



Scars across the Nickel Lands: Stories from the IWIP Industrial Zone

FEBRUARY 2026



Transformasi untuk Keadilan Indonesia

FOREWORD

We express our gratitude for the completion of this study, entitled “*Scars across the Nickel Land: Stories from the IWIP Industrial Zone*.” This research emerged from a growing concern: amid the global narrative of energy transition and Indonesia’s ambition to become a major player in the global electric vehicle supply chain, fundamental questions remain about who truly benefits from this process and who bears its costs.

As a civil society organization committed to transforming natural resource governance and financial systems toward greater justice and sustainability, TuK INDONESIA believes that nickel downstreaming cannot be measured solely by investment value, production capacity, or Indonesia’s position in the global market. More importantly, downstreaming must be assessed by the extent to which it protects communities’ rights, safeguards ecological carrying capacity, and ensures that strategic added value genuinely remains within the country.

Through a supply chain traceability approach, this study seeks to trace the journey of nickel from mining sites to export, while documenting the social and ecological dynamics unfolding around Indonesia Weda Bay Industrial Park (IWIP).

The findings of this report reveal a serious paradox behind the ambition of the global green transition: the expansion of the nickel industry is progressing rapidly, while governance, transparency, and protections for communities and the environment continue to lag behind.

This report is not an attempt to reject the energy transition. On the contrary, we believe that the energy transition is inevitable. However, this transition must be just. It cannot be built upon environmental degradation, land conflicts, the criminalization of communities, or worker vulnerability.

We hope this report can serve as a reference for policymakers, industry actors, financial institutions, academics, and the wider public in advancing reforms to nickel industry governance in Indonesia. These reforms should include strengthening supply chain transparency, protecting small islands, enforcing environmental law, and ensuring a more equitable distribution of economic benefits to local communities.

Ultimately, the energy transition cannot be measured solely by how quickly we move away from fossil fuels. It must also answer fundamental questions about how the resources needed for this transition are extracted, who benefits from them, and who bears the consequences.

As we conclude, we would like to express our appreciation to the research team, local partners, and communities who shared their stories, data, and experiences. Without their courage and willingness to speak out, this report would not have been possible.

We hope this report will make a meaningful contribution toward ensuring that the global energy transition does not leave new scars on Indonesia's nickel-rich lands.

Jakarta, February 2026

Sincerely,

Linda Rosalina

Executive Director TuK INDONESIA

LIST OF ABBREVIATIONS

ARA	PT Alam Raya Abadi
B3	Bahan berbahaya dan beracun
BBM	Bahan bakar minyak
BKPM	Badan Koordinasi Penanaman Modal
BNPB	Badan Nasional Penanggulangan Bencana
BPM	PT Bartra Putra Mulia
BPN	PT Bakti Pertiwi Nusantara
BPS	Badan Pusat Statistik
BUMDes	Badan Usaha Milik Desa
BUMN	Badan Usaha Milik Negara
BWS	BWS – Balai Wilayah Sungai
CBAM	Carbon Border Adjustment Mechanism
CSDDD	Corporate Sustainability Due Diligence Directive
DBD	Demam berdarah dengue
DBH	Dana bagi hasil
Disperindag	Dinas Perindustrian dan Perdagangan
DLH	Dinas Lingkungan Hidup
DPR	Dewan Perwakilan Rakyat
ESDM	Energi dan sumber daya mineral
ESG	Environmental, social, and governance
EV battery	Electric vehicle battery
FABA	Fly ash and bottom ash
FOC	Flag of convenience
FPIC	Free, prior, and informed consent
HAM	Hak asasi manusia
HIV	Human immunodeficiency virus
HPAL	High-pressure acid leaching
IEA	International Energy Agency
IRMA	Initiative for Responsible Mining Assurance
ISPA	Infeksi saluran pernapasan akut
IUP	Izin usaha pertambangan
IUPK	Izin usaha pertambangan khusus

IWIP	Indonesia Weda Bay Industrial Park
Kementerian	Kementerian Pekerjaan Umum dan Perumahan Rakyat
PUPR	
KLH	Kementerian Lingkungan Hidup
KLHK	Kementerian Lingkungan Hidup dan Kehutanan
LME	London Metal Exchange
MHP	Mixed hydroxide precipitate
NCM	Nickel cobalt manganese
NPI	Nickel pig iron
Obvitnas	Objek vital nasional
Pemprov	Pemerintah provinsi
Perpres	Peraturan presiden
PLTU	Pembangkit listrik tenaga uap
PMA	Penanaman modal asing
PMDN	Penanaman modal dalam negeri
PNBP	Penerimaan negara bukan pajak
Polri	Kepolisian Negara Republik Indonesia
PP	Peraturan pemerintah
PSN	Proyek strategis nasional
RIM	PT Ruby International Mining
RKAB	Rencana kerja dan anggaran biaya
RKEF	Rotary kiln-electric furnace
SIINAS	Sistem Informasi Industri Nasional
SK	Surat keputusan
SSCR	Stainless steel cold-rolled (SSCR)
WBN	PT Weda Bay Nickel
WIUP	Wilayah izin usaha pertambangan
WKM	PT Wahana Kencana Mineral
WPN	Wilayah pencadangan negara

Abstract

Global energy transition, driven by the adoption of electric vehicles, has elevated nickel into a strategic material for global energy, and Indonesia—through PT Indonesia Weda Bay Industrial Park (IWIP)—is at the center of this dynamic. Using a descriptive qualitative approach, this study maps the interconnections among mining companies, smelters, ports, and actor networks that constitute IWIP’s downstream ecosystem. It traces the nickel supply chain from extraction in the mines to shipping networks, processing facilities and export routes that feed the global market. The findings show a clear paradox: Indonesia’s dominance in nickel supply throughout 2020–2024 has consolidated its position in the global industry, while oversupply has depressed prices and simultaneously intensified environmental degradation, land conflicts, and social inequality at the local level. The complexity of the supply chain and the dominance of foreign corporations indicate that value-addition and strategic control of the industry still lie outside the country. Therefore, strengthening governance reform, increasing transparency of the supply chain, and enhancing ecological protection are essential to align nickel downstream industrialization with the objectives of a just energy transition.

Keywords : nickel, downstream industrialization, supply chain, IWIP, environmental degradation

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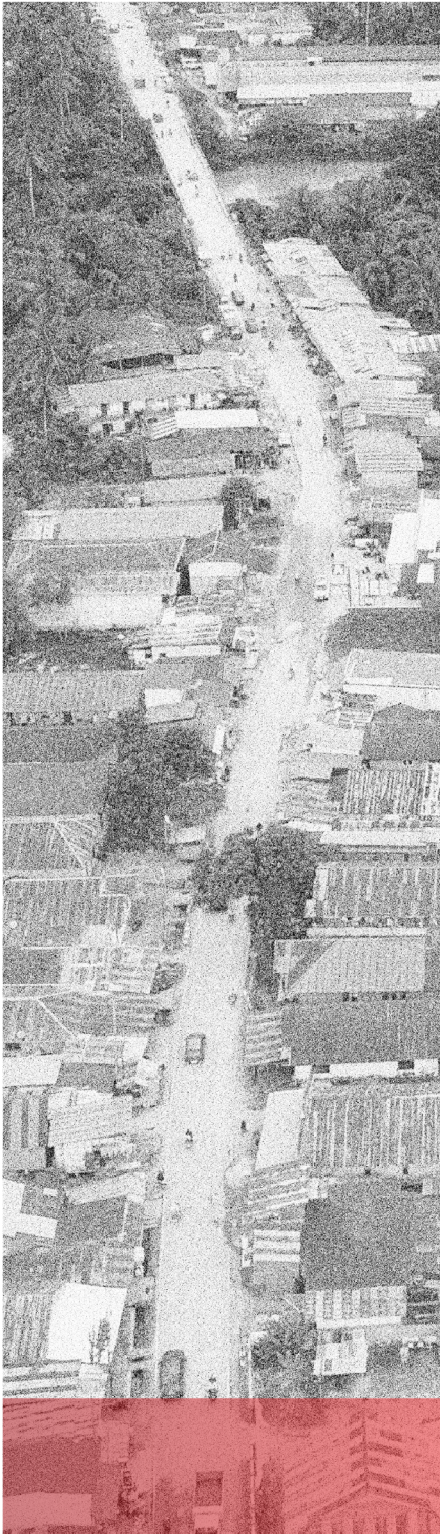
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EXECUTIVE SUMMARY

Today, Indonesia is the largest nickel producer in the world and a vital hub in the global electric vehicle supply chain. Indonesia Weda Bay Industrial Park (IWIP) in Central Halmahera has emerged as the hub of national nickel downstream industrialization which links mines, smelters, and nickel-based industries with international markets. However, this industrial expansion simultaneously reveals the principal paradox in energy transition: While the world relies on Indonesia's nickel to drive the development of the green economy, a profound social and ecological crisis unfolds at the local level. Between 2020 and 2024, overproduction generated a surplus of global supply that drove down the price of nickel by more than 40% in 2023 and 2024. Claims of increased value addition do not align with the fact that technology, refining processes, and market control are still dominated by foreign corporations, such as Tsingshan and Eramet. This ownership structure has placed Indonesia in a secondary role, with strategic value addition continuing to flow abroad.

In Central Halmahera, the industrialization of IWIP has caused drastic environmental changes: forest clearance, river contamination, coastal areas filled with ore-carrying barge, and logistical activities. Villages such as Lelilef, Sagea, and Weda experience shrinking living spaces and disrupted livelihoods, while land conflicts linked to nickel mining, such as the case of Maba Sangaji in East Halmahera, exposes the unequal relationship between the local community and the industry. Residents who attempt to defend indigenous land (tanah adat) have even been criminalized under the mineral and coal mining law. Traceability studies reveal the complex link between land mining, overlapping subcontractor networks, and maritime logistical routes that transport nickel barge from small islands such as Gebe, Pakal, Fau, and Gag. Although these islands should be protected by law because of their limited ecological capacity, they have instead become targets of intensive exploitation to meet the demands of the IWIP industry.

The nickel supply chain leading to IWIP is marked by a high degree of opacity. The use of ships registered under Panama's flag of convenience, the scarcity of public documentation on the origins of the ore, and overlapping corporate operations indicate weak accountability and transparency. More than 98% of PT IWIP's export of ferronickel flows to China, which indicates a long-term structural dependency that leaves Indonesia vulnerable to fluctuations in demand and the industrial policies of partner countries. In this context, the global energy transition that is intended to generate ecological and social benefit has instead brought about new risks in the form of environmental degradation, unequal distribution of benefit, and the potential violation of local community rights.

Aside from ecological damage and land conflicts, the expansion of the nickel industry also introduced new health issues that have increasingly burdened the local communities of North Maluku. River contamination—such as in the case of Kobe River, which is now feculent, muddy, and contains mine sediment—has triggered an increase in skin disease in the community. At the same time, the clean water crisis has forced communities to rely on well water that is difficult to access and the local drinking water company, which is also vulnerable to contamination

Poor air quality around the industrial zone due to smelter dust and emissions from coal-fired power plants (PLTU) has caused rising cases of acute respiratory infection (ARI), pneumonia, and other respiratory -

disorders. Local health facilities are struggling to cope with the surge in infectious diseases. For example, cases of tuberculosis (TBC) have increased more than tenfold within four years; HIV rates have sharply increased since testing services were introduced near the PT IWIP area. Other diseases, such as leprosy, dengue fever, and diarrhea, have also escalated with the influx of people from other regions looking for a job at PT IWIP and increasingly poor sanitation conditions. This situation reveals that the downstreaming of nickel does not only leave a legacy of environmental damage but also intensifies the health vulnerabilities of the local community, in addition to the social burdens unaccounted for in the grand narrative of “national value addition”.

The pressure is not only felt by the local community. The workers within the nickel industry area are also in a vulnerable position. The rapid expansion of smelter facilities, coal-fired power plant facilities, and logistical networks has led to a rise in workplace accidents in Central Halmahera. As of August 2025, 504 cases of workplace accidents (over double the previous year) were reported, ranging from minor injuries to fatal incidents resulting in deaths. It was reported that several workers have been struck by heavy equipment, one case resulting in amputation. Reporting is often delayed because of workers’ dependence on the company. In a number of cases, the victims did not immediately receive their salary or compensation, prompting intervention by the regional government. These conditions demonstrate that the safety system within the industry celebrated as the backbone of energy transition remains critically weak.

The findings of this study indicate that nickel downstream industrialization in Indonesia, particularly through IWIP, cannot genuinely support a just and sustainable energy transition without profound structural changes in governance. Strengthening traceability from mining to export, enforcing strict protection of small islands, reforming environmental law enforcement, and redistributing economic benefit to local communities are urgent measures to be taken. Without these measures, mine downstreaming risks turning into a fragile industrial growth project—generating global profit while leaving ecological and social burdens within the nickel-producing region.

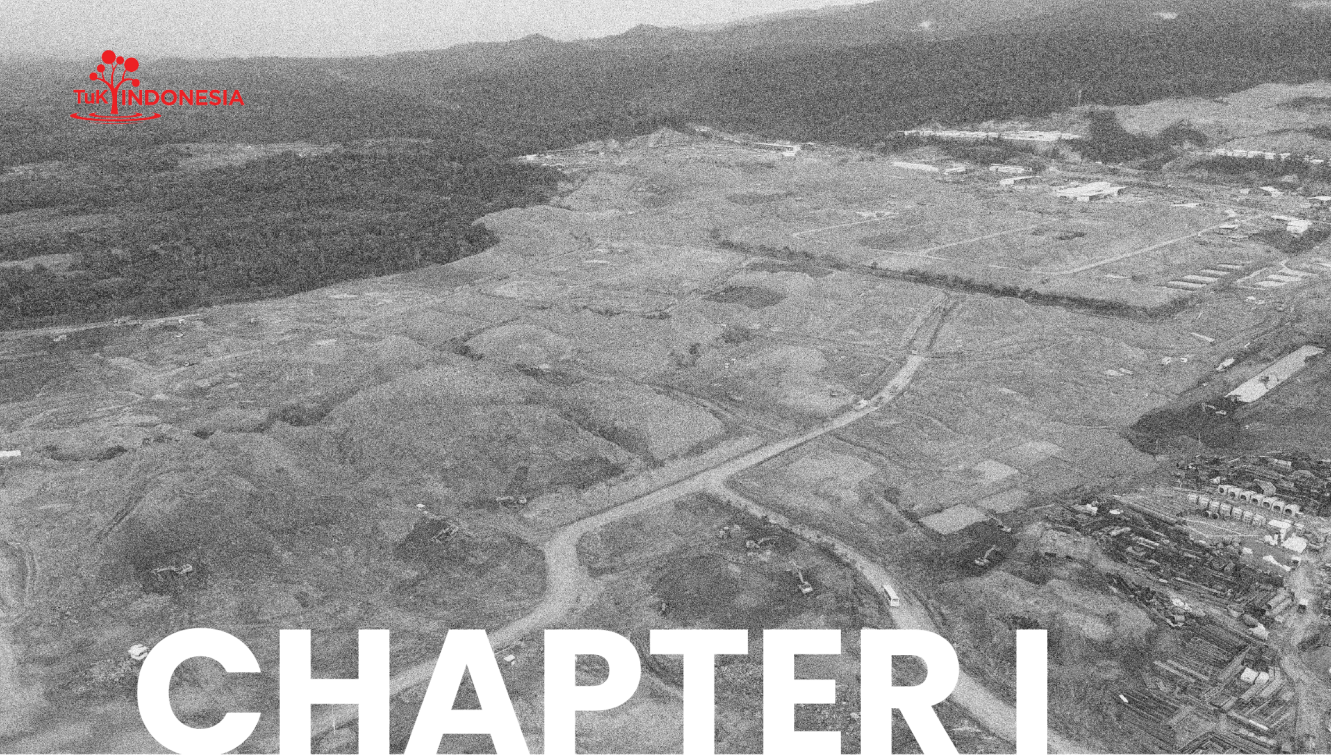
“

**Gae re gele
rfaftote tejaga
iterir pnu re
boten ente fafie**

”



**Our grandparents advised: take good care of this village
(Mardani Legayelol, Warga Desa Sagea)**

A black and white aerial photograph of a landscape, showing a winding road or river cutting through a field of agricultural plots. In the background, there are hills and some industrial or residential structures.

CHAPTER I

THE PARADOX OF GREEN TRANSITION

On one side of the world, electric cars glide forward without emissions. On the other side, forests in North Maluku quietly vanish in the shadow of nickel downstreaming. The global energy transition promises a green future, yet the metal supply chain sustaining it may not be as clean as imagined.



1.1 The Development of the Nickel Industry

Today, electric cars have become the symbol of a green civilization. In major cities across the world, emission-free electric vehicles (EV) glide quietly along the roads, sustaining hopes of a pollution-free future. However, in eastern Indonesia, across the clusters of the Halmahera Island, the roar of mining trucks and clatter of smelters fill the atmosphere. There, nickel is extracted from land once covered by forest—feeding a global supply chain that links Indonesia Weda Bay Industrial Park (IWIP) to battery factories in China, expanding electric vehicles worldwide. What the world calls “green transition”, the local communities of Halmahera call it “losing their home”.

The Nickel industry is racing to meet the world’s green ambitions. Amid global pressure to achieve clean energy, this metal has emerged as a rising star, as it is the key material behind EV batteries and the energy storage systems of the future. The International Energy Agency (IEA) reported that global demand for nickel in 2024 increased by 6%–8%, a rise driven by the surge in EV production and energy renewal projects (IEA, 2025). Over the past two years, the energy sector has contributed almost 85% to the growth in the demand for strategic minerals such as nickel, lithium, cobalt, and graphite (IEA, 2025).

Indonesia stands at the forefront of the global nickel map. With reserves reaching 5.9 billion metric tons of ore, the country controls more than 30% of the world’s supply, positioning itself as a crucial hub in the clean energy supply chain (Kementerian ESDM, 2025). This vast potential has prompted the government to support a broad agenda of nickel downstream industrialization, a strategy to halt raw ore exports and establish domestic refining industries. Through the Ministerial Regulation of Energy and Mineral Resources (ESDAM) No. 11 of 2019 on the Second Amendment to the Ministerial Regulation of Energy and Mineral Resources No. 25 of 2018 on the Undertaking of Mineral and Coal Mining, Indonesia has formally banned export of ore since 2020 and mandated the development of national smelters. This measure is claimed as an effort to enhance value addition and strengthen Indonesia’s position within the global supply chain.

The government has prioritized the use of low-grade nickel as the raw material of the batteries, as stipulated in Presidential Regulation No. 55 of 2019 on the Acceleration of the Battery Electric Vehicle Program for Road Transportation. This policy is driven by the ambition to enhance value addition, attract foreign investment, and strengthen Indonesia’s position –

within the global nickel supply chain (Kementerian ESDM, 2025). The Ministry of Energy and Mineral Resources reported that nickel smelter projects by the end of 2024 had reached 190 projects, which consisted of 54 operating smelters, 120 under construction, and 16 in the planning stage (IMA, 2024).

Ironically, amid the euphoria of the expansion, while global demand for nickel continues to rise, global prices have fallen. IEA reported that about 90% of the growth in the nickel supply chain between 2020 and 2024 originated from Indonesia. The surge in production has flooded the global market with oversupply. As a result, throughout 2023–2024 nickel prices plunged by more than 40% compared to their peak in 2022 (IEA, 2024). By 2025, prices on the London Metal Exchange (LME) hovered at only around 15,000 US dollars per metric ton (LME, 2025). This illustrates a paradox: The more Indonesia extracts to meet global needs, the less value it attains from each metric ton of nickel.

