs.	Mine	2023
24	PT Jikodlong Megah Pertiwi	PT Trimegahan Bangun Persada Tbk	114.280.000.000 (IDR)	PT Trimegahan Bangun Persada Tbk	26 June	Including affiliate loans from parent company to subsidiaries. Loan with 8% interest for 5 years. The loan purpose for the purchase of heavy equipment, repair and improvement of other supporting infrastructure capacities, and exploration costs.	Mine	2023
25	PT Merdeka Tsingshan Indonesia	PT Merdeka Battery Materials Tbk	50.000.000	PT Merdeka Copper Gold Tbk (MDKA)	June 2023	Loan purpose for capital expenditure of PT MTI for the development of AIMI nickel smelter project	Smelter	2023

26	PT Merdeka Battery Materials Tbk	PT Merdeka Copper Gold Tbk	175.000.000	PT Merdeka Copper Gold Tbk	May 2023	PT Merdeka Copper Gold Tbk	Loan purpose for general corporate purposes of the company, including but not limited to working capital, capital and operational expenditures of the company, and to support the business activities of the company's subsidiaries by providing debt and/or advance capital deposits.	Smelter, Mine	2023
27	Sulawesi Mining Investment	Tsingshan	84.000.000	China Development Bank (CDB)	January 2014	China Development Bank (CDB)	Construction of ferronickel smelter in IWIP	Smelter	2014
28	Zhongqing New Energy	CNGR	23.100.000	Hong Kong New Energy	6 May 2022	Hong Kong New Energy	The loan comes from Hong Kong New Energy, a subsidiary of CNGR. Construction of smelter in IMIP.	Smelter	2022
29	Tsingshan	Tsingshan	75.000.000	China Development Bank (CDB) & Industrial and Commercial Bank of China (Indonesia)	2020	China Development Bank (CDB) & Industrial and Commercial Bank of China (Indonesia)	Loan to Tsingshan to build a 1x250 MW Power Plant in IMIP. The name of the Power Plant and which Tsingshan subsidiary re-ceived the loan is not specified.	Coal-Fired Power Plant (PLTU), Pelabuhan	2022
30	Tsingshan Stainless Steel Co Ltd & Dexin Steel Co Ltd	Tsingshan	170.000.000	China Development Bank	2018	China Development Bank	Loan to fund the production project of 3.5 million tons of steel in Indonesia	Smelter	2018
31	PT Megah Surya Pertiwi	PT Trimegah Bangun Persada Tbk	255.000.000	United Overseas Bank (UOB) Indonesia, BNP Paribas, Over-sea-Chinese Banking Corporation (OCBC) NISP,	2018	United Overseas Bank (UOB) Indonesia, BNP Paribas, Over-sea-Chinese Banking Corporation (OCBC) NISP,	Loan applied by Xinxing Cast Pipe Co Ltd (Xinxing Oiyun Group) holding 40% shares of PT MSP for the construction of a new line of smelter that has existed since 2015.	Smelter	2018

32	PT Debonair Nickel Indonesia	CNGR	120.000.000	HSBC, Crédit Agricole CIB and China Construction Bank (Asia)	May 2022	Acquisition of PT Debonair Nickel Indonesia smelter, which has an RKEF nickel smelter in IWIP with a capacity of 380 MW	Smeiter, PLTU	2022
33	PT Merdeka Tsingshan Indonesia	PT Merdeka Battery Materials Tbk	260.000.000	Credit Agricole, ING Bank, Natixis, OCBC, HSBC Indonesia, OCBC NISP and UOB Indonesia	31 August 2022	Loans obtained by MTI, among others, to pay off MTI's debts to PT Merdeka Copper Gold (currently PT MTI) under PT Merdeka Battery Materials) and finance capital expenditures such as construction and operational costs of the Acid Iron Metal Project, including other related projects to be developed by MTI.	Smelter	2022

Source: Compiled from Finance Sina, China AidData, Bisnis, Kontan, Kompas.com, CNBC Indonesia, Reuters, Market Screener, company websites, news reports, and company prospectuses.