The Logic of Growth Beyond Environmental Carrying Capacity

Global nickel production has surged far beyond demand; the market is unable to absorb it. While global nickel demand rose by only 4% in 2022 and 8% in 2023, mining output soared by 19% and 9% respectively during the same period. Indonesia stands at the center of this storm: from 2020 to 2023, its share of global production increased from 34% to 52%, while refined output rose from 23% to 37%. Indonesia's industrial engines have been running at full speed—driven by high-pressure acid leaching (HPAL) technology, which transforms laterite ore into high-grade nickel—increasing production from 88,000 metric tons in 2022 to 180,000 metric tons in 2023. In addition, the expansion of conversion technology to process nickel pig iron (NPI) into nickel matte further increased national output, reinforcing Indonesia's dominance in the global nickel supply chain (IEA, 2024).

However, behind the celebrated production gains and the ambition of nickel downstream industrialization, lies an unavoidable paradox. Nickel is treated as a money machine, not as a resource that needs to be responsibly managed. The drive to continue extracting and refining metal traps the logic of development in a race of numbers: how much can be produced; how quickly it can be exported. Amid the euphoria of being a central global actor, the boundary between progress and destruction becomes increasingly blurred. Indonesia may stand tall on the map of the global supply chain, but the lands where nickel is mined face thinning forests, the loss of clean water, and communities gradually deprived of the space to live adequately.

In Central Halmahera, the paradox is starkly visible. PT IWIP (the main industrial zone for national nickel downstream industrialization) has caused the Sawai community to lose their agricultural land and access to sea—primary sources of their livelihood. Smelter activities have also generated air pollution and contaminated the river the community has long relied on for their daily needs.

Destructive mining practices, weak law enforcement, inadequate infrastructure, and social tensions over the distribution of economic benefits are crucial issues facing nickel-mining regions today. Production by PT Weda Bay Nickel (WBN)—the mining company supplying nickel to IWIP, a joint venture between Eramet (France) and Tsingshan (China)—reflects this reality. In 2024, WBN's production reached 32 million metric tons, in line with production quota set in its work plan and budget (RKAB). This capacity demonstrates the immense potential of Indonesia's nickel industry, while at the same time, revealing the scale of increasingly intensive exploitation of resources.

Ultimately, Indonesia's position at the center of the global nickel supply chain embodies a dilemma. On the one hand, nickel downstream industrialization has successfully transformed Indonesia into a powerful actor within a strategic global industry, but on the other hand, gaps in governance, environmental degradation, and social inequality serve as reminders that the metal praised as securing the green future is rooted in a fragile structure.

1.2 Traceability Study of Nickel Commodity in PT IWIP

Traceability studies in the critical mineral sector have become increasingly important and are frequently conducted, driven by the rising global demand for mineral commodities—a vital part of the supply chain of international-scale industries. Organizations such as IEA and the Organisation for Economic Co-operation and Development (OECD), emphasize the importance of this aspect in order to increase accountability across the supply chain of critical minerals from upstream extraction to downstream processing.

In this research, a traceability study is conducted on Indonesia's nickel commodity to ensure that every metric ton produced—from mining to smelter output—has a "clear history" by attempting to understand its origin,

the processes it undergoes, its transfer destinations, and the environmental and social impact it generates. This research is crucial so that the claim that “nickel is clean and compliant with regulations” can be supported with data.

This research focuses on the nickel supply chain within PT IWIP industrial area which operates in the Lelilef Village, Weda District, Central Halmahera Regency, North Maluku Province. This site was selected as the research location because it is one of the largest integrated nickel industrial areas in the world, which directly links nickel mining operations with smelter processing facilities.

This zone serves as a critical representation for understanding the dynamics of the nickel supply chain in Indonesia, which dominates the global supply chain, both in terms of production and management. In this context, IWIP is not only the epicenter of exploitation for nickel downstream industrialization but also a site that exposes the challenges of sustainability, environmental governance, and social impact. With a production capacity that continues to expand and a role that is increasingly strategic within the global supply chain of EV, IWIP is a relevant research location for analyzing how Indonesia manages its position as the world largest nickel producer.

1.3 Research Method

This research employs a qualitative descriptive method through a case study of nickel processing in the PT IWIP industrial area, located in Central Halmahera, North Maluku. This approach is used to obtain an in-depth understanding of the dynamics of the nickel supply chain, traceability practices, and the social, economic, and environmental impact at the local level, particularly in the villages surrounding Weda Bay, such as Lelilef Waibulan, Lelilef Sawai, Sagea, Kiya, and Gemaf.

Furthermore, this research combines supply chain analysis and network analysis to trace the link between the practices of the nickel industry at the local level and the trading structure and global industry. Through this approach, the research not only describes the conditions on the ground surrounding the IWIP area but also traces how nickel ore from Halmahera flows through the industrial networks and international trade, ultimately reaching end users in global manufacturing sectors, such as battery industries and EVs.

Supply chain analysis was employed to identify the main phases of nickel production and distribution, from mining, smelter processing, export of intermediate products (such as nickel matte and mixed hydroxide precipitate/MHP) to ultimately reaching users in the industry abroad. Meanwhile, network actor analysis was used to map the link between companies, ownership structures, and business alliances between national and foreign corporations involved in the supply chain.

By combining these three approaches, the study seeks to provide a comprehensive account of Indonesia's position within the global nickel supply chain, the extent to which value addition has been generated at the local level and how governance and sustainable practices in the nickel industry can be strengthened to support a just energy transition.

1.4 Profile of PT IWIP

Indonesia Weda Bay Industrial Park or IWIP is an integrated industrial zone focused on heavy metal processing, located in Lelilef Village, Weda District, Central Halmahera Regency, North Maluku Province. It was officially inaugurated on 30th of August 2018 and has evolved into one of the largest nickel industrial areas in the world, with a total investment reaching USD 15 billion by the beginning of 2025—three times the initial value of its first development phase (Antaranews.com, 2025). The zone rapidly expanded under the “nickel downstream industrialization” narrative promulgated by the government following the issuance of Ministerial Regulation of Energy and Mineral Resources No. 11 of 2019 which banned the export of raw ore. The policy which initially intended to strengthen domestic value addition has triggered massive foreign investment, particularly from China, positioning Indonesia not as the center of technological innovation but instead, as the primary supplier of raw materials for the global EV supply chain.

Figure 1. IWIP First Stone Laying Ceremony by Representatives of Public Officials, Authorities, and Companies.



Source: PT IWIP website, 2018

PT IWIP is a joint venture of three Chinese companies, with a share distribution of 40% for Tsingshan (through Perlux Technology) and 30% each for Huayou and Zhenshi. Huayou itself has developed two nickel processing plants within the PT IWIP industrial area through two joint venture companies: PT Huafei Nickel Cobalt and PT Huake Nickel Indonesia (Singgih 2024). Both companies are formally listed as tenants within PT IWIP's industrial area.

The economic hub of this zone is PT WBN, an integrated nickel company that operates both mines and smelters within the IWIP area. PT WBN manages ore processing facilities that employ pyrometallurgy rotary kiln-electric furnace (RKEF) technology, with a capacity of 30.000 metric tons of nickel per year (IWIP, 2025).

In 2009, PT WBN held an environmental impact assessment (AMDAL) permit, which was upgraded to environmental permit in 2014 by the Ministry of Environment. Legally, WBN's operational activities are based on Contract -

of Work No. 239.K/30/DJB/2019, granting land management rights over 45,065 hectares, valid from December 30, 2019, until February 27, 2048 (Kementerian ESDM, 2025). However, a majority of the concession area overlaps with state forest areas, including protected forests and limited production forests. Therefore, in September 2023, the Ministry of Energy and Mineral Resources confiscated 148,25 hectares of PT WBN's land for operating without a loan and use permit in the forest zones (*izin pinjam pakai kawasan hutan/IPPKH*).

PT WBN's contract was first established in 1998 and was then amended in 2014 to align with obligations required by national policy, including domestic refining, increased use of local labor and goods, and mandatory divestment and contributions to state revenue (Kementerian ESDM, 2013).

From an ownership perspective, PT WBN reflects the complexity of relations between global and national capital. Initially, PT WBN was owned by Strand Minerals (90%) and PT ANTAM Tbk. (10%), until in 2006, when the French company Eramet acquired Strand Minerals' shares. Thereafter, ownership structure changed significantly with the entry of China's stainless steel giant, Tsingshan Holding Group, which now controls 51,3% share of PT WBN, followed by Eramet (37,8%) and ANTAM (10%) (Eramet, 2025). Through this arrangement, IWIP stands as a concrete example of how an export ban of raw nickel has strengthen the dominance of foreign capital, particularly from China, within the supply chain of Indonesia's strategic minerals. Although the state retains a stake through ANTAM, its position is largely symbolic rather than one that can determine the direction of production and export policies.

Meanwhile, Tsingshan plays a central role in controlling technology and value chain at PT IWIP. As a world-class stainless steel and nickel conglomerate, Tsingshan controls all the industrial processes from upstream to downstream: mine exploitation, ore processing with RKEF and HPAL technologies to the export of intermediate products (such as nickel matte and MHP) for the global battery industry. This integrated business model enables Tsingshan to reduce production costs and expand its dominance in the global nickel market, with Indonesia—through both PT IWIP and PT Indonesia Morowali Industrial Park (IMIP)—as the main hub of its global supply chain (Kompas, 2025). However, Tsingshan's practices are also controversial, including its short squeeze nickel scandal at LME in -

2022, which had shocked the global market and exposed the scale of speculation surrounding this strategic mineral (Jones, 2023).

On the other hand, Eramet, the French company that holds a minority stake alongside Tsingshan, has positioned itself as a “sustainable” mining pioneer. Since 2022, Eramet and Tsingshan have prepared PT WBN for auditing under the Initiative for Responsible Mining Assurance (IRMA) standard and opened a new office in Jakarta to strengthen long-term relations with the Government of Indonesia. Eramet has also fostered partnerships with the Geological Body of the Ministry of Energy and Mineral Resources and state investment institutions, such as INA and Danantara to develop a “green investment” platform in the nickel and battery sectors. However, these measures are often viewed as efforts to enhance the image of the industry, which in reality continue to generate environmental damage, land conflicts, and social inequalities for local communities surrounding the Weda Bay region, where the IWIP industrial area and WBN mines operate.

Meanwhile, PT ANTAM Tbk. is the only Indonesian shareholder in PT WBN, holding a 10% stake. Between 2020 and 2024, ANTAM invested more than Rp6 trillion to strengthen its participation in the project.

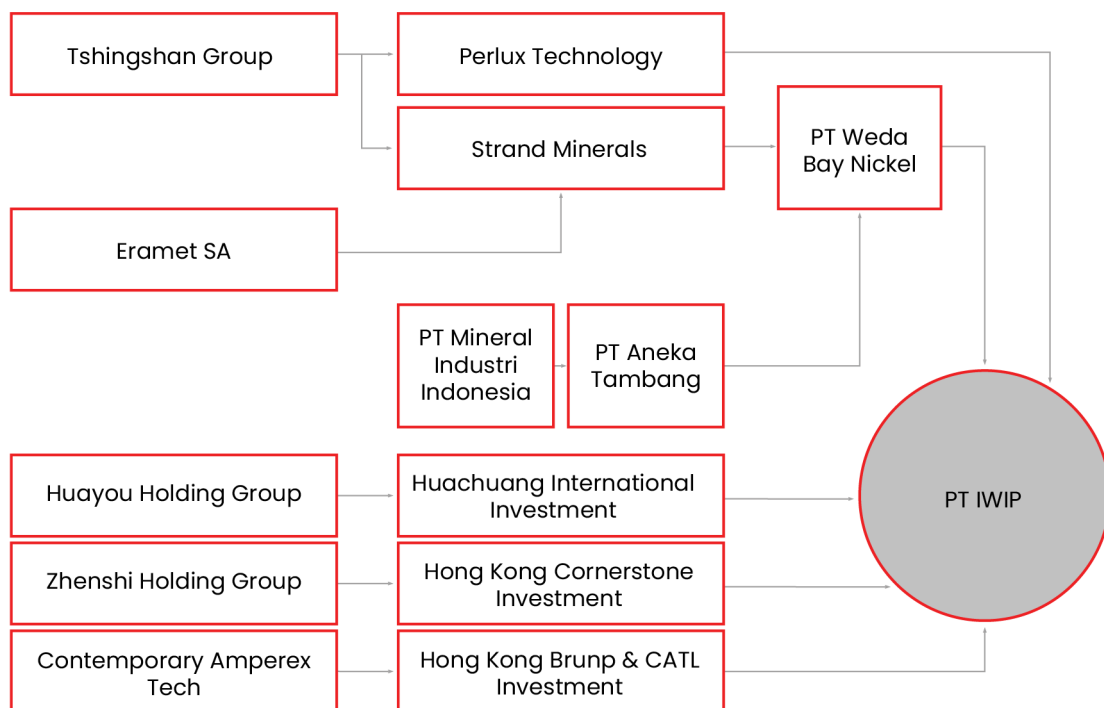
Table 1. PT ANTAM’s Investment Value, 2020–2024

No.	Year	Investment Value (Rp)
1	2020	105.467.857.000
2	2021	586.825.000.000
3	2022	1.726.752.000.000
4	2023	1.739.993.000.000
5	2024	2.089.394.000.000

Source: ANTAM 2020–2024 Annual Report

However, control over technology, production decisions, and export markets are all in the hands of Tsingshan and Eramet. Therefore, even though Indonesia formally secures fiscal revenue and dividend profits, value addition and strategic control within the nickel global supply chain continue to be dominated by foreign corporations, particularly from China.

Figure 2. Shareholding Structure of PT IWIP



Source: Virya Singgih, 2024, processed

Investment partners in PT IWIP’s capital structure are also dominated by foreign corporations. Based on additional information from the Industry and Trade Agency (Disperindag) of North Maluku Province, IWIP’s investment partners include several corporations from different countries, such as shown in the figure below.

Figure 3. Investment Partners from Various Countries in PT IWIP’s Capital Structure

No	Country	Investment Partner
1	Indonesia	ANTAM, Harum Energy, Halmahera Sukse Mineral
2	China	Huayou, Weiming, Tsingshan, Zhensi, CHGR, CMOC, BRUNP, Jinchuan, Shanghai Electric Group, Chengtun Mining Group
3	France	Eramet
4	Australia	Nickel Industries
5	India	Jindal
6	South Korea	Posco
7	Taiwan	Walsin



Source: Industry and Trade Agency (Disperindag) of North Maluku Province, 2025, processed

Meanwhile, at the grassroot or local level, rapid industrialization within the PT IWIP area has generated significant social-ecological impact. The Central Halmahera communities are facing environmental degradation due to deforestation, water and air pollution, and a shift in livelihoods from fishing and farming to industrial labor. Basic infrastructure, such as housing and public services, has not kept pace with the scale of industrial expansion, which has transformed the natural environment and local economy. Areas that were previously green are now filled with mining trucks, red mud, and migrant workers’ barracks. Amid the narrative of “downstreaming for national sovereignty”, local communities have lost their living space and control over their own land.

CHAPTER II

TRACING NICKEL DOWNSTREAM INDUSTRIALIZATION IN CENTRAL HALMAHERA



2.1 IWIP's Integrated Nickel Value Chain Structure

North Maluku has now emerged as Indonesia's primary center for nickel downstream industrialization and is even regarded as one of the world's most integrated nickel industrial hubs. At its core is IWIP, an industrial park that manages nearly the entire nickel value chain, from mining to the processing of nickel ore into ferronickel (FeNi), nickel matte, and mixed hydroxide precipitate (MHP). At present, IWIP is also preparing to manufacture higher value-added products, including precursors, cathodes, electric vehicle batteries, and electric motor components.

However, this technological progress has not been accompanied by the necessary level of transparency. Although the Industry and Trade Agency of North Maluku Province maintains a compilation of industrial activities, the names of the companies operating at each stage are not publicly disclosed because the information is derived from the companies' internal records. This lack of transparency weakens public accountability, hampers environmental and social oversight, and increases the risk of distortions in production and export data. Such conditions are counterproductive to the stated objective of downstream industrialization, which is to increase value addition and improve regional prosperity.

The following illustrates the stages of nickel downstream industrialization at IWIP and provides a systematic overview of the evolution of North Maluku's nickel industry.

a. Initial Stage: Ferronickel Production

At the initial stage, nickel downstream industrialization at IWIP is dominated by ferronickel production, which serves as the primary raw material for stainless steel manufacturing. At present, 18 companies are in operation, with a combined production capacity of approximately 4.9 million metric tons per year. Ferronickel is generally produced using RKEF technology, which processes laterite nickel ore into a base metal. This large-scale production demonstrates that IWIP has become one of Indonesia's major centers for the base metals processing industry, while also serving as the primary foundation for the development of higher-technology nickel industries in the subsequent stage.

b. Intermediate Stage: Nickel Matte Production as a Bridge to the Battery Industry

The nickel matte industry has now become an important link between the base metals sector and the electric vehicle battery supply chain. At present, six companies are in operation and four others are still under construction at IWIP. The combined production capacity of the six operating companies reaches approximately 498,000 metric tons per year, while the four projects currently under construction are expected to add another 320,000 metric tons.

Nickel matte is an intermediate product with high strategic value because it can be further processed into raw materials for electric vehicle batteries. The growth of investment in this sector indicates a shift in the orientation of the nickel industry at IWIP—from merely producing raw materials for steel to becoming a supplier of components for the global clean energy sector.

c. Advanced Stage: MHP Production as the Foundation of the Battery Industry

The next stage in the nickel downstream industrialization value chain is the production of MHP, an intermediate product manufactured using HPAL technology. MHP is the primary raw material for the production of nickel-based battery precursors.

Within the IWIP industrial park, one company has commenced operations, while five others remain under construction. Once all of these projects are completed, their combined production capacity is projected to reach approximately 520,000 metric tons per year, comprising 120,000 metric tons from the existing facility and 400,000 metric tons from the new projects.

d. Downstream Stage: Finished Nickel-Derived Products for Electric Vehicles

The industrial ecosystem at IWIP has now developed to the point of producing a wide range of downstream products. These include:

- Nickel and cobalt sulfate: produced by two companies with an annual production capacity of approximately 667,800 metric tons of nickel sulfate and 35,952 metric tons of cobalt sulfate. These products are the primary chemical feedstocks for the production of battery precursors
- Nickel cobalt manganese (NCM) precursors: produced by one company with an annual production capacity of approximately 50,000 metric tons. They are used in the production of high-energy battery cathodes.

- Nickel and cobalt cathodes: produced by one company with an annual production capacity of 50,000 metric tons of nickel cathodes and 3,200 metric tons of cobalt cathodes.
- Electric vehicle batteries: will be produced by one company that is currently under construction.
- Electric vehicles and supporting engine industries: will be established by two companies that are currently under construction. Their establishment marks North Maluku's entry into the final manufacturing stage of the electric vehicle supply chain.
- Electrolytic aluminum: will be produced by two companies that are currently under construction. These companies will manufacture lightweight materials for electric vehicle structures and renewable energy infrastructure.