Appendix 3. List of PT Indonesia Asahan Aluminium (Inalum) Global Bond Buyers

Jenis Global Bond	Kupon %	Nama/Produk Pemegang Obligasi Dari Perusahaan	Market Value, Mln USD	Negara Asal Holders	Perusahaan Induk Pemegang Obligasi	Tipe Pembeli
15 May 2050	5,8	Amundi Index Barclays Global Agg 500M UCITS ETF DR - GBP, Hedged (GBP)(Dist)	0,23	France	Amundi	Asset Manager
15 May 2050	5,8	SPDR® Bloomberg Barclays Emerging Markets USD Bond ETF (USD)	0,19	United States	State Street Bank and Trust Company	Investment Manager
15 May 2050	5,8	UBS ETF (LU) Bloomberg Barclays USD Emerging Markets Sovereign UCITS ETF (Hedged To GBP) A-Dis (USD)	0,10	Luxembourg EU (Domisi)-Swiss (Induk)	UBS Group	Manajer Aset
15 May 2050	5,8	iShares Core Balanced ETF (CAD) Portfolio	<0,01	United States	BlackRock	Asset Manager
15 May 2050	5,8	iShares Core Growth ETF (CAD) Portfolio	<0,01	United States	BlackRock	Asset Manager
15 May 2050	5,8	iShares Broad USD Investment Grade Corporate Bond ETF (USD)	<0,01	United States	BlackRock	Asset Manager
15 May 2050	5,8	iShares Core 10+ Year USD Bond ETF (USD)	<0,01	United States	BlackRock	Asset Manager
15 May 2050	5,8	iShares Core Conservative Balanced ETF Portfolio (CAD)	<0,01	United States	BlackRock	Asset Manager
15 May 2050	5,8	iShares Core Income Balanced ETF Portfolio (CAD)	<0,01	United States	BlackRock	Asset Manager
15 May 2050	5,8	iShares Core Total USD Bond Market ETF (USD)	<0,01	United States	BlackRock	Asset Manager
15 May 2050	5,45	First Trust TCW Opportunistic Fixed Income ETF (USD)	0,58	United States	First Trust Portfolios LP	Investment Manager
15 May 2050	5,45	First Trust TCW Emerging Markets Debt ETF (USD)	0,46	United States	First Trust Portfolios LP	Manajer Investasi



15 May 2050	5,45	SPDR® DoubleLine® Total Return Tactical ETF (USD)	0,38	United States	State Street Bank and Trust Company	Manajer Investasi
15 May 2050	5,45	UBS ETF (LU) Bloomberg Barclays USD Emerging Markets Sovereign UCITS ETF (Hedged To GBP) A-Dis (USD)	0,20	Luxembourg EU (Domestic) - Swiss (Parent)		Investment Manager
15 May 2050	5,45	iShares J.P. Morgan USD Emerging Markets Bond Index ETF - Hedged (CAD)	0,07	United States	BlackRock	Asset Manager
15 May 2050	5,45	iShares Core Balanced ETF (CAD) Portfolio	<0,01	United States	BlackRock	Asset Manager
15 May 2050	5,45	iShares Core Growth ETF (CAD) Portfolio	<0,01	United States	BlackRock	Asset Manager
15 May 2050	5,45	iShares 5-10 Year Investment Grade Corporate Bond ETF (USD)	<0,01	United States	BlackRock	Asset Manager
15 May 2050	5,45	iShares Broad USD Investment Grade Corporate Bond ETF (USD)	<0,01	United States	BlackRock	Asset Manager
15 May 2050	5,45	iShares Core Conservative Balanced ETF Portfolio (CAD)	<0,01	United States	BlackRock	Asset Manager
15 May 2025	4,75	SPDR® DoubleLine® Emerging Markets Fixed Income ETF (USD)	0,98	United States	State Street Bank and Trust Company	Investment Manager
15 May 2025	4,75	SPDR® Bloomberg Barclays Emerging Markets USD Bond ETF (USD)	0,94	United States	State Street Bank and Trust Company	Investment Manager
15 May 2025	4,75	JPMorgan ETFs (Ireland) ICAV - USD Emerging Markets Sovereign Bond UCITS ETF CHF Hedged (Acc)(CHF)	0,59	Ireland (EU)	JP Morgan	Asset Manager
15 May 2025	4,75	SPDR® DoubleLine® Total Return Tactical ETF (USD)	0,39	United States	State Street Bank and Trust Company	Investment Manager