Table 2. Stages of Nickel Downstream Industrialization at IWIP

Nickel Product	Operational Stage	Construction Stage	Production (metric tons/year)
Ferro nickel (FeNi)	18 companies	-	4.900.000
Nickel Matte (Ni Matte)	6 companies	4 companies	498.000 (6 operating companies) 320.000 (4 construction companies)
MHP	1 company	5 companies	120.000 (1 operating companies) 400.000 (5 construction companies)
Nickel Cobalt Sulfat (Ni Co Sulfat)	2 companies	-	Ni So ₄ approximately 667.800 Co So ₄ approximately 35.952
Procusor	1 company	-	NCM approximately 50.000
Catodhe	1 company	-	Ni Catodha approximately 50.000 Co Catodha approximately 3.200
EV Battery	-	1 company	Not yet available
E Vehicle and Machine	-	2 companies	Not yet available
Electrolytic Aluminum	-	2 companies	Not yet available

Source: Industry and Trade Agency (Disperindag) of North Maluku Province, 2025

2.2 Nickel Ore Mining and Distribution

The villages in the immediate vicinity (Ring One) of the IWIP industrial park have undergone rapid transformation over the past few years. A network of mining subcontractors supplying nickel ore to the industrial park has expanded there with little public awareness, creating a puzzle that is difficult to unravel. The identities of the owners and the ownership structures of these companies are rarely—if ever—disclosed publicly. As a result, local communities find it difficult to determine who actually controls mining operations in the field and who holds the mining concessions.

Over time, local residents have begun drawing their own conclusions. They have observed that several mining companies operating in the surrounding area—including those that had been active long before the establishment of PT IWIP, such as PT Weda Bay Nickel, PT Tekindo, and PT Putra Prima Sejahtera—are now also supplying raw nickel ore to the industrial park.

For local communities, the boundaries between mining companies operating around the IWIP industrial park have become increasingly blurred. In their eyes, all of these mining activities are collectively known as “the IWIP mine,” because regardless of where the nickel ore originates, its final destination is always the same: the Indonesia Weda Bay Industrial Park, where the ore is processed and ultimately exported overseas.

The relationships within the nickel mining supply chain surrounding IWIP reveal a complex network of mining companies connected to PT IWIP. One example is PT Ruby International Mining (PT RIM), which, according to one of its employees, operates under the same management as IWIP. PT RIM conducts mining activities within the licensed mining area of PT WBN, while many of its workers are also assigned to the mining site operated by PT Position.

PT Position itself is currently involved in a legal dispute with PT Wahana Kencana Mineral (PT WKM) in East Halmahera over allegations of mining activities conducted outside its Mining Business License (IUP) area. The dispute has proceeded to court, but the trial process has progressed slowly because several expert witnesses have failed to appear.

On the ground, friction occurs not only at the corporate level. The unresolved land dispute between PT Position and the residents of Maba Sangaji also -

drew PT RIM workers—who were operating at the time within PT Position’s mining site—into the conflict. As tensions escalated, PT RIM was forced to temporarily withdraw all of its workers from the area. Once the situation had calmed, they were instructed to resume nickel mining operations within PT Position’s concession area. This situation illustrates how interconnected operational arrangements among companies, coupled with unclear boundaries between their areas of operation, leave workers as the most vulnerable parties amid land disputes and competing interests among mining companies.

This case exposes a fundamental problem in the governance of the mining industry in North Maluku, namely the weak oversight of interconnected corporate operating chains. The complex relationships among PT RIM, PT Position, PT WBN, and PT IWIP demonstrate the blurred lines of legal and social responsibility arising from subcontracting practices in the mining sector. On the one hand, companies shield themselves behind layered management structures. On the other hand, workers and local communities bear the greatest risks, ranging from threats to their safety to legal uncertainty whenever conflicts arise.

From a social perspective, the escalation of the land conflict between the mining companies (PT Position and PT RIM) and the residents of Maba Sangaji reveals the weakness of local dispute resolution mechanisms. PT RIM workers operating within PT Position’s concession became victims of circumstances they did not fully understand, simply because they were carrying out their duties as a mining service provider at a site outside their own concession. Meanwhile, neither the regional nor the central government has established an integrated oversight system to ensure that downstream industrialization, while driving economic growth, is accompanied by adequate social and environmental safeguards. With overlapping ownership structures between mining and processing companies operating under the umbrella of PT IWIP, accountability for the resulting social and ecological impacts becomes blurred. This creates a gray area that could allow similar conflicts to persist in the future.

At present, 11 residents of Maba Sangaji involved in the land dispute with PT Position for defending their ancestral territory are facing legal consequences. These residents, who were merely defending their customary land as the source of their livelihood for generations, were -

instead reported to the police for allegedly obstructing PT Position's operational activities. PT Position obtained its IUP only in 2017 under Permit No. 61/1/IUP/PMA/2017. The legal proceedings against the 11 residents concluded with prison sentences of five months and eight days under Article 162 of Law No. 3 of 2020 on Amendments to Law No. 4 of 2009 on Mineral and Coal Mining. This provision has frequently been used to prosecute Indigenous peoples and environmental defenders who oppose mining activities in their territories. The case illustrates the unequal bargaining position between local communities and large corporations, with the state appearing to act more as a protector of investment interests than as a guarantor of citizens' rights to their land and environment.

For the people of Maba Sangaji, land is more than an economic asset; it is a living space that forms an integral part of their social and cultural identity. Yet within an industrial system dominated by large mining companies, land rights and access to natural resources are often marginalized. The dispute in Maba Sangaji illustrates how mining expansion in North Maluku has not only generated tensions among companies but has also widened the divide between local communities and the very living spaces on which they depend.

This case underscores one important point: economic growth driven by the mining industry, without transparent and accountable governance, risks creating new forms of inequality—communities lose their land, workers lose their protection, and the state loses control over corporate social responsibility.

Following the Commodity: The Hidden Routes across the Halmahera Sea

Beyond the mainland, the most visible changes are now taking place along the coast of Weda Bay. The sea, once the living space and primary source of livelihood for local fishers, has gradually been transformed into a busy industrial shipping corridor. Large vessels transporting nickel pass through the bay around the clock; the sound of crashing waves has given way to the constant roar of ship engines. For coastal communities, the sight of barges and cargo vessels is no longer unusual. Some are believed to originate from outside Central Halmahera, transporting nickel ore to Weda Port—the principal gateway directly connected to the PT IWIP industrial park. The sea, once a tranquil space for fishers, has now become an economic corridor controlled by large-scale industry.

This transformation is corroborated by data on vessel movements regularly docking at Weda Port. According to data from the Automatic Identification System (AIS), which records global maritime traffic, 6,269 vessel calls were recorded at Weda Port (IDN-WEDA) between 1 September 2024 and 1 November 2025, involving approximately 1,487 vessels. These figures illustrate the intensity of maritime traffic in the area and indicate that Weda Bay has become the principal logistics artery serving the IWIP industrial park.

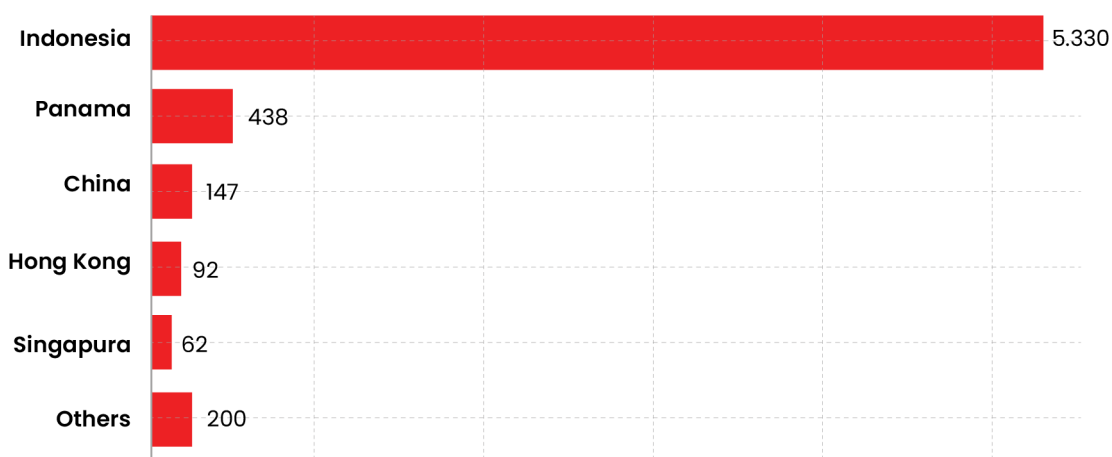
For local fishers, however, this transformation is more than a matter of statistics. Every time a large vessel passes, high waves rock their boats, while the constant noise of ship engines drives schools of fish farther away from the coast. The sea that once sustained their livelihoods now feels increasingly confined. Their traditional fishing grounds are gradually disappearing, replaced by the relentless rhythm of industrial activity echoing across the bay.

Of the total vessel calls recorded during the period, the majority involved Indonesian-flagged vessels (5,330 calls), followed by Panama (438 calls), China (147 calls), Hong Kong (92 calls), Singapore (62 calls), and other countries (200 calls). However, the large number of Panamanian-flagged vessels regularly operating along this route has raised concerns. These vessels are suspected to form part of a flag of convenience (FOC) system, whereby some shipowners—believed to originate from China—register their vessels in other jurisdictions, such as Panama, to avoid stricter regulations, higher taxes, or more stringent maritime safety requirements.

This suspicion is supported by the names of Panamanian-flagged vessels entering and leaving the IWIP port, many of which bear names commonly associated with China, such as He Xie Fa Zhan, Yue Yi, Zhi Ying Chang Shun, and Shunxiang. Moreover, Panama is widely recognized as one of the world's largest and most permissive ship registries, operating a system that allows vessel owners to register ships quickly and at relatively low cost without having to reside in Panama (ITF Global, 2025). Globally, this practice has made Panama the world's largest flag state, accounting for 16.3% of the world's total shipping tonnage, with 8,274 registered vessels. Together with Liberia and the Marshall Islands, these three major FOC registries account for more than 45% of the global merchant fleet (UNCTAD, 2023).

This concentration reflects not only the shipping industry's preference for cost efficiency—which can reduce operating costs by as much as 30%—but also efforts to mitigate legal and political risks by separating a vessel's legal identity from its beneficial owner. Such registration structures have become highly advantageous in the global shipping industry, characterized by the use of multinational crews, offshore financing arrangements, and the practice of flag-hopping. However, the same commercial rationale also creates opportunities for regulatory arbitrage, whereby shipowners selectively choose jurisdictions with the weakest regulatory oversight. In many cases, this is achieved at the expense of maritime safety standards, environmental protection, and the rights of maritime workers (Boison, 2025).

Figure 4. Number of Vessel Calls at Weda Port by Flag State



Source: Peta Global Fishing Watch, 1 September 2024–1 November 2025

The vessels primarily transport raw materials (nickel ore) and supporting materials for the smelters operating within the PT IWIP industrial park. The high frequency of vessel arrivals at Weda Port connects mining sites in East Halmahera, including Maba, Gebe Island, Fau Island, and even Gag Island in Southwest Papua. Presented below is a sample of vessels identified as calling at Weda Port, the operational port serving PT IWIP.

Tabel 3. Ketelusuran Rantai Pasok Nikel yang Terhubung ke IWIP Melalui Kapal

No	Vessel Name	Cargo Type	Route	Nickel Mining Companies Connected to the Port
1.	Buana Marine VIII	Mining commodities: nickel ore, coal, bauxite, sand, and gravel	- Gebe Island: PT BPM Jetty and Gebe Port - East Halmahera Regency: PT Alam Raya Abadi Jetty and PT WKM Lolobata Jetty	- PT BPM Jetty: connected to the hauling route of PT Batra Putra Mulia. - Weda Port: connected to the hauling routes of PT Smart Marsindo and PT Karya Wijaya. - PT Alam Raya Abadi Jetty: connected to the hauling routes of PT Alam Raya Abadi and PT Forward Matrix Indonesia. - PT WKM Lolobata Jetty: PT Wahana Kencana Mineral, PT Arumba Jaya Perkasa, and PT Pahala Milik Abadi
2.	Trans Perkasa 7	Mining commodities: nickel and other mining commodities	East Halmahera Regency: PT Marine TG Buli Jetty, Buli Port, and Pakal Jetty	- PT Marine TG Buli Jetty: PT Sumberdaya Arindo - Buli Port: PT Privel Lestari and PT Sumberdaya Arindo.Jetty - Pakal: PT Aneka Tambang - Pakal Jetty: PT Aneka Tambang
3.	Patria 23	Mining commodities: nickel and coal	- Central Halmahera Regency: BPN Sepo Jetty, Sagea - East Halmahera Regency: Maronopo Jetty	- BPN Sepo Jetty, Sagea: connected to the hauling route of PT Bakti Pertiwi Nusantara - Maronopo Jetty: PT Nusa Karya Arindo
4.	Bintang MJ 03 dan Bintang MJ 06	Mining commodities	- Gebe Island: PT Smart Marsindo Jetty and Gebe Port - Fau Island	- PT Smart Marsindo Jetty: PT Smart Marsindo and PT Karya Wijaya - Gebe Port: PT Smart Marsindo - Fau Island: PT Aneka Niaga Prima
5.	Maritim Trobos 01, Maritim Trobos 02, Maritim Trobos 03, Maritim Trobos 04, Maritim Trobos 05	Mining commodities	- Gebe Island: PT Smart Marsindo Jetty and Gebe Port. - East Halmahera Regency: Maronopo Jetty (Maritim Trobos 01).	- PT Smart Marsindo Jetty: PT Smart Marsindo and PT Karya Wijaya - Gebe Port: PT Karya Wijaya and PT Smart Marsindo - Jetty Manoropo: PT Nusa Karya Arindo

Source: Global Fishing Watch, Google Maps, and the Ministry of ESDM, 2025; processed

1. **Buana Marine VIII** is a tugboat owned by PT Buana Maritim Sejahtera, a national shipping company specializing in the transportation of mining commodities such as nickel ore, coal, bauxite, sand, and gravel (Buana Maritim, 2025). Within the nickel logistics network of North Maluku, the vessel serves as one of the key links connecting raw material production areas with the nickel processing industries in Central Halmahera.

The vessel's primary route connects IWIP's Weda Port in Central Halmahera with PT BPM Jetty and Gebe Port on Gebe Island, located on the eastern side of the Halmahera Sea. Although Gebe Island is relatively small, covering only about 224 square kilometers, it is divided into nine nickel mining concessions (Kementerian ESDM, 2025).

PT BPM's jetty port is directly integrated with the hauling road owned by PT Bartra Putra Mulia, a nickel mining company that has been in operation since 2013 under Central Halmahera Regent Decree No. 540/KEP/42/2013, which remains valid until 2032. Its production operation concession covers 1,850 hectares in Pulau Gebe District, Central Halmahera Regency, making PT Bartra Putra Mulia one of the longest-established suppliers of nickel ore from the eastern part of North Maluku (Kementerian ESDM, 2025).

In addition to operating around Gebe Island, Buana Marine VIII also transports cargo in East Halmahera, particularly around Wasile and Maba. Based on the vessel's recorded berthing locations on Google Maps, it has been identified docking near PT Alam Raya Abadi (PT ARA) Jetty, a port located within an area of intensive mining activity. Several nickel mining companies, including PT ARA and PT Forward Matrix Indonesia, operate nearby, with adjacent concession areas and hauling roads connected to PT ARA Jetty.

PT ARA is a nickel mining company operating in Wasile District, East Halmahera Regency, with a concession area of 924 hectares under IUP No. 35/1/IUP/PMA/2020, issued by the Minister for Energy and Mineral Resources (ESDM) and valid until 2027. The company is majority-owned (90.6%) by Allestary Development PTE LTD, a Singapore-based company.

PT ARA has been involved in several controversies, including its failure to pay land compensation to communities in Wasile, despite having signed a memorandum of understanding with landowners in 2013 whose land was used for mining access roads (Rahman, 2025). The company has also been reported for alleged document manipulation and illegal mining activities. Court proceedings in Singapore under Case No. HC/OS 1177/2021 revealed various issues relating to the company's operations (Saputra, 2025). PT ARA's board of commissioners includes Drs. Satriya Hari Prasetya, S.H., a retired senior police officer whose final position was Deputy for Economic Intelligence at the State Intelligence Agency (BIN).

Buana Marine VIII has also been detected docking several times at PT WKM Loleba Jetty. This location is connected to the concession area of PT WKM and is situated close to several other nickel mining companies, including PT Arumba Jaya Perkasa and PT Pahala Milik Abadi. The area is recognized as one of the key nickel distribution hubs linking East Halmahera and Central Halmahera, connecting nickel ore production sites to the smelting facilities within the PT IWIP industrial park.

2. **Trans Perkasa 7** is owned by PT Trans Logistik Perkasa, a joint venture established in 2021 between Trans Power Marine (TPMA) and Tsingshan Group. The partnership was established specifically to strengthen the logistics and transportation network for Tsingshan's nickel production in Maluku and North Maluku, particularly the supply of raw materials to the nickel processing industries in Weda Bay, Central Halmahera (Lienardi, 2023).

The vessel operates through several strategic ports across Halmahera. One of these is Tanjung Buli Jetty Marine in Buli Asal Village, Maba District, East Halmahera Regency, which lies within the concession area of PT Sumberdaya Arindo. The company holds a mining permit covering 14,421 hectares under IUP No. 02/1/IUP/PMA/2024. A 51% majority stake in the company is owned by PT ANTAM Tbk., indicating the involvement of a state-owned enterprise in the nickel supply chain within the region.

In addition to Tanjung Buli Jetty, Trans Perkasa 7 also operates through Pakal Jetty on Pakal Island, which falls within the administrative area of East Halmahera. The island is classified as a small island, covering only 6,908 square kilometers (approximately 709 hectares), while 3,648 -

hectares of the island and its surrounding waters fall entirely within PT ANTAM Tbk.'s operational area. Shipments from Pakal are transported by sea through Buli Bay and onward to Weda Port, demonstrating a direct logistical connection between raw material sources in East Halmahera and the smelting industries in Central Halmahera.

In addition to these two ports, the vessel also carries out loading and unloading operations at Buli Port in Maba. Several mining companies operate around the port, including PT Priven Lestari and PT Sumberdaya Arindo. The shipping route from Buli to Weda passes through Buli Bay and Weda Bay, both of which constitute vital corridors within North Maluku's nickel transportation system.

Of particular interest is that Trans Perkasa 7 has also been recorded transporting materials to and from Gag Island, a small island covering approximately 60 square kilometers (6,000 hectares), whose entire land area and surrounding waters are controlled by PT Gag Nikel. The company holds a production operation permit under Contract of Work No. 430.K/30/DJB/2017, covering 13,136 hectares on Gag Island—an area larger than the island itself. The permit is valid from 30 November 2017 until 30 November 2047, and the operation is located in Raja Ampat Regency, Southwest Papua Province.

The shipping route connecting Gag Island with East Halmahera and onward to Weda Bay demonstrates the logistical integration between nickel mining operations in Southwest Papua and the smelting industry network in North Maluku. This pattern confirms that the nickel supply chain operated by Tsingshan and its partners has evolved into an interprovincial logistics corridor, integrating extraction sites in Buli, Pakal, and Gag with the refining center at IWIP.

3. **TB Patria 23** is owned by PT Patria Maritime Lines, a subsidiary of PT United Tractors Tbk. In 2023, PT Patria Maritime Lines partnered with PT Vasco Ocean Lines and PT Karya Teknik Utama to support nickel mining operations in eastern Indonesia by providing transportation services for nickel and coal (Kompas.com, 2023).

The vessel operates to and from Weda Port, crossing Weda Bay and connecting to East Halmahera through PT Nusa Karya Arindo's Maronopo Jetty. The jetty is linked to PT Nusa Karya Arindo, a nickel mining company operating in East Halmahera, of which 99% of the shares are owned by PT ANTAM and 1% by PT International Mineral Capital. The company's mining concession is located in Maba, East Halmahera, covering 14,421 hectares under IUP No. 02/1/IUP/PMA/2024 (Kementerian ESDM, 2025).

In addition, the vessel has also been identified transporting cargo from Sagea Village, specifically through BPN Sepo Jetty, which is connected to the hauling road of PT Bakti Pertiwi Nusantara, a nickel mining company that has been operating since 2012 under Central Halmahera Regent Decree No. 540/KEP/253/2012 and whose permit remains valid until 2038. Although the company's jetty is located in Sagea Village, North Weda District, Central Halmahera Regency, its 1,232-hectare mining concession is situated in Fritu Village, within the same district as Sagea Village (Kementerian ESDM, 2025).

Bintang MJ 03 dan Bintang MJ 06 are two vessels owned by PT Bintang Marina Jaya. Both vessels transport cargo to and from Gebe Port and Fau Island, a small island located opposite Gebe Island.

- Several nickel mining concessions are located in the vicinity of Gebe Port, including those of PT Smart Marsindo and PT Karya Wijaya (in the southeastern part of the concession area). These companies are
4. suspected of transporting nickel ore to PT IWIP through this port.

PT Smart Marsindo is a nickel mining company operating in Pulau Gebe District, with its concession extending from the western to the central part of Gebe Island. Under Central Halmahera Regent Decree No. 540/KEP/330/2012, the company holds a mining concession covering 666.30 hectares, with the permit remaining valid until 2032. According to the company's management structure, Shanty Alda Nathalia serves as Director, while Citra Kharisma serves as Commissioner. However, information on the company's share ownership is not available in the Minerba One integrated digital platform maintained by the Ministry of Energy and Mineral Resources, which is used to trace the ownership and shareholding structure of mining companies.

Meanwhile, PT Karya Wijaya controls a 500-hectare mining concession in Ubulie Village, Pulau Gebe District, under North Maluku Governor Decree No. 502/34/DPMPTSP/XII/2020, issued in 2020 and valid until 2040. The company's majority shareholder (71%) is Sherly Tjoanda, who has served as the Governor of North Maluku since 2025.

In addition to Gebe Port, Bintang MJ 03 and Bintang MJ 06 have also been detected loading and unloading cargo at Fau Island. The only nickel mining company operating on the island is PT Aneka Niaga Prima, whose concession covers 459.66 hectares—an area larger than the island's land surface. The company first obtained its mining business permit under Central Halmahera Regent Decree No. 540/KEP/336/2012, which remains valid until 2032.

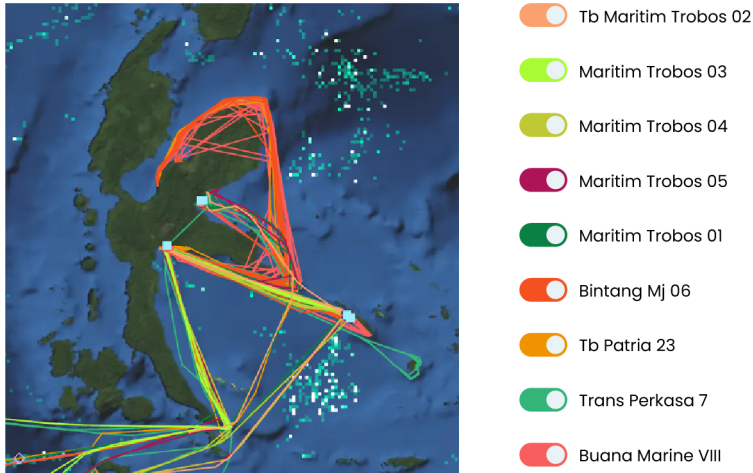
Like PT Smart Marsindo, PT Aneka Niaga Prima has the same board structure, with Shanty Alda Nathalia serving as Director and Citra Kharisma as Commissioner. Shanty Alda Nathalia is also known as a politician from the Indonesian Democratic Party of Struggle (PDI-P) and is an elected member of the legislature for the 2024–2029 term. Both company executives have previously been reported to have been involved in an alleged bribery and gratuities case involving the former Governor of North Maluku, Abdul Ghani Kasuba. The alleged payments were reportedly intended to facilitate the issuance of nickel mining permits (Idetimur.com, 2024).

The situation becomes even more problematic because, like Gebe Island, Fau Island is also classified as a small island, covering only 5.45 square kilometers (545 hectares) with a coastline of 17,052 meters. Meanwhile, the minimum area required for an island to be eligible for mining activities is 2,000 square kilometers. Consequently, Fau Island is clearly unsuitable for mining (Bhawono, 2024).

5. Maritim Trobos 01, 02, 03, 04, dan 05 are vessels owned by PT Gebe Sinar Perkasa. These vessels transport cargo to and from PT Smart Marsindo Jetty and from Gebe Port on Gebe Island to Weda Port, where vessels serving PT IWIP are berthed. The shipping route through PT Smart Marsindo Jetty is strongly suspected to be used by PT Smart Marsindo to transport nickel ore to PT IWIP, as the jetty is located within PT Smart Marsindo's mining concession. The area surrounding PT Smart Marsindo

Jetty is also adjacent to the mining concessions of several other companies, including PT Mineral Trobos, PT Elsada Mulia, and PT Karya Wijaya, which are likewise suspected of transporting nickel ore through the same jetty.

Figure 5. Detected Shipping Routes of Cargo Vessels to and from Weda Port



Source: Global Fishing Watch (1 September 2024–1 November 2025), processed

The Threat of Nickel Mining on Small Islands

Mining activities on small islands such as Gag, Pakal, Fau, and Gebe form part of the nickel supply chain that is strongly suspected to be integrated with PT IWIP in Central Halmahera. Legally, these islands are classified as small islands. Law No. 1 of 2014 stipulates that islands with an area of less than 2,000 square kilometers fall into this category and should be prioritized for conservation, sustainable fisheries, and environmentally responsible tourism rather than large-scale mining. In reality, however, the situation on the ground points to a systematic pattern of environmental degradation carried out under the banner of downstream industrialization. These small islands are being exploited for large-scale mining operations that supply nickel ore to smelters connected to Weda Port at PT IWIP, placing severe ecological and social pressures on both the surrounding ecosystems and coastal communities.

On Gag Island, mining operations conducted by PT Gag Nikel, now controlled by PT ANTAM Tbk., extend across virtually the entire land area of approximately 6,000 hectares, effectively turning the island into a closed mining island. This is particularly concerning given that Gag Island forms part of the Raja Ampat Archipelago, one of the world's most important conservation areas. Mining activities there not only transform the island's landscape but also threaten the ecological function of small islands as vital buffers for marine biodiversity.

A similar situation exists on Pakal Island in East Halmahera, where the entire island falls within the IUP held by PT ANTAM. Although the island covers only 6.9 square kilometers, it has been designated as an active nickel mining area. Given its very limited land area, mining activities on islands such as Pakal have the potential to remove vegetation cover almost entirely and fundamentally alter the island's ecological character within a relatively short period.

Gebe Island, meanwhile, covers only 224 square kilometers, yet it is "under assault" from at least nine nickel mining companies, some of which—including PT Smart Marsindo and PT Karya Wijaya—are suspected of supplying nickel ore to PT IWIP. Permits for these mining activities have been issued by government authorities at different administrative levels, ranging from the Central Halmahera Regent (six IUPs) and the Governor of North Maluku (one IUP) to the Minister of Energy and Mineral Resources (two IUPs).

Fau Island, the smallest of the islands discussed here, presents an even greater level of vulnerability. Covering only 5.45 square kilometers—or approximately 121 times smaller than Jakarta—the island is extremely vulnerable to mining activities (Olis, 2024). Under Law No. 1 of 2014 on Amendments to Law No. 27 of 2007 on the Management of Coastal Areas and Small Islands, an island of this size is unsuitable for mining because it lacks the ecological carrying capacity to withstand major landscape alteration, let alone mining waste. Any form of mineral extraction on such a small island will directly affect the quality of its surrounding waters, which serve as the principal source of freshwater and food for local communities. This situation demonstrates that the regulatory framework intended to protect small islands has not been implemented consistently. Through state-owned enterprises such as PT ANTAM, as well as government officials with connections to nickel mining businesses operating on small islands, the government has instead played an active role in expanding mining activities in areas that are legally intended to be protected. This raises serious questions about the state's accountability in upholding the principle of sustainable development, as mandated by the Constitution.

Beyond its ecological consequences, the exploitation of small islands also carries significant social implications. Communities whose livelihoods depend on the sea are now confronted with sediment pollution, coral reef degradation, and declining fish catches. As the limited land area of these islands is converted into mining sites, the living space of coastal communities becomes increasingly marginalized, both economically and culturally.

Ultimately, the exploitation of small islands such as Gebe, Gag, Pakal, and Fau reflects a broader shift in the governance of natural resources in eastern Indonesia—from a paradigm centered on ecological protection to one driven by industrial expansion. Small islands, which should serve as the last strongholds of biodiversity and ecological resilience, have instead become extensions of the global nickel supply chain, serving the needs of downstream industries in industrial complexes such as IWIP.

If mining activities on small islands continue unchecked, Indonesia risks losing the strategic ecological functions of its small islands over the long term as sources of freshwater, natural wave barriers, and critical habitats for marine life. The consequences would extend far beyond localized –

environmental damage, potentially resulting in systemic disruption to the sustainability of coastal ecosystems and environmental security across eastern Indonesia.

2.3 Ore Processing and Export Destinations

Since the ban on the export of raw nickel ore came into effect on 1 January 2020 under Minister for Energy and Mineral Resources Regulation No. 11 of 2019 and Minister for Energy and Mineral Resources Decree No. 46.K/MB.04/DJB/2020, all Indonesian nickel exports have been required to undergo domestic processing and refining before export. As a result, the PT IWIP industrial park in Central Halmahera has become one of the principal hubs in Indonesia's nickel supply chain. IWIP is an integrated industrial park equipped with ferronickel smelters and other intermediate processing facilities. Consequently, nickel exports shipped through Weda Port are, in essence, products processed within the industrial park.

According to data from Statistics Indonesia (BPS), ferronickel exports from Weda Port have remained consistently high over the past four years, underscoring the area's role as one of the principal hubs of Indonesia's nickel downstream industrialization. In 2022, the value of ferronickel exports from Weda reached approximately US\$6.29 billion, increasing slightly to US\$6.31 billion in 2023. Although export values declined to approximately US\$4.95 billion during 2024–2025, trading activity remained robust. Cumulatively, ferronickel exports from Weda Port totaled more than US\$21.9 billion between 2022 and 2025, making it one of Indonesia's most significant mineral export gateways in terms of its contribution to the country's trade balance.

Table 4. Value of Nickel Exports from Weda Port by Destination Country

Year	China	India	South Korea	Netherlands	Taiwan	Total Export (US\$)
2022	6.290.454.212	11.474.400	9.971.323	14.285.566	9.018.656	6.290.454.212
2023	6.308.423.796	17.217.681	10.447.158	11.283.898	5.522.843	6.308.423.796
2024	4.954.439.553	10.541.883	16.583.592	15.851.766	3.375.726	4.954.439.553
2025*	4.383.120.602	27.636.978	10.007.708	9.122.579	3.707.659	4.383.120.602

Note: Export values from January to August 2025, Source: BPS, 2025

Viewed by destination country, ferronickel exports from Weda Port within the PT IWIP industrial park are overwhelmingly concentrated in China, accounting for more than 98% of total exports, or approximately US\$21 billion over the past four years. This dominance is closely linked to the major role of Tsingshan Holding Group, the majority shareholder in IWIP and a key player in the global stainless steel industry. Ferronickel produced at IWIP is essentially supplied directly to Tsingshan's affiliated plants in mainland China, including those in Zhejiang and Fujian provinces, where it is used in the production of stainless steel and battery component materials.

The trend of China's dominance as the principal export destination demonstrates the strong integration of Indonesia's global nickel supply chain with China's production system. At the same time, however, this heavy dependence on an export market creates several structural vulnerabilities for Indonesia.

First, fluctuations in global prices are likely to be heavily influenced by changes in China's industrial policies, such as adjustments to raw material sourcing strategies or increased domestic nickel recycling. Second, the dominance of Chinese capital and technology through corporate groups such as Tsingshan and Huayou gives foreign investors greater bargaining power in determining prices, export quotas, and partnership arrangements, while Indonesia tends to remain primarily a supplier of raw materials and intermediate products. Third, the decline in export values during 2024–2025 may reflect adjustments in Chinese demand resulting from the slowdown in the stainless steel industry and the global energy transition. These developments serve as a warning for Indonesia to diversify its export markets by expanding into regions such as Europe, Japan, and the United States, where green mineral supply chain policies with stringent sustainability standards are currently being developed.

In addition to BPS, the Industry and Trade Agency of North Maluku Province also records PT IWIP's nickel export capacity by exporting company and destination country. All recorded exports consist of ferronickel, an intermediate product derived from the processing of laterite nickel ore. Over the three-year period, PT IWIP exported a cumulative total of approximately 1,363,840.07 metric tons of ferronickel to destination countries including China, Taiwan, India, South Korea, and Brunei Darussalam.

Table 5. Nickel Exports by Exporting Company and Destination

Year	Product	Export share by country	Main Port of Discharge (Destination)	Principal Exporting Companies	Total Export Volume (metric tons)
2022	Feronikel	Taiwan ≈83%, China ≈16%, India <1%, South Korea <1%, Brunei <1%	Kaohsiung (Taiwan), Tianjin & Beihai & Tieshan (Tiongkok)	PT Langit Metal Industry (51,22%), PT Weda Bay Nickel (43,14%), PT Lipe Metal Industry (4,49%), PT Andalan Metal Industry (1,15%)	432.650,3
2023	Feronikel	China ≈97%, South Korea ≈3%	Lianyungang, Lanshan, Tianjinxingang, Ningde (Tiongkok); Pohang (Korea Selatan)	PT Langit Metal Industry (30%), PT Weda Bay Nickel (17%), PT Kao Rahai Smelters (15%), PT Lipe Metal Industry (14%), lainnya (24%)	768.772,45
2024	Feronikel	China ≈88%, India ≈12%	Lanshan, Tianjin, Lianyungang, Tianjinxingang (Tiongkok); Paradip (India)	PT Langit Metal Industry (43%), PT Kao Rahai Smelters (35%), PT Lipe Metal Industry (14%), PT Weda Bay Nickel (8%)	162.417,32
Total					1.363.840,07

Source: Industry and Trade Agency (Disperindag) of North Maluku Province, 2025, processed

Anomalies in Export Volumes

Although data from BPS and the Industry and Trade Agency of North Maluku Province both identify Weda Port as Indonesia's principal ferronickel export hub, there are significant discrepancies between the two datasets. These discrepancies are not merely technical in nature; they point to a more fundamental problem in Indonesia's mineral export reporting system following the implementation of the ban on raw nickel ore exports and the requirement for domestic processing and refining.

A comparison of export values reported by BPS with export volumes reported by the Industry and Trade Agency produces estimated ferronickel prices per metric ton that are inconsistent with international market prices. In 2022, for example, the comparison yields an estimated export value of approximately US\$14,537 per metric ton. This figure is far above the average global market price, which was only about US\$215 per metric ton for ferronickel containing more than 10% nickel and US\$750 per metric ton for ferronickel containing more than 1.5% nickel (Scrap Monster, 2022). The discrepancy became even more pronounced in 2024, when the implied-

price rose to approximately US\$30,500 per metric ton, whereas the global market price was only around US\$550 per metric ton for ferronickel containing more than 1.5% nickel (Scrap Monster, 2024).

Tabel 6. Nilai, Volume, dan Nilai Ekspor Nikel

Year	Export Value (BPS, US\$)	Export Volume (Industry and Trad Agency, metric tons)	Implied Value per Metric Ton (US\$)
2022	6.290.454.212	432.650,3	14.540
2023	6.308.423.796	768.772,45	8.205
2024	4.954.439.553	162.417,32	30.500

Sumber: BPS dan Disperindag Provinsi Maluku Utara, 2025, diolah

These discrepancies indicate that the inconsistencies cannot be explained by price fluctuations but are more likely attributable to inconsistencies in export volume reporting across government agencies. It is highly likely that the export volumes reported by the Industry and Trade Agency do not capture all active exporting entities operating within the IWIP industrial park.

The reported export volumes appear to be substantially lower than the actual export volumes. As a result, the implied export value per metric ton—calculated by dividing export value by export volume—is unrealistically high when compared with ferronickel prices on the global market. This gives rise to a strong indication that export volumes at the regional level have been underreported, resulting in incomplete reporting of PT IWIP’s export activities.

The Dominance of Chinese-Linked Exporting Companies

From the perspective of business actors, the export pattern of ferronickel from PT IWIP industrial zone exhibits an imbalance, with the majority of exports dominated by a handful of large companies with direct links to Chinese investment networks. These companies are among the industrial tenants operating within the IWIP.

In 2022, ferronickel exports were dominated by PT Langit Metal Industry (51.22%) and PT WBN (43.14%), which together accounted for more than 94% of total export volume. This highly concentrated structure indicates limited diversification among exporting companies, while export markets were –

directed primarily to Taiwan (83%), through Kaohsiung Port, and to a much lesser extent to China (6%). This pattern suggests that, during the initial stage, ferronickel exports from IWIP still relied heavily on traditional trade relationships with Taiwan's stainless steel industry.

By 2023, however, export orientation had shifted alongside the expansion of new business entities. China became the dominant export destination, accounting for 97% of total exports, indicating a growing degree of vertical integration between IWIP's smelters and China's stainless steel industry. The composition of exporters also became more diversified, with PT Langit Metal Industry remaining the leading exporter (30%), followed by PT WBN (17%), PT Kao Rahai Smelters (15%), and PT Lipe Metal Industry (14%). The emergence of these additional companies reflects continued investment and the expansion of new smelting facilities supported by foreign capital.

In 2024, although export volumes declined sharply, the overall pattern of concentration remained unchanged. The shift in export shares from earlier market leaders to newer companies indicates a transfer of export control within the IWIP ecosystem, accompanied by an even stronger orientation toward China (88%) and India (12%).

2.4 Final Products and Global Market Dynamics

From the perspective of downstream demand, the automotive industry is a strategic sector for understanding the nickel supply chain, particularly in light of the growing global demand for electric vehicles. According to Lead the Charge (2025), the automotive industry accounts for approximately 12% of global steel demand. Meanwhile, within the battery-grade nickel supply chain, China's industrial ecosystem, as discussed in the previous section, has come to dominate the refining, precursor/cathode, and battery cell production stages. Consequently, Indonesian nickel destined for battery production generally first arrives at China's precursor and cathode manufacturing hubs before ultimately reaching electric vehicle manufacturers.