15 May 2025	4,75	UBS ETF (LU) J.P. Morgan USD EM Diversified Bond 1-5 UCITS ETF (Hedged To GBP) A-Dis (USD)	0,37	Luxembourg EU (Domestic)-Swiss (Parent)	Asset Manager
15 May 2025	4,75	Amundi Index Barclays Global Agg 500M UCITS ETF DR - GBP Hedged (GBP) (Dist)	0,23	France	Asset Manager
15 May 2025	4,75	UBS ETF (LU) Bloomberg Barclays USD Emerging Markets Sovereign. UCITS ETF (Hedged To GBP) A-Dis (USD)	0,20	Luxembourg EU (Domestic)-Swiss (Parent)	Asset Manager
15 May 2025	4,75	iShares J.P. Morgan USD Emerging Markets Bond Index ETF - Hedged (CAD)	0,07	United States	Asset Manager
15 May 2025	4,75	Harvest Asian Bond Fund	0,2	United States	Investment Manager
15 May 2025	4,75	Manulife Fixed Term 6 Year Ladder Maturity Emerging Market Bond Fund	s	Taiwan	Investment Manager
15 May 2025	4,75	Nomura Six Years Fixed Maturity Asia Pacific Emerging Market Bond Fund	90,9	Taiwan	Investment Manager
15 May 2025	4,75	Schroder 2025 Maturity Emerging Market Bond Fund	241,5	Taiwan	Investment Manager
15 May 2050	5,45	KGI Emerging Asia Sustainable Selection Bond Fund	22,7	Taiwan	Investment Manager
15 May 2050	5,45	Fidelity Funds - Asian Bond Fund	23,3	Luxembourg EU (Domestic)-Swiss (Parent)	Investment Manager
15 May 2025	4,75	Manulife Global Fund - Asian High Yield Fund	1,9	Luxembourg EU	Investment Manager
15 May 2050	5,45	J.P. Morgan Asset Management	0,19	United States	Investment Manager

15 May 2025	4,75	Manulife Investment Management 202303	9,8	Taiwan	Manulife Asset Management Co Ltd	Investment Manager
15 May 2050	5,45	PIMCO Funds: Global Investors Series plc: Emerging Markets Bond Fund—Portfolio Holdings	7,6	United States	PIMCO	Investment Manager
15 May 2050	5,8	PIMCO Funds: Global Investors Series plc: Emerging Markets Bond Fund—Portfolio Holdings	2,5	United States	PIMCO	Investment Manager
15 May 2050	5,45	AB SICAV I - Asia Income Opportunities Portfolio	3,9	United States	AllianceBernstein	Asset Manager
15 May 2050	5,8	AB SICAV I - Asia Income Opportunities Portfolio	0,91	United States	AllianceBernstein	Asset Manager

Source: Compiled from Bloomberg, CBONDS, company investment datasets

Appendix 4. Equity Financing Table for the Nickel Industry

Investors/Shareholders	Company	Equity Form	Value	Currency	Time	Purpose
Community, Termasuk Glencore International AG (Swiss), Fidelity International (United States), SWF in Asia, Lim Family (Owner of Harita	PT Trimegah Bangun Persada Tbk (Harita Group)	Initial Public Offering (IPO)	9.997.000.000.000	IDR	3 April 2023	Debt Repayment, Company Capital Expenditures, Capital Injection, Loans to Associates and Subsidiaries, Working Capital
Community, Garibaldi Thohir, Huayong International (Hong Kong), PT Merdeka Energi Indonesia, Winato Kartono	PT Merdeka Battery Materials Tbk	Initial Public Offering (IPO)	9.182.250.000.000	IDR	18 April 2023	Debt Repayment, Acquisition of MTI's Support Facility Rights, MBM's Working Capital, MTI's Working Capital, ZHN's Capital Expenditure and Working Capital, SCM's Working Capital, SIP's Capital Expenditure
PT Huaqi Pte Ltd	PT Vale Indonesia Tbk	Private Placement	764.000.000.000	IDR	9 March 2023	PT Vale Indonesia Tbk has an expansion project in Kolaka. PT Huaqi bought PT Vale's shares in PT Kolaka Nickel Indonesia amounting to 764,000 shares. Meanwhile, PT Vale still owns 191,000 shares worth Rp 191 billion.
Tsingshan	Eramet SA melalui Strand Minerals Pte Ltd	Private Equity	N/A	N/A	8 June 2017	The first smelter development in Weda Bay started operating in 2020.
Nickel Industries	PT Huayue Nickel Cobalt	Private Equity	270.000.000	USD	19 January 2023	Acquisition of 10% of PT Huayue Nickel Cobalt (a Tsingshan affiliate) which is building an HPAL smelter in IMIP
Nickel Industries	Shanghai Decent Investment/ Tsingshan Group (China)	Private Equity	595.000.000	USD	2021-2023	Nickel Industries acquired 80% of Shanghai Decen's shares (Tsingshan) gradually from November 2021 to August 2023 for an RKEF smelter project under construction in IMIP.