Although downstream distribution flows to electric vehicle manufacturers are difficult to trace, the strategic role of PT IWIP in North Maluku can be understood through at least two downstream pathways. The first is the battery pathway, in which HPAL produces Mixed Hydroxide Precipitate (MHP), which is subsequently processed into nickel sulfate for the manufacture of –

battery precursors and cathodes. The second is the stainless steel pathway, in which the RKEF process produces NPI or ferronickel, which is then converted into stainless steel slabs or sheets for markets in East Asia

According to PT IWIP's official website, PT Youshan Nickel Indonesia is a Huayou-Tsingshan joint venture and the pioneer in the production of electric vehicle battery components within the IWIP industrial park. This places PT IWIP in direct connection with the global cathode materials supply chain centered in China. Upstream, Eramet-Tsingshan identifies PT WBN as the "world's largest nickel mine," supplying raw materials to PT IWIP for both its NPI and HPAL facilities. Together, these operations illustrate the vertical integration of mining and mineral processing within a single, centralized industrial ecosystem.

From the perspective of buyers and commercial agreements, relationships with global electric vehicle manufacturers can be traced through publicly available corporate documents and official announcements. Tesla, for example, states in its Impact Report 2023 that its strategy of direct sourcing and supply chain regionalization is intended to reduce emissions while ensuring the traceability of cathode materials. At the same time, Tesla emphasizes that nickel-based chemicals remain essential for NCA and NMC battery chemistries (Tesla, 2023).

Tesla transactionally entered into agreements with Huayou Cobalt and CNGR for the supply of cathode materials covering the 2023–2025 period (Batteriesnews.com, 2022). Because these two China-based companies are among the principal processors of nickel sourced from Indonesia, the flow of Indonesian nickel into Tesla's supply chain is indirect. Nickel produced in Indonesia—including material originating from PT IWIP—supplies nickel feedstock to Huayou Cobalt and CNGR in China. From there, the cathode materials are supplied to Tesla's manufacturing facilities.

In March 2022, Volkswagen signed two memoranda of understanding with Huayou Cobalt and Tsingshan to secure supplies of nickel and cobalt while establishing a transparent and sustainable battery supply chain in China (Volkswagengroupchina.com, 2022). Because both Huayou Cobalt and Tsingshan also operate within the PT IWIP ecosystem, the supply pathway from Indonesia to battery-material facilities serving Volkswagen's electric vehicle production is commercially and industrially coherent.

Ford, meanwhile, has pursued an upstream investment strategy through the Pomalaa HPAL Project, in partnership with PT Vale Indonesia and Zhejiang Huayou Cobalt, announced in March 2023. The project is intended to secure supplies of MHP, which is subsequently converted into nickel sulfate (Ford, 2023). Huayou's involvement in both the Pomalaa HPAL Project and the Chinese processing network connected to PT IWIP demonstrates how Ford secures Indonesian nickel through the same supplier network.

Following a different trajectory, NPI and stainless steel products from PT IWIP are primarily exported to China, which remains the principal market, while Taiwan and Vietnam serve as locations for further processing or consignment. Access to the European Union has become increasingly constrained following the European Commission's decision in May 2024 to extend anti-dumping and countervailing duties on cold-rolled stainless steel originating from Indonesia to include exports consigned through Taiwan and Vietnam (European Union, 2024). This development has encouraged producers to concentrate their sales in East Asia while simultaneously considering steel decarbonization strategies if they intend to regain access to the European market.

From an environmental and social governance perspective, as buyer standards increase, sustainability requirements from automakers are becoming more specific. However, existing reporting within the automotive sector continues to reveal significant gaps. Recent findings indicate that although more than half of the automobile manufacturers evaluated have adopted some form of supplier requirements relating to deforestation or land conversion, none has disclosed the actual volume of commodities in its supply chain that can genuinely be verified as deforestation-free (Lead the Charge, 2025).

Only a small number of vehicle manufacturers—including General Motors, Renault, Toyota, and Volkswagen—have established explicit targets to eliminate deforestation from their supply chains, and even these commitments are currently limited to natural rubber. Evidence of due diligence measures and supplier engagement to address deforestation risks likewise remains limited to only a small number of companies.

These findings reinforce the position advanced by the International Council on Clean Transportation (ICCT), which emphasizes the level of ambition –

required to align with the International Energy Agency (IEA) Net Zero Scenario. According to the ICCT, at least 25% of the steel purchased by automobile manufacturers should be fossil-free by 2030 (Negri et al., 2024). Without explicit procurement targets for low-emission materials—particularly low-carbon steel—the gap between current practices and future climate targets will continue to widen.

Tracing the supply chain back to North Maluku, it can be concluded that, at this downstream stage, IWIP functions as a hub that transforms nickel ore from Weda Bay into intermediate products, most of which are shipped to China for further processing by supplier companies such as Huayou and CNGR, before ultimately being purchased by global automobile manufacturers.

Nickel ore from PT WBN is processed in the smelters and HPAL facilities within PT IWIP. Along the battery pathway, processed products in the form of MHP and nickel sulfate are supplied to China's precursor and cathode manufacturing hubs operated by networks such as Huayou, Brunp/CATL, and GEM. From there, cathode materials are supplied to automobile manufacturers that maintain supply contracts or strategic partnerships with these companies, including Tesla, Volkswagen, and Ford, in accordance with each manufacturer's sourcing model. Along the stainless steel pathway, meanwhile, products manufactured through the RKEF process at IWIP circulate primarily within East Asia, reflecting both the geographical concentration of the stainless steel industry and the tightening of European trade policies.

Within a supply chain of this nature, growing buyer demands concerning product carbon footprints, waste management, and human rights and deforestation due diligence will play an increasingly important role in determining future market access for Indonesian nickel. Consequently, Indonesia's downstream competitiveness will depend on ensuring product transparency—including the disclosure of carbon footprints for individual products and their export destinations—establishing auditable management systems for HPAL-related environmental impacts, and implementing a roadmap for reducing the carbon intensity of stainless steel production in line with growing demand for green steel within the automotive industry. In other words, the extent to which IWIP is able to adapt to increasingly stringent global procurement standards will significantly -

influence the future competitiveness of Indonesia's nickel industry.

Beginning in 2026, the Carbon Border Adjustment Mechanism (CBAM) will require reporting of embedded emissions for certain products entering the European Union, including iron and steel (European Commission, 2025). This means that importers will be required to purchase CBAM certificates corresponding to the greenhouse gas emissions generated during the production of those goods.

For stainless steel produced within the Tsingshan/IWIP network, this policy means that the profitability of exports to the European Union will increasingly depend on the emissions intensity of production processes—for example, the use of coal-based RKEF technology—as well as on producers' ability to measure, report, and verify their factory emissions in a credible manner. In other words, suppliers that succeed in reducing production-related emissions or transitioning to lower-emission production pathways will become more attractive—and more bankable—to European buyers after 2026.

In addition to the CBAM, the European Union's trade protection measures on stainless steel have also become an important determining factor. In May 2024, the European Union extended its anti-dumping and countervailing duties on cold-rolled stainless steel (SSCR) originating from Indonesia to include exports diverted through intermediary countries, such as Taiwan and Vietnam. As a result, access to the European market has become increasingly dependent not only on compliance with trade tariffs but also on the carbon costs associated with production. The combined impact of SSCR trade duties and CBAM requirements compels Indonesian producers to develop a clear and actionable decarbonization roadmap if they are to regain competitiveness in the European Union market.

For battery products, the European Union has adopted Regulation (EU) 2023/1542, which requires manufacturers to implement due diligence policies covering nickel, cobalt, lithium, and graphite throughout their supply chains, in addition to complying with carbon footprint declarations and end-of-life management requirements (European Union, 2023). The Regulation has been implemented in phases since 2024. However, the specific due diligence obligations relating to raw materials have now been officially postponed by two years, until 18 August 2027, under Regulation (EU)

2025/1561 (European Union, 2025).

Once these requirements take effect, economic operators placing batteries on the European Union market must be able to demonstrate effective management of the environmental and social risks associated with nickel and other critical minerals. For products originating from the IWIP supply chain that flow through the Huayou, Brunp/CATL, or GEM precursor and cathode ecosystems before reaching European automobile manufacturers, compliance with these due diligence requirements will become an increasingly important condition for market access as 2027 approaches.

With regard to human rights and environmental due diligence across commodity supply chains, the Corporate Sustainability Due Diligence Directive (CSDDD) was formally adopted by the Council of the European Union and entered into force on 25 July 2024 (European Council, 2024). The CSDDD requires large companies operating within the European Union to identify, prevent, and address adverse human rights and environmental impacts throughout their global value chains. Consequently, for manufacturers of finished products and suppliers of cathode materials selling into the European market, due diligence is no longer merely a “nice-to-have” but a legal obligation that extends expectations to upstream suppliers, including those involved in HPAL and RKEF operations in Indonesia.

CHAPTER III

FROM RICH,

**EXCAVATED SOIL TO
POLLUTED RIVERS AND SEAS**

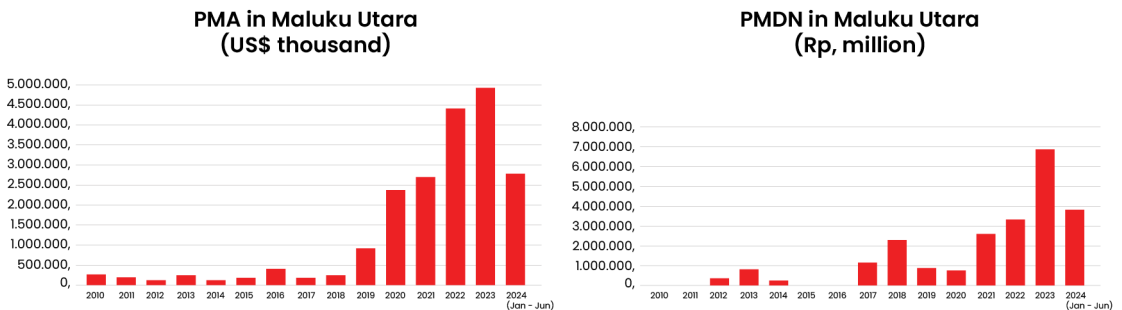


3.1 Foreign Investment, Economic Growth, and the Questionable Promise of Prosperity

Over the past decade, North Maluku has emerged as Indonesia's new epicenter of the mineral industry. The rapid development of smelters and integrated metal industrial parks has transformed the province's economic structure, particularly following the government's large-scale implementation of its nickel downstream industrialization policy.

Data from the Ministry of Investment and Downstream Industries/Investment Coordinating Board (BKPM) shows that investment inflows into North Maluku increased dramatically between 2010 and mid-2024. Foreign direct investment (PMA) rose from US\$246 million to US\$2.8 billion, representing an increase of more than elevenfold. This surge was driven by the expansion of nickel mining operations and the construction of nickel processing facilities within integrated industrial parks, such as IWIP in Central Halmahera Regency and the industrial park on Obi Island. Meanwhile, although domestic investment (PMDN) grew nearly 274-fold—from Rp13.5 billion in 2011 to Rp3.7 trillion in 2024—its value remained far below that of foreign investment (BKPM, 2024).

Figure 6. Foreign Direct Investment and Domestic Investment in North Maluku



Source: Ministry of Investment and Downstream Industries/BKPM, 2025, processed

The acceleration of investment became even more pronounced from 2019, coinciding with the commencement of operations at IWIP, Indonesia's largest downstream nickel industrial park. This trend was further reinforced by the full implementation of the ban on raw nickel ore exports in 2020, which encouraged global companies to establish domestic refining facilities in Indonesia. As a result, North Maluku's economy shifted from one primarily based on agriculture and fisheries to one increasingly dominated by extractive industries and heavy manufacturing. Behind this impressive -

economic growth, however, lie serious challenges, including social inequality, environmental degradation, and growing pressure on local natural resources.

North Maluku has also assumed an increasingly central role in the global nickel supply chain. The province has become one of Indonesia's principal nickel export regions, with Weda Port, in Central Halmahera Regency, serving as the main logistics hub for processed nickel products exported from IWIP (BPS of North Maluku, 2023). As a result, Central Halmahera Regency recorded extraordinary economic growth of 161.85% in 2021 and 102.31% in 2022. These figures far exceeded those of other regencies/municipalities in North Maluku, where average growth generally remained below 5%. This remarkable economic "boom" propelled North Maluku to become Indonesia's fastest-growing province for at least the past four years, attracting considerable public and media attention.

Table 7. Economic Growth Rate by Regency/Municipality in North Maluku, 2019–2023 (Percent)

Regency/Municipality	2019	2020	2021	2022	2023	Rata-Rata
West Halmahera	5,33	0,53	1,20	3,20	2,05	2,46
Central Halmahera	6,36	31,93	161,85	102,37	42,41	68,98
Sula Islands	6,15	0,10	1,31	3,55	2,57	2,74
South Halmahera	12,15	17,64	14,22	21,38	27,78	18,63
North Halmahera	2,64	-0,43	3,10	3,74	0,92	1,99
East Halmahera	5,14	0,24	8,93	1,18	26,56	8,41
Morotai Island	4,30	2,01	2,04	3,10	2,48	2,79
Taliabu Island	9,23	0,67	12,74	3,45	2,60	5,74
Ternate	8,00	-1,61	2,56	5,31	5,00	3,85
Tidore Islands	6,12	1,07	1,17	3,15	2,48	2,80
North Maluku (Province)	6,25	5,39	16,79	22,94	20,49	14,37

Source: BPS of North Maluku Province, 2025

During the 2019–2023 period, North Maluku's economy grew at an extraordinary pace. Economic growth increased from 6.25% in 2019 to a peak of 22.94% in 2022, before moderating slightly to 20.49% in 2023. This –

remarkable expansion was driven primarily by the growth of the nickel industry and downstream mineral processing in Central Halmahera, making North Maluku one of Indonesia’s fastest-growing regional economies.

Table 8. Trends in the Number of People Living in Poverty in North Maluku, 2019–2023

No	Year	Number of People Living in Poverty	Changes in the Number of Poor People
1	2019	84.600	–
2	2020	86.370	Increase 1.770
3	2021	87.160	Increase 790
4	2022	79.880	Decrease 7.280
5	2023	83.800	Increase 3.920

Source: BPS of North Maluku Province, 2019–2023

However, despite this rapid economic growth, poverty levels have not shown consistent improvement. While economic growth increased from 6.25% in 2019 to 16.79% in 2021, the number of people living in poverty also rose—from 84,600 in 2019 to 87,160 in 2021. Moreover, although the economy grew by 20.49% in 2023, the number of people living in poverty remained high at 83,800. In other words, over the five-year period from 2019 to 2023, the number of people living in poverty declined by only around 800, even though the economy expanded more than threefold.

These figures indicate that North Maluku’s economic growth has yet to become inclusive. The benefits generated by the expansion of large-scale industries have tended to remain concentrated within industrial zones, while communities engaged in traditional sectors—such as agriculture, fisheries, and micro-enterprises—have not fully shared in the gains. This reflects the fact that major capital in North Maluku has been absorbed into capital-intensive rather than labor-intensive industries, limiting both job creation and the multiplier effects on the local economy.

3.2 Threats to the Karst Ecosystem and Boki Maruru Cave

From a social perspective, communities located in the immediate vicinity (Ring One) of the IWIP industrial park—including Lelilef Sawai Village, Lelilef Waibulan Village, Sagea Village, Kiya Village, and Gemaf Village—face –

complex socioeconomic dynamics. They find themselves caught between mounting pressures and the economic opportunities brought about by industrial expansion. The establishment of nickel mining and processing operations has fundamentally transformed the spatial organization of their communities, their livelihoods, and the social relationships within these villages.

The tension between large-scale investment and the rights of local communities is particularly evident in several villages, one of which is Sagea Village. Since 2014, the Sawai Indigenous community living in the area has witnessed growing threats to its living space following the narrative that PT First Pacific Mining (FPM)—a nickel mining company holding concessions covering more than 2,000 hectares—had begun exploration activities and planned to construct a nickel smelter in the village. This news heightened public awareness of the potential for environmental degradation, the dispossession of local living space, and the loss of community land. Public opposition soon spread, ultimately preventing the company from proceeding with the project. This marked the first major victory for the people of Sagea Village in defending their community against the construction of a nickel smelter.

However, four years after this successful resistance, the Ministry of Energy and Mineral Resources and the Governor of North Maluku began issuing several IUPs and Mining Business License Area (WIUPs) covering Sagea Village. Some of these are listed below.

Table 9. Mining Business Licenses (IUPs) and Mining Business License Areas (WIUPs) Issued in the Vicinity of Sagea Village

No	Company	Decision Letter	Commodity	Validity Period	Luas Konsesi	Conse-ssion Area	Location	License Type
1	PT First Pacific Mining	SK 30/1/IUP /PMA/2018	Nickel	6 April 2018 – 10 Oktober 2032	2.080 hektare	Menteri ESDM	Sagea Village	IUP PMA
2	PT Zhong Hai Rare Metal Mining Indonesia	SK 25/1/IUP /PMA/2018	Nickel	6/4/2018 – 12/21/2029	688 hektare	Menteri ESDM	Sagea Village	IUP PMA
3	PT Karunia Sagea Mineral	031I2I001 56960005	Limestone	8/31/2023 – 8/31/2028	907,20 hektare	Governor	Sagea Village	IUP
4	PT Gamping Mining Indonesia	502/3/DP MPTSP/VI/ 2023	Limestone	6/23/2023 – Unknown	2.538,62 hektare	Governor	Sagea Village & Kiya Village	WIUP

Source: Ministry of ESDM, 2025, processed

Sagea Village can no longer be regarded as a safe haven, as it now faces an escalating wave of mining permits. The next wave of investment arrived on a much larger and more integrated scale, making the threat to local communities' living space increasingly tangible. In 2019, PT WBN and PT IWIP entered the area with a mandate to integrate mining operations and smelter facilities into a single industrial park for nickel processing.

Sagea Village and Kiya Village are also under increasing pressure because, in addition to nickel operations, several limestone mining companies—including PT Karunia Sagea Mineral and PT Gamping Mining Indonesia—have established operations in the area. Limestone, classified in Indonesia as a specified non-metallic mineral, is an essential raw material for construction, cement production, and nickel downstream processing in smelters. Consequently, these companies have become an integral part of the integrated industrial park developed by PT WBN/PT IWIP.

The expansion of limestone mining has further intensified pressure on local communities' living space. Covering more than 3,400 hectares under existing IUPs and WIUPs, limestone mining has complicated land allocation by reducing the areas available to local residents, many of whom previously managed and depended on this land for their livelihoods. The arrival of limestone mining companies, together with the continuing expansion of the nickel industry, has reinforced the socioeconomic and environmental conflicts affecting Sagea Village.

This large-scale industrialization poses significant ecological risks to both local communities and the karst ecosystem surrounding Boki Maruru Cave, which is hydrologically connected to Lake Yenelo. The karst landscape encompassing Boki Maruru Cave and Lake Yenelo forms the lifeblood of the communities in Sagea Village and Kiya Village. It provides important food resources, particularly brackish-water species such as shellfish and milkfish, which remain available even during the southerly monsoon season, when rough seas discourage fishers from going offshore. The area surrounding Boki Maruru Cave also provides a place for local residents to conduct small-scale trading activities, while the Sagea River, whose headwaters originate within the karst system, serves as the community's primary source of drinking water, irrigation for cash-crop gardening, bathing, tourism, and even bottled water production managed by the Village-Owned Enterprise (BUMDes).

The geological uniqueness and rich biodiversity of the Boki Maruru karst area prompted the Central Halmahera Regency Government to designate it as a geopark development area in 2020. This initiative was subsequently reinforced through Central Halmahera Regent Regulation No. 35 of 2021 on the Development of the Central Halmahera Geopark and Central Halmahera Regent Decree No. 556/KEP/382/2021 on the Designation of Geosite Boki Maruru and Its Surrounding Area as Central Halmahera Regency's Priority for Geopark Development. These policies demonstrate the local government's commitment to protecting this ecologically valuable landscape while promoting its sustainable use through conservation, education, and geotourism (Halmaherapost.com, 2022).

Despite these efforts by the local government to protect the Boki Maruru karst area, threats from mining concessions persist. Several companies, including PT Gamping Indonesia and PT Karunia Sagea Mineral, hold concessions around the area of the Boki Maruru karst landscape, although some have not yet commenced operations.

The ecological degradation of the area is already evident. In 2023, the Sagea River, whose headwaters originate in Boki Maruru Cave, became polluted. Its waters turned brown and were no longer suitable for use, disrupting local communities' access to clean water and food resources. The situation was compounded by declining agricultural yields and reduced marine catches. The expansion of mining activities without meaningful community participation in decision-making has further intensified socioeconomic pressures and fundamentally altered the living space of the people of Sagea Village. These concerns have grown stronger among women and families whose livelihoods depend on the karst ecosystem and the Sagea River.

3.3 The Promise of Prosperity under the Shadow of a National Strategic Project

The central government has promoted the development of the nickel industry in Weda Bay, through the establishment of PT IWIP, as a major driver of economic growth and employment opportunities for local communities. In practice, however, PT IWIP has emerged as a new center of power within Indonesia's extractive industry, operating under permissive licensing and weak oversight from both the central and regional governments.

The Government of Indonesia designated IWIP as an integrated industrial park for heavy metal processing covering approximately 5,000 hectares. Its legal and political status was further strengthened when the area was designated a national strategic project (PSN) under Presidential Regulation No. 109 of 2020, later updated through Coordinating Minister for Economic Affairs Regulation No. 12 of 2024. In addition, IWIP was designated a national vital object (Obvitnas) in the industrial sector pursuant to Minister for Industry Decree No. 1197 of 2021.

The designations of national strategic projects and national vital objects reflect the state's provision of special protection for projects regarded as strategically important from both economic and geopolitical perspectives. Under this legal framework, the IWIP industrial park is placed under state security protection and shielded by extensive authority, physically and legally. This status has rendered IWIP largely insulated from public criticism and relatively beyond the reach of ordinary mechanisms of public oversight. In practice, these strategic designations often function as instruments for legitimizing state authority, being used to suppress community opposition and discourage local forms of resistance. Expressions frequently heard in the field, such as "anyone who obstructs the development of IWIP is opposing the state," illustrate how narratives of security are employed to discipline local communities and normalize symbolic state violence against those living around the project.

In such circumstances, the principle of Free, Prior, and Informed Consent (FPIC)—which is intended to safeguard the rights of Indigenous Peoples and local communities to approve or reject projects affecting their living space—is either disregarded or implemented merely as an administrative formality. Public consultations function primarily as supporting documents for the environmental impact assessment process rather than as genuine deliberative forums through which community voices can meaningfully influence decision-making. Consequently, local communities lose bargaining power in determining the direction of development on their own land. Democratic space at the local level narrows, while fear begins to take root within communities. People who were once outspoken increasingly choose silence—some because of social pressure, while others because their livelihoods have become dependent on the industrial economy. For many residents who have sold their land and accepted compensation, -

dependence on industrial employment has made criticism an increasingly costly risk.

In reality, the designations of national strategic project and national vital object are more than symbols of development priority. They also function as legal mechanisms that perpetuate state–corporate dominance over community land. Under this framework, security forces become part of the infrastructure supporting industrial development, while formal state authority becomes closely intertwined with economic interests. In such circumstances, coercive measures are frequently used as instruments of social control, whether through criminalization, intimidation, or the social isolation of individuals perceived as obstructing investment.

The experience of Herenemus Takuling, a member of the Sawai Indigenous community from Lelilef Waibulan Village, illustrates how investment-related power operates at the most concrete level. Since 2008, Herenemus had refused to sell his land to PT WBN, when approximately 90% of the company's shares were still owned by the Eramet Group. The compensation offered was extremely low—only Rp8,000 per square meter—despite the fact that the land supported coconut, clove, and nutmeg trees, which constituted his family's primary source of livelihood. He estimated that a single hectare of coconut garden could generate more than Rp80 million over a two-year period, equivalent to approximately eight harvests, excluding income from cloves and nutmeg. For Herenemus, the land was not merely an economic asset that could be exchanged for money but an ancestral inheritance sustaining successive generations. "The land will remain as long as we take care of it, but the money from selling it can be gone within a year," he said.

His refusal was met with sustained pressure. In 2011, Herenemus and other villagers blockaded a company access road that they believed had encroached upon community land. During the protest, he was arrested for allegedly carrying a sharp weapon—a machete that he routinely carried when working on his garden. In 2012, Herenemus was sentenced to one year's imprisonment, a criminal prosecution that stemmed from his refusal to sell his inherited land. The company reportedly offered him an informal settlement involving financial compensation in exchange for dropping the case, but he firmly refused. After completing his sentence, he remained under close scrutiny and was ostracized by some pro-company residents.

For nearly a decade, the pressure he experienced came not only from state authorities but also from members of his own community. He was mobbed by fellow villagers, threatened, and even treated as an enemy by the village head.

As other residents gradually sold their land, only 5 of the original 66 households that had initially opposed PT WBN remained by 2018. During the land acquisition process, the company relied on local residents as intermediaries to conduct land measurements, creating opportunities for land mafia practices in which the recorded size of landholdings was allegedly falsified for the benefit of certain parties.

After holding out for ten years, Herenemus ultimately sold his land to PT IWIP in 2018, after the company partnered with PT WBN to develop Indonesia's downstream nickel industry. The transaction was facilitated directly by an official of the Central Halmahera Regency Government, and the company paid Rp50,000 per square meter for his seven hectares of land, together with an additional bonus as a gesture of appreciation. Herenemus was among only a small number of residents who received what could be considered relatively high compensation—not because of any special privilege, but because of his determination to defend his land over many years despite sustained pressure.

Within the Ring One area surrounding IWIP, the boundary between industrial power and state authority has become increasingly blurred, as the two reinforce one another in maintaining the stability of what is officially designated as a strategic national project. This concentration of industrial power is further strengthened by security infrastructure, including the command post of Batalyon C Pelopor (Battalion C Ranger) of the Mobile Brigade Corps (Brimob) of the North Maluku Regional Police, constructed with direct support and facilitation from PT IWIP. Located immediately adjacent to the IWIP industrial perimeter in Lelilef Sawai Village, the command post was inaugurated on 30 April 2021. According to PT IWIP's official website, during the inauguration, Kevin He, Vice President of IWIP, described the construction of the facility as "the company's contribution to maintaining security and public order." Although framed in the language of corporate social responsibility, this statement illustrates how state security has become directly associated with industrial interests.

The physical proximity between the industrial park's perimeter fence and the Brimob command post is not merely coincidental. It reflects the close political relationship between capital and the state's coercive apparatus. In this context, the narrative that "anyone who obstructs the development of IWIP is opposing the state" takes on its most concrete form: armed security personnel stand guard at the company's gates rather than in the surrounding villages. Spatial planning itself comes to be organized around the logic of industrial security rather than community safety, transforming Weda Bay from a living space for local communities into a space dedicated primarily to safeguarding investment.

3.4 The Lodging Business: PT IWIP versus Local Residents

In 2019, when the IWIP industrial park was first being developed, the company promised local residents that they would be free to establish whatever businesses they wished as compensation for having sold their land at low prices. Today, however, that promise rings hollow. Herenemus, one of the residents who sold seven hectares of his land to PT IWIP, invested the proceeds in building 60 boarding houses near the industrial park, hoping that the business would replace his family's former source of livelihood. At first, the boarding houses were fully occupied by workers from across Indonesia, some of whom even brought their families with them.

Over time, however, PT IWIP constructed large employee dormitories within the industrial park, providing thousands of rooms for its workforce. These dormitories are managed not by local residents but by PT IWIP. According to one informant, several government officials are also alleged to benefit financially from the operation of the dormitories within the IWIP complex. Each room accommodates four occupants at a monthly rental rate of approximately Rp400,000, generating substantial revenue that does not circulate within the surrounding communities. As a result, many locally owned boarding houses now stand vacant, including those owned by Herenemus, whose rooms were once fully occupied and even had waiting lists of prospective tenants.

The economic opportunities once promised by the company have gradually given way to a monopoly controlled by a small number of actors. One village head from the Ring One area surrounding IWIP stated that he intended to negotiate with PT IWIP's management to reduce occupancy in the company dormitories from four people per room to two, in the hope that

residents' boarding houses would once again attract tenants. Amid this economic downturn, local communities have also been confronted with a new environmental challenge: increasingly saline well water, an indication that the profound changes taking place on their land have eroded not only their sources of livelihood but also the resources essential for life. The resulting shortage of clean water has further reduced demand for locally operated boarding houses.

Although these businesses continue to generate some income, their villages are now surrounded by the constant noise of excavators, hauling roads, and plumes of smoke from industrial machinery, all of which have transformed the landscape and the ecological systems that once sustained a decent quality of life. Clean water has become increasingly difficult to obtain as mining activities have expanded upstream. Rivers that once served as the lifeblood of local communities have turned murky, while fertile farmland has been converted into industrial sites or abandoned land that can no longer be cultivated because of flooding, as has occurred on the remaining portion of Herenemus' garden.

Village residents have gradually come to realize that financial compensation provides only temporary security, whereas losing their land means losing control over their future. They now live amid a paradox: outwardly, their communities appear more "developed" because they are surrounded by industrial infrastructure, yet they have become increasingly alienated from their own living space. Herenemus fears that, over the next 10 to 15 years, the ecological crisis that is already beginning to unfold will continue to worsen, gradually forcing residents from their villages. Ultimately, they may have no choice but to seek new places to live and new sources of livelihood supported by more sustainable living conditions.

In this context, the expansion of the nickel industry has done more than transform the economic landscape; it has redefined the social, ecological, and moral boundaries of communities in Weda Bay. Herenemus' story illustrates how the expansion of the nickel industry has fundamentally reshaped the relationship between local communities and their living space. Land that once provided a long-term source of livelihood and symbolized ancestral ties has been transformed into a short-term economic asset within the logic of the extractive industry.

Under the pressures associated with the national strategic project status, power relations among local communities, the state, and corporations have become increasingly unequal. Local residents are encouraged to adapt to a fast-moving industrial economy driven by investment flows. People who once depended on their land and forests for their livelihoods have become providers of services that support the industrial economy—building boarding houses, operating small food stalls, or working as laborers in what was once their own village. In the process, agrarian identities and community sovereignty over their living space are gradually eroded, replaced by new forms of dependence on corporations and an economic structure that appears promising on the surface but remains fragile beneath it.

3.5 Shrinking Living Space and the Loss of Local Livelihoods

Long before PT IWIP began operations, most members of the Sawai Indigenous community living in villages around Weda Bay depended on the land, forests, and rivers for their livelihoods. Farming, gardening, and fishing formed part of a way of life passed down through generations. The natural environment was not only a source of livelihood but also an integral part of the cultural identity of these coastal communities. Since the establishment of the IWIP nickel industrial park, however, the region's economic and social landscape has gradually changed. Land that once served as a source of food has been converted into industrial estates and workers' settlements, while many local residents have adapted by operating boarding houses, opening small food stalls, or working as laborers for mining companies

Abdullah Ambar (commonly known as Pak Dullah), a resident of Lelilef Waibulan Village, has witnessed these changes firsthand. Since 2008, he had worked as a fisherman, having previously cultivated nutmeg, cloves, and coconuts in Patani. At that time, fishing provided a decent livelihood. With an initial investment of approximately Rp115 million—consisting of a 4-gross-ton (GT) wooden fishing boat valued at Rp30 million, a 40-horsepower engine worth Rp35 million, and fishing nets costing Rp50 million—Pak Abdullah was able to earn an average gross income of around Rp30 million per month. After deducting operating expenses and wages for the six crew members who assisted him in hauling the nets, his net monthly income averaged approximately Rp15 million.

The situation changed dramatically, however, once large vessels operated

by mining and industrial companies, including PT WBN and PT IWIP, began navigating the waters off the coast of Lelilef. Fishing grounds became increasingly restricted and were frequently disrupted by industrial vessels deploying large fishing nets extending hundreds of meters. Pak Abdullah's nets were often damaged or became entangled, resulting in substantial financial losses, as replacing a single set of nets could cost tens of millions of rupiah. "Once the nets are torn, they can't be used anymore. Once damaged, investment gone," he recalled. Faced with these pressures, he eventually entrusted his fishing boat to his son in Patani, a neighboring coastal area that he considered safer because it lay outside the busy shipping lanes used by industrial vessels.

While he was still actively fishing, Abdullah generally operated close to the coastline and consumed no more than 50 liters of fuel during a day's work, from morning until late afternoon. More recently, however, the increasing presence of company vessels has reduced fish catches, forcing him to travel much farther offshore—between 5 kilometers and more than 10 kilometers from the coast—while increasing his daily fuel consumption to as much as 200 liters. At the same time, fuel prices had risen to approximately Rp15,000 per liter, and the additional costs of engine oil and maintenance further increased his operating expenses. The cost of going to sea was no longer commensurate with the diminishing catch. Eventually, Abdullah handed his boat over to his eldest son, who lives in Patani Village, where coastal waters are still regarded as relatively free from mining-related activities.

Figure 7. Waters of Weda Bay between Residential Areas and the PT IWIP Industrial Park



Documented by Rifki Anwar, 2025

Abdullah's experience is far from unique. Many fishers in Lelilef Waibulan Village have ultimately abandoned fishing and shifted to other occupations, including construction work, driving, or operating small businesses around the industrial area. Yet the sea and the rivers were once far more than sources of income; they constituted the community's living space and symbolized the continuity of coastal life. Today, these changes have not only reduced local incomes but have also weakened the cultural foundations of the community and its long-standing relationship with the natural environment that has sustained generations of coastal residents.

3.6 Unjust Land Acquisition

In addition to his work at sea, Abdullah Ambar is also known as a farmer who has actively managed the plantations he established in Patani and Sagea Villages. He was among the community leaders who encouraged local residents to cultivate nutmeg in the 1980s, a period when the commodity was beginning to gain recognition as a high-value crop in Central Halmahera. Together with other farmers, he developed nutmeg and clove plantations in forests that had long served as an important source of livelihood for local communities. However, this progress began to fade as mining companies carried out large-scale land acquisition in Lelilef Waibulan Village.

Some years earlier, the company had purchased Pak Dullah's land in Waibulan Village for the construction of a mining access road. The six-hectare property was jointly managed by Pak Dullah and his colleague, Semy Effendy, with each owning three hectares. According to Pak Dullah, however, the land acquisition process was neither fair nor conducted on the basis of equal negotiation. Company representatives reportedly approached local residents in an intimidating manner, telling them that even if they refused to sell their land, the mining road would still be built around their gardens, leaving access blocked by the company's fenced-off area under strict security. Faced with these circumstances, many residents, including Pak Dullah, felt that they had little choice but to sell their land.

The company offered a very low price—only Rp9,000 per square meter—despite the fact that the land contained productive nutmeg, clove, and coconut trees that had been cultivated since 2009. These crops were not assessed separately as part of the compensation package. "The company said everything was already included in the land price," Pak Dullah

recalled. He attempted to negotiate an increase to Rp15,000 per square meter, but the company rejected the request. In the end, he accepted Rp90 million for his three hectares of land, while Semy Effendy was likewise compelled to sell his land at the same price.

For Pak Dullah, this compensation bore little relation to the losses he had suffered. “Building a single permanent house measuring 25 by 15 meters already costs around two hundred million rupiah,” he said. In his view, the government should have acted as an independent facilitator in the land transaction process to ensure that prices could be negotiated fairly and that local residents were not disadvantaged. Instead, the process unfolded without facilitation, without transparency, and without adequate opportunities for dialogue between the company and the affected communities. The village government likewise played no active role. “We wanted to speak directly with the company, but to this day there has never been an open meeting,” he said, his tone marked by disappointment.

WBN’s exploration phase in 2006 through PT IWIP’s operational phase in 2018, there was never an open public dialogue involving the company, the government, and local communities. Even the preparation for the environmental impact assessment was carried out without the meaningful participation of residents directly affected by the project. Only a small number of individuals—such as village heads or local officials with close ties to the company—were consulted. Consequently, community concerns regarding land, clean water, and compensation were never formally or meaningfully articulated during the decision-making process.

Abdullah summarized the situation in a statement that captures the essence of the community’s concerns: “The most dangerous thing in life is when people no longer have land.” His words reflect a profound anxiety about the future of local communities, which now find themselves at a crossroads between staying or leaving. In his view, if current conditions continue, the people of Lelilef Waibulan Village may, within the next five to ten years, be forced to leave their village altogether, as both the sea and the land become completely surrounded by industrial development and are no longer capable of sustaining human habitation.

3.7 The Loss of Clean Water and the Proliferation of Waste

The expansion of the mining industry has not only transformed the local economic structure but has also given rise to an ecological crisis, particularly with respect to the availability of clean water. Before IWIP began operations, residents of Lelilef Waibulan Village relied on the Waibulan River and shallow dug wells, typically 4–5 meters deep, to meet their daily water needs. As industrial activities expanded, however, the well water gradually became brackish and, in some cases, dried up altogether.

Today, residents must drill wells to depths of approximately 40 meters in order to obtain fresh water. Abdullah himself has drilled four bore wells, spending between Rp35 million and Rp40 million on each attempt, yet the results have remained unreliable. Fresh groundwater can now be found only at locations more than one kilometer from his home, indicating that groundwater reserves beneath the residential area have been significantly depleted as the surrounding ecosystem has changed.

These conditions have forced local residents to depend on commercially supplied bottled water, sold at approximately Rp10,000 per gallon. For low-income households, this additional expense has become a significant burden on their daily lives. Efforts by some residents to adapt—for example, by operating boarding houses for industrial workers—have also proved unsuccessful because the bore wells serving their properties have likewise become brackish or dried up.

At the same time, sedimentation associated with mining activities has polluted local rivers, rendering the water unsuitable for consumption. Rivers that once sustained community life have now become symbols of loss for the people of Lelilef: the simultaneous loss of clean water, land, and the sea.

The establishment of the mining industry around IWIP has also brought profound changes to the local economy. Traditional livelihoods based on cultivating nutmeg, cloves, and coconuts have gradually been displaced by the industrial economy. Many community-owned cash-crop gardens that once served as primary sources of livelihood have been converted into industrial sites or mining areas. These changes have been exacerbated by the land acquisition undertaken by PT IWIP since 2018, during which residents were reportedly offered compensation of only around Rp15,000 per square meter, without taking into account the value of the productive -

crops growing on their land. Cases such as those experienced by residents of Gemaf Village illustrate how economic pressures, combined with environmental degradation, ultimately compelled communities that had initially resisted to relinquish their land.