Nickel Industries	PT Tablasufa Nickel Mining	Private Equity	8,500,000	USD	December 2021	Acquisition of 100% of shares from Bolt Metals Corp & PT Best Resources for a 5,000-hectare nickel concession in Ta-biasufa, West Papua Province.
Nickel Industries	Hengjaya Holdings Private Limited	Private Equity	180,000,000	USD	April 2018- June 2020	Acquisition of 80% of PT Hengjaya Nickel Industry shares, a subsidiary of Hengjaya Holdings, which owns an RKEF smelter in IMIP
PT United Tractor Tbk	Nickel Industries	Private Placement	628,000,000	USD	9 June 2023	United Tractor acquired 19.99% of Nickel Industries shares listed on the Australian Stock Exchange (ASX). Nickel Industries issued 857 million common shares to United Tractor for the acquisition.
PT United Tractor Tbk	PT Anugrah Surya Pacific Resources	Private Equity	271,000,000	USD	2022	UNTR bought shares of its subsidiary PT ASPR, namely 90% of PT Stargate Mineral Asia which owns a nickel smelter and 90% of PT Stargate Pacific Resources which owns a nickel mine in North Konawe, Southeast Sulawesi.
PT Harum Energy Tbk	PT Infei Metal Industry	Private Equity	109,760,000	USD	February 2021 & July 2021	PT Harum Energy acquired shares of PT Infei Metal Industri gradually, with a total of 39.2% of the shares purchased. PT IMI in IMIP
PT Harum Energy Tbk	Nickel Mines (Now Nickel Industries)	Private Equity	45,035,828	USD	12 May 2021	PT Harum Energy bought 6.73% of Nickel Mines shares.

PT Merdeka Battery Materials Tbk	PT Huaneng Metal Industry (Tsingshan Group)	Private Equity	75.000.000	USD	May 2023	PT Merdeka Battery Materials acquired 60% of PT Huaneng Metal Industry shares. Huaneng has a smelter in IMIP.
Jindal Stainless Ltd	New Yaking Pte Ltd	Private Equity	157.000.000	USD	28 March 2023	Jindal Stainless, an Indian company, acquired 60% of New Yakin Pte Ltd shares which owns a nickel smelter in Halmahera, Maluku. The exact location of the smelter is not yet known.
Huayou Cobalt	PT Andalan Metal Industry (subsidiary of Zhongjing Holdings)	Private Equity	200.000.000	USD	25 July 2023	Huayou Cobalt provided a loan for the purpose of acquiring 50.1% of PT Andalan Metal Industry shares which already owns an RKEF smelter in IWIP
Jingmen GEM Co Ltd (sub-sidiary of GEM Co Ltd)	Hong Kong Banpu (anak perusahaan CATL)	Private Equity	6.584.000	USD	January 2021	GEM Co Ltd acquired 15% of CATL's shares worth \$4,854,000 in PT QMB which has an HPAL smelter project for nickel and cobalt in IMIP. GEM also acquired 21% of Tsingshan's PT QMB shares equivalent to \$1,730,000.
China Molybdenum Co	PT Huayue Nickel Co-balt	Private Equity	69.100.000	USD	November 2019	China Molybdenum acquired 30% of PT Huayue Nickel Cobalt shares which owns an HPAL smelter in IMIP
Hyundai Motor Group	Korea Zinc	Private Equity	399.000.000	USD	August 2023	Hyundai Motor Global acquired 5% of Korea Zinc shares which will build an HPAL smelter in Indonesia with a value of \$600 million by collaborating with companies in Indonesia.

PT Harum Energy Tbk	PT Position (subsidiary Aquila Nickel Ptd Ltd)	Private Equity	80.320.000	USD	February 2021	Acquisition of 24,287 shares owned by Aquila Nickel Ptd Ltd or equivalent to 51% of the total capital of PT Position. PT Position holds a nickel mining permit in Halmahera (IWIP).
PT Harum Energy Tbk	Nickel Mines (Now Nickel Industries)	Private Equity	34.260.000	AUD	29 May 2020	Acquisition of 3.22% of shares in Nickel Mines (now Nickel Industries), a nickel company in Australia with nickel mines and smelters in Indonesia.

Source: Indonesia Stock Exchange, company websites, and research analysis.



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