Meanwhile, village-based economic activities that depended on nature tourism and clean water have also been severely affected. The pollution of the Sagea River in 2023 brought the BUMDes bottled-water business to a complete halt, while tourism at Boki Maruru Cave declined sharply, significantly reducing village revenue that had previously been generated through visitor entrance fees. At the same time, uncertainty surrounding the future of mining permits has created growing concerns about the area's long-term economic prospects.

Environmental problems surrounding the industrial area extend beyond water resources. Solid waste has now emerged as another major issue, proliferating throughout villages surrounding IWIP. The growing waste problem has, in turn, become a source of conflict between the company and the local government. The company maintains that it manages waste generated within the industrial complex independently. However, waste produced by thousands of workers and by informal settlements surrounding the IWIP area has effectively been left for the Central Halmahera Regency Government to manage.

Figure 8. Accumulation of Waste in Residential Areas Following the Rapid Growth of Boarding Houses



Documented by Rifki Anwar, 2025

3.8 Pollution of the Kobe River, Flooding, and the Collapse of Local Economic Activities

Since the area surrounding the Kobe River was opened to mining activities in the 2000s, flooding has become drastically more frequent. Whereas floods previously occurred only once a year—or, in earlier times, only once every ten years—by September 2025 the area had already experienced five major floods. The most severe occurred in July 2025, when floodwaters rose by more than one meter, inundating residents' stilt houses, including the home of Welhemus Pata-Pata. Although his house stands approximately one meter above the ground, floodwater still entered the house and damaged all of its furnishings.

The Kobe River is located in Central Halmahera Regency, specifically in Central Weda District. It stretches for approximately 45 kilometers and drains a watershed covering 814.32 square kilometers. Once the lifeblood of surrounding communities, the river now frequently overflows, carrying mud and sediment from upstream areas that have been degraded by mining activities.

Welhemus Pata-Pata is an Indigenous resident of Kulamo Hamlet, part of Lelilef Waibulan Village, which is currently being prepared for recognition as a definitive administrative village. Lelilef Waibulan lies along the banks of the Kobe River, which has repeatedly been reported to suffer from pollution linked to upstream mining activities. In the modest house where he lives with several members of his family also resides his daughter, Hanati Pata-Pata, the mother of three children and grandmother to several young grandchildren.

As a native of Lukolamo, Welhemus has lived in the area since birth. He has worked as a farmer since the 1980s, cultivating coconut, nutmeg, cocoa, and bananas. One of his banana gardens, covering approximately one hectare, served as his family's principal source of both food and income. At one point, the local government offered to acquire the garden for a provincial road construction project, and officials from the Public Works Agency even surveyed the land, although the acquisition process has yet to be completed.

The devastating flood of July 2025, however, marked a turning point in the lives of Welhemus and his family. During the flood, his fiberglass fishing boat,

equipped with an outboard motor and only one year old, was swept away by the powerful current of the Kobe River. Including the engine, the boat represented an investment worth approximately Rp60 million. Welhemus normally used it to fish together with four or five family members, generating daily earnings of around Rp2–3 million, which were shared among them. Losing the boat meant losing the family's primary source of income.

Today, he relies solely on a small ketinting motorboat, purchased in June 2025 for Rp4 million. With this smaller vessel, he can fish only in coastal waters rather than offshore. The flood also destroyed many of the family's other possessions, including clothing, cooking utensils, a television, a refrigerator, and livestock such as chickens and ducks, all of which were carried away by the floodwaters. During the same disaster, a female migrant from South Sulawesi reportedly lost her life after being swept away by the Kobe River.

The flooding damaged not only homes and personal property but also residents' cash-crop gardens. Crops such as cassava and bananas failed because they remained submerged for prolonged periods. Gardening households repeatedly replanted their gardens after the floodwaters receded, but with little success. As a result, many families struggled to meet their basic daily needs.

Hanati Pata-Pata, Welhemus' daughter, recalled having to purchase rice, sugar, and other necessities on credit from a neighborhood grocery store. She was grateful that local shopkeepers were still willing to extend credit because, without such assistance, she and her children might have gone hungry. Ironically, the family had once placed considerable hope in coconuts as a source of income. Copra prices have now reached approximately Rp10,000 per kilogram, far higher than the roughly Rp500 per kilogram received during the 1990s and 2000s. Yet just as prices have improved, productivity has declined because gardens have been damaged and are repeatedly inundated by floods.

In the past, Welhemus' family could produce approximately one metric ton of copra every three months, generating a gross monthly income of around Rp20 million, shared among four family members. Today, they can only sell fresh coconuts for approximately Rp2,500 per nut, earning around Rp100,000–Rp250,000 per day, and even this income is irregular because -

harvesting takes place only once every three months. Sago, too, was once an important source of household income. Income from processing sago enabled members of the extended family to finance their children's university education, including a relative, Ms. Lufina, who was able to enroll her child at Muhammadiyah University. Since 2015, however, they have stopped processing sago because clean water, essential to the production process, is no longer available.

Indeed, the shortage of clean water has become a serious problem in Lelilef Waibulan Village since mining activities intensified in the upper reaches of the Kobe River. Residents last used river water for drinking around 2010, when sedimentation and mining waste began contaminating the river. Today, they can bathe and wash only with water supplied by the local water company (PAM), which channels water from a nearby waterfall through a distribution system managed by the local youth organization (karang taruna). This water is provided free of charge to Indigenous residents, while migrants and business operators, including boarding-house owners, are required to pay for it.

Figure 9. Polluted Conditions of the Kobe River in a Residential Area



Documented by Rifki Anwar, 2025

Hanati's grandchildren, aged one year and nine months, developed a severe skin rash after bathing and collecting shellfish in the river. To relieve the itching, the family could only rely on smoke from traditional remedies because they could not afford medicated ointment. "It's better to spend the money on food," Hanati said while sitting in her home, watching dark rain clouds gather overhead as another storm approached.

The Kobe River has now become the clearest symbol of environmental degradation at the heart of nickel mining in Central Halmahera Regency. Of the eight water-quality parameters tested by the Environmental Agency of North Maluku Province in July 2025, total suspended solids (TSS) and dissolved oxygen exceeded the applicable water-quality standards. TSS levels reached 69 mg/L, exceeding the Class II water-quality standard of 50 mg/L established under Government Regulation No. 22 of 2021. River turbidity increases particularly during the rainy season, when sedimentation turns the water dark brown. Meanwhile, dissolved oxygen measured 6.8 mg/L, compared with the applicable standard of 4 mg/L.

In addition, chemical oxygen demand (COD) levels also tended to be elevated, although they remained below the regulatory threshold. This indicates contamination from organic matter. One contributing factor is the accumulation of domestic waste along the banks of the Kobe River as the growing number of boarding houses accommodating IWIP workers continue to increase in the area.

Communities living along the Kobe River experience these environmental changes directly. Flooding has become more frequent, gardens are repeatedly inundated, and crop failures have become common, while cases of skin disease are increasingly widespread. Residents whose homes and property have been damaged by flooding have never received compensation from the mining companies operating upstream. Instead, assistance has come from the Regional Disaster Management Agency (BPBD) rather than from the corporations themselves. This reflects the weakness of existing mechanisms for holding companies accountable for environmental damage.

Another challenge stems from limited regional budgets and the unequal distribution of authority between the central and regional governments. As a result, several agencies in the North Maluku Province effectively lack direct

authority over major mining companies such as PT WBN. Responsibility for mining permits and environmental documentation—including the environmental impact assessments and their amendments—rests entirely with the Ministry of Environment and Forestry (KLHK). Officials from the provincial environmental agency acknowledged that they are involved only as “companions” accompanying central government inspection teams during field visits, without access to official records or the findings of those inspections.

This situation creates a profound governance paradox: the region bearing the greatest social and ecological costs possesses the least authority to act. When communities stage protests at provincial government offices, regional officials attempting to calm public tensions often become the targets of residents’ anger. “We go into the field only to calm people down, not to take action, because we have no authority whatsoever,” one official from the Provincial Government of North Maluku explained.

The Kobe River has thus become more than merely a polluted river; it has become a reflection of environmental governance failures during Indonesia’s nickel downstream industrialization era. Its muddy waters serve as a metaphor for blurred lines of responsibility among corporations, regional governments, and the central government. Unless this governance system changes, every drop of water flowing through the Kobe River will continue to tell the story of who benefits and who bears the costs.

Beyond ecological disasters and economic losses, Welhemus’ family now also faces the prospect of losing its land. PT IWIP has already surveyed the family’s property as part of plans to construct another industrial facility. Of their holdings, approximately 27 hectares of sago land and 18 hectares planted with coconuts and nutmeg have reportedly been offered Rp30,000 per square meter by the company. Meanwhile, land earmarked by the Public Works Agency for road construction has been valued at only Rp20,000 per square meter. The family considers these valuations far below the ecological and economic value of land that has sustained their livelihoods for decades. Although negotiations and land surveys continue, compensation has yet to be paid in full.

For the people of Kulamo, the presence of the mining industry continues to raise many unanswered questions. They know only that PT IWIP is the –

principal company operating the industrial park, but they do not know precisely which tenant companies or mining operators are active around the Kobe River or which companies supply nickel ore to IWIP. Some of these companies, such as PT Tekindo Energi (since 2012) and PT WBN (since 1998), had already been operating long before IWIP itself was established.

The experience of Welhemus Pata-Pata and his family illustrates the complexity of the social and ecological impacts experienced by local communities as nickel industrialization expands across Central Halmahera Regency. Increasingly frequent floods, the destruction of cash-crop gardens and fishing equipment, the loss of clean water, and inadequate compensation for land acquisition all demonstrate that residents such as Welhemus are subject to structural pressures arising from a process of industrialization over which they exercise little control. Lelilef Waibulan Village has become a symbol of the paradox of development: a village that is located at the heart of Indonesia's nickel industrialization, yet whose residents continue to struggle with poverty, loss, and uncertainty regarding their living space.

3.9 Health Problems among Communities Surrounding the Nickel Industrial Area

Since the establishment of the PT IWIP industrial park in Central Halmahera Regency, North Maluku, the region has experienced a significant increase in population due to the influx of migrant workers from various parts of Indonesia. This rapid economic transformation has brought profound changes to the area's social dynamics and public health.

The skin disease suffered by Hanati's grandchild—a toddler aged one year and nine months living near the industrial area—provides a small but telling illustration of the environmental burden now borne by local communities. The child was not the only family member affected; everyone in the household experienced similar symptoms after their neighborhood was flooded and they suspected contamination from river water. Stories such as these are not isolated incidents, as many residents have reported similar experiences. These accounts indicate that the environment surrounding the industrial area has become polluted.

Figure 10. Toddler with Skin Irritation after Bathing and Collecting Shellfish in the Kobe River



Documented by Rifki Anwar, 2025

In addition to testimonies from local communities, data from the North Maluku Provincial Health Agency also indicate a sharp increase in several communicable diseases over the past five years. This trend suggests mounting pressure on the local health system that has not yet fully adapted to the demands of a rapidly growing population.

Tuberculosis (TB) provides the clearest indicator of the challenges associated with population density and high mobility within the industrial area. The number of presumptive drug-sensitive TB cases increased dramatically from 128 cases in 2020 to 1,828 cases in 2024, making Central Halmahera Regency the largest contributor to TB case detection in North Maluku. Most cases were identified among prospective IWIP employees during medical check-ups (MCUs). However, after receiving their diagnoses, many individuals reportedly returned to their home regions without undergoing treatment at local health facilities, creating the potential for new chains of transmission across provincial boundaries. This situation points to weaknesses in referral systems and treatment monitoring within newly industrialized regions.

In addition to TB, the increase in Human Immunodeficiency Virus (HIV) cases has become a matter of serious concern. After HIV testing and treatment services became fully operational in 2022, the number of confirmed cases rose from 12 in 2021 to 91 in 2024. Most cases were identified at the PT IWIP Weda Bay Clinic and Weda Regional General Hospital (RSUD Weda), suggesting that the industrial area has become the epicentrum of case detection in the regency. Most individuals diagnosed were migrant workers and local residents exposed to high-risk sexual behavior, a situation that has reportedly been exacerbated by the emergence of several prostitution sites around the industrial area. This development illustrates how industrialization has transformed not only the economy and society but also the epidemiological landscape of the region.

Table 10. HIV Cases Reported by Health Facilities in Central Halmahera Regency

No.	Regency/Municipality Health Facility	Case(s) per Year			
		2022	2023	2024	Ags 2025
1	PT IWIP Weda Bay Clinic	2	4	35	50
2	Banemo Community Health Center	1	1	2	0
3	Gebe Community Health Center	0	1	4	1
4	Lelilef Community Health Center	3	6	5	10
5	Sagea Community Health Center	0	0	1	0
6	Tepeleo Community Health Center	0	0	1	0
7	Damuli Community Health Center	0	1	0	0
8	Weda Regional General Hospital	15	35	26	30
Central Halmahera		21	48	74	91

In Lelilef Waibulan Village, Herenemus also described the thick layer of dust that settles daily on the furniture inside his home unless it is cleaned immediately. In addition to emissions from nickel processing facilities, several coal-fired power plants (PLTU) located near the industrial area have further degraded local air quality. From his house, he can smell emissions resembling sulfur, suggesting the presence of air pollution in the surrounding residential area.

Figure 11. Emissions from Coal-Fired Power Plants



Documented by Rifki Anwar, 2025

This situation illustrates another dimension of rapid industrialization in Central Halmahera Regency. Economic growth driven by nickel downstream industrialization has been accompanied by a decline in environmental quality that local communities surrounding the industrial area are now experiencing directly.

The trend of increasing cases of acute respiratory infections (ARI) and pneumonia, particularly among children under five years of age, further indicates worsening air quality associated with industrial activities and airborne dust generated by mining operations. In 2025, 26 cases of pneumonia were recorded, representing an increase compared with previous years. Crowded, humid, and poorly ventilated living conditions in workers' residential areas further heighten the risk of respiratory illness. These developments demonstrate that the impacts of industrialization extend beyond the economy to affect public health directly.

Table 11. Detected Cases of Acute Respiratory Infection (ARI) and Pneumonia

Year	ISPA			Pneumonia		
	<5 Years	5–9 Yaears	Total	<5 Years	5–9 Years	Total
2020	1.203	2.274	3.477	19	2	21
2021	2.548	3.892	6.440	5	2	7
2022	3.473	6.330	9.803	6	0	6
2023	2.632	759	3.391	13	2	15
2024	2.811	1.998	4.809	17	1	18
Agu. 2025	1.795	1.302	3.097	8	18	26

Source: Health Agency of North Maluku Province, 2025

Other diseases, including leprosy and dengue fever, have likewise shown increasing trends. Reported cases of leprosy increased from 40 in 2020 to 96 in 2025, representing the highest prevalence in North Maluku. Similarly, reported dengue cases rose from only 2 cases in 2020 to 31 cases in 2024, some of which included PT IWIP employees.

Table 12. Newly Detected Leprosy Cases

Year	New Cases	Cases Among Children
2020	40	7
2021	41	16
2022	66	12
2023	79	19
2024	70	16
Sep. 2025	96	7

Table 13. Detected Dengue Fever Cases

Year	Cases	Deaths
2020	2	0
2021	6	0
2022	13	0
2023	17	0
2024	31	0
Sep. 2025	24	0

Source: Health Agency of North Maluku Province, 2025

Poor sanitation is also reflected in increasing cases of diarrhea and food poisoning. In 2025, three food poisoning incidents affected 215 people. Although no fatalities were reported, these incidents suggest weaknesses in hygiene monitoring within communal kitchens and workers' canteens. Cases of diarrhea have likewise continued to increase from year to year, indicating water contamination and inadequate wastewater management in densely populated areas. The situation is compounded by limited environmental testing laboratories and shortages of sanitarian kits at local health facilities.

Table 14. Detected Diarrhea Cases

No.	Category	Year					
		2020	2021	2022	2023	2024	2025
1	Children under five			393	591	604	263
2	Children over five			963	1.023	1.278	758

Source: Health Agency of North Maluku Province, 2025

Institutionally, both the Regency and Provincial Health Agencies have coordinated with the company through a memorandum of understanding covering routine medical examinations, health education, and the management of communicable diseases. However, implementation continues to face significant challenges, including shortages of human resources, the limited availability of accredited laboratories, and weak local health surveillance systems. As a result, diseases that were previously under control have begun to re-emerge amid increasing environmental, social, and economic pressures.

The rising incidence of communicable diseases in Central Halmahera Regency over the past five years indicates that rapid industrialization associated with large-scale projects such as PT IWIP has had significant implications for public health. The sharp increases in TB, HIV, ARI, leprosy, and dengue fever are not attributable solely to biological factors but also reflect rapid social and environmental changes occurring alongside the limited preparedness of the local health system. High labor mobility, densely populated settlements, poor sanitation, and weak environmental monitoring have collectively exacerbated public health conditions in communities surrounding the industrial area.

Although both the local government and the company have undertaken initiatives—including the provision of health services, routine medical examinations, and a memorandum of understanding on public health—these measures have not yet proved fully effective because of limited human-resource capacity and inadequate health infrastructure.

3.10 Occupational Safety amid the Machinery of Downstream Industrialization

The surge in nickel investment in North Maluku has not only transformed the

region's economic and ecological landscape but has also created new pressures on workers' safety and well-being. Data from the Labor Agency of North Maluku Province shows that, as of August 2025, the number of occupational accidents in the nickel industry had risen sharply to 504 cases, more than doubling the 214 cases recorded in 2024. Although most incidents were classified as minor, this trend indicates weaknesses in occupational safety systems and regulatory oversight, including within large industrial complexes such as PT IWIP.

Most accidents occurred at infrastructure construction sites, including within IWIP, where workers face long working hours, fatigue, and inadequate on-site supervision. Several fatal incidents involved foreign workers who were struck by heavy equipment. Local workers have also suffered severe injuries, including amputations resulting from accidents in production areas. According to the Labor Agency of the North Maluku Province, occupational safety standards formally exist, but their implementation in the field is frequently neglected. Safety signs and standard operating procedures are often ignored, while supervisory capacity remains insufficient to monitor the thousands of workers dispersed across multiple work sites.

The case of a worker who lost a leg in an occupational accident and subsequently went six months without receiving wages illustrates the vulnerability of workers within the vast industrial structure of PT IWIP. In the absence of formal reports from either the company or the worker, social protection mechanisms, such as those administered by BPJS Ketenagakerjaan (Indonesia's Employment Social Security Agency, failed to function. Only after the Labor Agency of North Maluku Province intervened—following a complaint submitted by the injured worker—did PT IWIP pay the worker's outstanding wages covering the six-month period after the accident, while BPJS Ketenagakerjaan subsequently provided insurance compensation. This pattern suggests that, rather than operating proactively, the protection of workers' basic rights still depends largely on individuals taking the initiative to report violations.

In addition to occupational safety concerns, industrial relations disputes and alleged violations of workers' freedom of association have also emerged. A unilateral memorandum issued by PT RSJ—a contractor of -

PT Harum Sukses Mineral—threatened workers with dismissal if they were absent for a single day, triggering large-scale demonstrations in Sagea. The memorandum was subsequently found to be inconsistent with Indonesian labor law because it removed workers’ procedural rights. Nevertheless, no sanctions were imposed on the company. Instead, disciplinary measures were taken only against four workers who were accused of instigating the protest. This case illustrates the limited capacity of regional mediation mechanisms to compel compliance by large corporations, particularly subcontractors operating within extensive industrial networks such as IWIP and the Tsingshan Group.

At the same time, labor unions within PT IWIP and PT WBN play an important role in advocating for workers’ rights, although their room to operate remains constrained. The Labor Agency of North Maluku Province confirmed that at least seven active labor unions operate within IWIP, yet they continue to face subtle pressure from management and restrictions on workplace activities. As a result, industrial relations within the nickel industrial park remain characterized by an asymmetry of power: corporations retain broad control over labor policies, while state oversight remains largely administrative in nature.

Figure 12. PT IWIP Workers Passing By the Industrial Area in the Late Afternoon



Documented by Rifki Anwar, 2025

Occupational safety is also closely linked to high-risk production practices. According to testimony from one worker employed under the IWIP management structure, companies such as PT Ruby International Mining (PT RIM) routinely transport nickel ore in quantities exceeding the legally permitted carrying capacity of their vehicles. These overloaded trucks must travel along steep mining roads, where excessive loads reportedly contribute to fatal accidents. Three weighbridges are available to measure vehicle loads. However, these weighbridges are manipulated so that overloaded vehicles are treated as if they comply with permitted limits. Under the combined pressures of production efficiency and output targets, worker safety becomes one of the most visible casualties of accelerated downstream industrialization. Heavy-equipment operators involved in accidents are frequently blamed and, in some cases, dismissed—particularly when they are considered to have caused losses to the company exceeding Rp40 million.

In the upper reaches of the Kobe River, mining activities carried out by PT RIM on behalf of PT WBN have exacerbated sedimentation and water contamination. The extensive use of water for washing nickel ore results in sediment-laden runoff entering the river, particularly during the rainy season.

In addition to occupational safety hazards, workers are also exposed to health risks arising from industrial waste. In several slag and tailings processing units, workers have reportedly died under circumstances suspected to be linked to exposure to hazardous substances. To date, however, no open investigation has been conducted by either the company or the government.

Several workers suspect that exposure to toxic substances in the workplace has been a major contributing factor in these illnesses and deaths. One worker described what he believed to be a recurring pattern among employees assigned to waste-processing units. According to his testimony, affected workers typically became ill for several days before they were eventually found dead, giving rise to strong suspicions that hazardous substances were present in the working environment. These accounts affirm that such incidents were not isolated cases but had occurred repeatedly among workers assigned to the same operational units.

These accounts point to serious shortcomings in occupational health and safety oversight within the industrial area, as well as weaknesses in the transparency of investigations into workers' deaths. As a consequence, workers face not only the everyday risks associated with their jobs but also uncertainty regarding the protection of their health and lives.

These conditions reveal a profound paradox at the heart of Indonesia's downstream industrialization agenda. The country is developing a clean energy-based industry for the future, yet its implementation continues to rely on exploitative labor practices, fraught with risk. When workers become victims of occupational accidents, local communities lose their land, and the environment is polluted without accountability, the promise of creating "national value addition" loses much of its social meaning.



CHAPTER IV

COMPLEXITIES OF NICKEL GOVERNANCE AT IWIP



4.1 Central–Regional Authority Gaps in Mining and Environmental Governance

Since the enactment of Law No. 3 of 2020 on the Amendment of Law No. 4 of 2009 on Mineral and Coal Mining and Government Regulation No. 96 of 2021 on the Implementation of Mineral and Coal Mining Business Activities, nearly all mining management authorities have been centralized under the national government. The Ministry of Energy and Mineral Resources is now the sole authority responsible for issuing permits, conducting technical supervision, and providing guidance to mineral mining companies, while industrial zones fall under the jurisdiction of the Ministry of Industry and Trade.

The provincial energy and mineral resources agencies only have authority over non-metallic minerals and quarry/open-pit mines, while in the regions, supervision of metal mines, such as nickel, gold, and cobalt, has been the responsibility of the Mine Inspectorate under the Directorate General of Minerals and Coal which is an extension of the Ministry of Energy and Mineral Resources in the regions. The Provincial Energy and Mineral Resources Agency of the North Maluku Province has not even been granted access to the work plan and budget document, production reports, and the volume of mineral and metal exports data in the regions, resulting in the loss of basic instruments to conduct development and supervision, as such authority no longer falls under its mandate.

Similar conditions exist in the environmental sector, where the environmental agency no longer holds authority, including the authority to develop and supervise PT IWIP as it is a foreign-owned company. This means that the preparation of the environmental impact assessment (amdal) documents, addendum, and environment permits are under the full authority of the Ministry of Environment. According to the Environmental Agency of the North Maluku Province, they are only involved in the environmental impact assessment proceeding to provide input without the right to intervene or have access to police investigation reports and final reports.

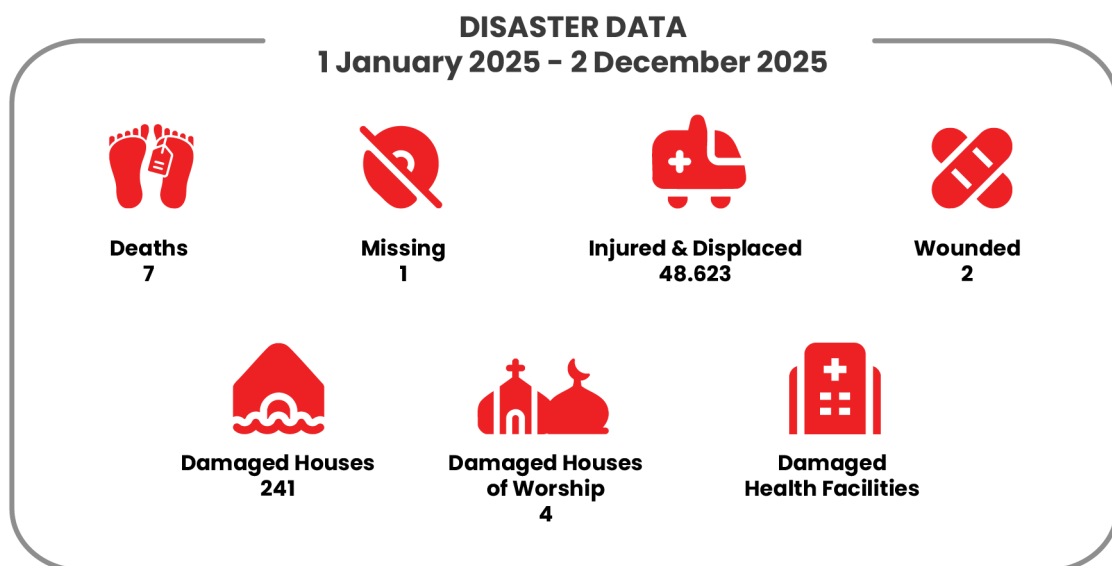
On a number of field visits, the provincial environmental agency can only participate if the team from the central government conduct these visits in the PT IWIP area. The findings of the visit are not shared with regional authorities nor are they informed about the follow-up actions. As a result, -

the regional government loses opportunities for oversight, and this limitation creates a sharp gap between responsibility and authority. On the other hand, each time environmental pollution occurs or when the region is hit by flood assumed to be linked to the nickel mining activities by PT WBN around the PT IWIP area, residents will lodge a complaint with the provincial or regency environmental agency because they are perceived to be the closest government institution. However, the agencies lack the legal mandate to summon, reprimand, or sanction corporations. Consequently, regional authorities can only attempt to calm community anger without the capacity to pursue legal actions. The provincial environmental agency has repeatedly coordinated with the central government to respond to community demands, however, representatives from the central government would arrive only after tensions have subsided.

From a fiscal perspective, inequality is increasingly evident. All mining royalties and nontax state revenues (PNBP) are transferred to the central government, while producing regions, such as North Maluku, only receive revenue-sharing funds (DBH) in the form of lump-sum transfers, without an earmarked allocation for environmental restoration. In 2025, the North Maluku Province received Rp821.62 billion in revenue-sharing funds (DBH), of which Rp601.23 billion—or 73%—came from mineral and coal royalties (DJPK Kemenkeu, 2025). However, due to limited regional fiscal capacity, only Rp45 billion was allocated for the emergency response fund (DTT). Of this amount, the provincial government has utilized approximately Rp7 billion, including for the initial responses to increasingly urgent disaster-related issues. Meanwhile, according to the National Disaster Management Agency (BNPb), a total of 53 disaster events occurred in North Maluku throughout 2025, comprising 42 floods, one landslide, seven instances of extreme weather, two cases of tidal surges and abrasion, and one volcanic eruption. These disasters inflicted both material and nonmaterial losses on the local communities.

Recognizing the immense ecological risks and the high cost of recovery, the North Maluku Provincial Government has requested up to Rp1 trillion in disaster management funds from the central government (Haliyora.id, 2025). This situation demonstrates that, despite North Maluku being the hub for the national nickel industry, the fiscal returns to the region are far from adequate when measured against the scale of socioecological damage it must bear.

Figure 13. The Impact of Natural Disasters on North Maluku



Source: Geoportal Data Bencana Indonesia, 2025 (BNPB), processed

In this situation, the local communities bear the greatest impacts, ranging from social pressures, ecological damage, to land conflicts as a result of extractive industrial expansion. Meanwhile, the regency and provincial governments, as extensions of the state at the local level, are not granted authority or have adequate capacity to prevent, supervise, or control corporate activities. Almost all permit authorizations and revenue management are concentrated in the central government, while the burden of ecological recovery falls on community members. As a result, the central government control permits and income, whereas ecological risks and injustices are left to be endured by the producing regions.

Another major issue in nickel governance in North Maluku is the lack of data transparency between corporations, central government, and regional government. In October 2025, the Energy and Mineral Resources Agency and the Industrial Agency of the North Maluku Province claim that they do not have access to basic information, such as the number of heavy equipment in operation, the volume of surface water being used, and the actual production capacity of the corporations. All this information is retained by the corporations and the ministry, without any transparent reporting accessible to the regional government. Yet, the data, especially concerning heavy equipment, has direct links to the potential for regionally sourced revenue (PAD) through vehicle taxation. The regional government's

efforts to levy heavy equipment taxes and increase income from this sector often fail because corporations restrict access to data. Consequently, regional fiscal resources are limited, while industrial activities continue to expand.

This lack of transparency also affects the distribution of royalties and revenue-sharing funds. Law No. 1 of 2022 on the Relationship between the Central Government and Regional Governments stipulates that revenue-sharing from mineral and coal resources allocates 32% to the producing regencies and cities, and 16% to the province. However, without access to the work plan and budget document, production reports, and proof of nontax state revenue payments, the regency and provincial governments cannot verify whether payments reported by corporations to the central government reflect the actual conditions on the ground. In other words, the regional governments have not only lost their authority but also their fundamental capacity to oversee the industries operating within their own territory.

4.2 The Anomaly of PT WBN's Licensing

The year 2019 marked a critical turning point when PT WBN and PT IWIP began operations in the Weda Bay area of Central Halmahera Regency. Both companies were mandated to develop an integrated nickel industry complex that combines mining activities with refining facilities (smelters) in a single, connected production system. PT IWIP obtained an industrial area permit in Central Halmahera Regency and worked in partnership with PT WBN, a concession permit holder for nickel mining covering 45,065 hectares. The concession area encompasses several villages in Weda Bay— including Sagea, Kiya, Lelilef, Gemaf, and Kobe—villages that are now the epicenter of land conflicts between corporations and local communities.

PT WBN is not a new player. The company was originally established as a joint venture between PT ANTAM Tbk. (a state-owned enterprise holding a 10% stake) and the Eramet Group (a French company holding a 90% stake). Under the 1998 Generation VII Contract of Work, WBN obtained a mining concession covering 76,280 hectares in Weda Bay. Of that total, approximately 72,775 hectares overlap with state forest areas with different functions: Ake Kobe Protection Forest (35,155 hectares), limited production forest (20,210 hectares), permanent production forest (8,886 hectares), and production forest convertible to other uses (8,524 hectares).

The Contract of Work was valid for 30 years and expired in 2018. However, instead of being returned to the state as a State Reserve Area (WPN) in accordance with Law No. 4 of 2009 on Mineral and Coal Mining, the concession was extended through the issuance of a Special Mining Business License (IUPK) pursuant to Ministerial Decree No. 239.K/30/DJB/2019 of the Ministry of Energy and Mineral Resources. With this new permit, PT WBN has once again secured an area of 45,065 hectares, valid until 2048.

From a regulatory perspective, the mechanism for granting the Special Mining Business License to PT WBN presents a number of irregularities. Article 169 (b) of Law No. 4 of 2009 stipulates that all Contracts of Work agreements were required to be aligned with the new provisions within one year of the Law's entry into force—which is by 2010. This implies that, upon the expiration of its contract term, PT WBN was not entitled to an automatic license extension, and its entire concession area should have been returned to the state to be designated as a State Reserved Area.

Under subsequent procedures, the government—through the Ministry of Energy and Mineral Resources, Ministry of Environment and Forestry, the House of Representatives (DPR), and the regional government—is obligated to conduct a feasibility assessment to determine whether the area is qualified to be designated as a State Reserve Area. If deemed feasible, then the area can be auctioned as a WIUP. This auction mechanism prioritizes national corporations over private companies, while nonauction options are reserved exclusively for state-owned enterprises (BUMN) and regionally-owned enterprises (BUMD).

Furthermore, Article 83(b) of the Mineral and Coal Mining Law limits the maximum production operation area that can be granted to a winning bidder to 25,000 hectares. In reality, however, PT WBN secured a Special Mining Business License covering 45,065 hectares—nearly double the limit stipulated by law. This fact indicates a violation of the fundamental mining governance principles enshrined in the law and highlights weak law enforcement amidst a surge of investment that continues to diminish the living space of the Sawai people in the Weda Bay area and its surroundings.

Table 15. Legal Analysis of PT WBN's Mining Permit Based on Law No. 4 of 2009 on Mineral and Coal Mining

Aspects	Stipulations in Law No. 4 of 2009	Facts in th PT WBN Case	Analysis and Potential Violations
Contract Duration	Article 169 (a) states that: Existing contract of works shall remain in effect until the expiration of their term, after which the area shall be returned to the state.	PT WBN's work contract was valid until 2018, but afterward, PT WBN immediately obtained a new Special Mining Business License (IUPK) Area in 2019 without the process of returning the area to the state.	It potentially violates the transition mechanism, as the concession area should first be returned to the WPN category.
Contract adjustment in accordance with the Mineral and Coal Mining Law	Article 169 (b) states that: Contract adjustments must be carried out no later than one year after the issuance of the Law (by January 2010 at the latest).	New adjustments were made in February 2013 through an amendment to the Contract of Work.	It failed to meet the deadline stipulated in Article 169 (b), as it was delayed by three years. Furthermore, an amendment mechanism is not provided for in Law No. 4 of 2009 on Mineral and Coal Mining.
Mechanism for transition to an IUPK	Articles 28–33 states that: Once the area is returned, the process requires a feasibility assessment by the Ministry of Energy and Mineral Resources (ESDM), the Ministry of Environment (KLH), the Regional House of Representatives (DPRD), and academics before it can be designated as a Mining Business License Area (WIUP) or an IUPK.	There were no official publications regarding the review process or an open tender for the PT WBN area, as the territory was directly returned to PT WBN following the expiration of the Contract of Work.	It potentially violates administrative procedures and the principle of transparency in the granting of the IUPK.
Area boundaries for the IUPK Production Operations	Article 83 (2) states that: The maximum area of an IUPK for production operations is 25,000 hectares.	PT WBN's 2019 IUPK covers an area of 45,065 hectares.	Exceeding the maximum area limit permitted by law, this is a substantive violation of Article 83, paragraph (2).
Period granted for IUPK Production Operations	Article 83 (g) states that: IUPK for production operations may be granted for a maximum period of 20 years and may be extended twice, for 10 years each time.	The IUPK for PT WBN was granted in 2019 for a concession previously operating for 20 years under a Contract of Work (1998–2018).	There is a potential violation of contract extension provisions due to non-compliance with the time limit rules—specifically the 20-year term plus two extensions—as stipulated in Law No. 4 of 2009 on Mineral and Coal Mining; the arrangement should not have been a direct 30-year extension.

Aspects	Stipulations in Law No. 4 of 2009	Facts in th PT WBN Case	Analysis and Potential Violations
Obligation to increase the value addition of mineral and/or coal resources through domestic mining, processing, and refining operations	Articles 102–103 states that: Holders of a IUPK are required to conduct processing and refining domestically. Article 170 states that: Holders of Contract of Work that have commenced production are required to carry out refining as referred to in Article 103 no later than five years after the enactment of this Law, or by 2014	PT WBN only fulfilled this obligation after its integration with PT IWIP in 2018–2019.	Fulfillment of this obligation was delayed beyond the scheduled timeframe; Articles 102–103 were not fully complied with.

Source: Law No. 4 of 2009 on Mineral and Coal Mining, processed

The extension of PT WBN’s permit did not happen automatically, it resulted from a renegotiation between the company and the Indonesian government—a mechanism that does not exist under Law No. 4 of 2009 on Mineral and Coal Mining. Within the national law framework, every Contract of Work that has expired is not extended through direct negotiation but is returned to the state to be re-designated as a State Reserve Area and is subsequently auctioned as a Mining Business License Area. Thus, this renegotiation is a compromise between the government and the corporation to sustain PT WBN’s operation at Weda Bay.

The renegotiation discussed six strategic issues as documented in the Minutes of Discussion on the Amendment to the Contract of Work signed in Jakarta on February 4, 2013. Of the six issues discussed, four points were agreed upon by both parties. First, the adjustment of the size of area, which is a reconfiguration of the concession boundaries to align with the national spatial planning policy. Second, the re-establishment of the production operation period to ensure continued investment for the company. Third, the obligation to process and refine mining output domestically, in line with the national policy of mineral downstreaming. Fourth, the requirement of increasing the recruitment of local workers, the use of domestic goods, and the involvement of national mining service companies within the PT WBN’s supply chain (Tantan, 2013).

The documents resulting from the discussions were signed by the Director General of Minerals and Coal at the Ministry of Energy and Mineral Resources, Thamrin Sihite, and the President Director of PT WBN, Alain Bernard Henri Giraud. The event was witnessed by various officials and representatives from strategic companies, including the Deputy Minister of Energy and Mineral Resources, Susilo Siswoutomo; the Director of Development of PT ANTAM Tbk., Tato Miraza; PT WBN's Corporate General Manager, Pierre Noyer; PT WBN's External Relations General Manager, Yudhi Santoso; Mitsubishi's Chief Representative for Indonesia, Masayuki Mizuno; and a delegation from the Eramet Group.

The next year, on October 17, 2014, the outcome of the renegotiation was formally amended through the signing of a memorandum of understanding (MoU) between PT WBN and the Government of Indonesia (ESDM, 2014). This amendment provided the legal foundation for the continuation of WBN's operations in Weda Bay, preceding an issuance of a Special Mining Business License in 2019.

Although presented as an adjustment to national policy, the renegotiating process raises many questions. From a mining governance perspective, the government's measures reflect a compromising stance toward the interests of large investments, particularly those involving multinational corporations such as Eramet and Mitsubishi. From a normative standpoint, renegotiation mechanisms are not stipulated in Law No. 4 of 2009 on Mineral and Coal Mining, rendering the legality of WBN's permit extension controversial.

WBN's permit extension does not only demonstrate an administrative compromise but also the influence of elite interests in determining the direction of mineral resources policies in Indonesia. The renegotiation held outside the legal mechanism becomes a forum for the convergence of the interests of multinational corporations, central government officials, and national economic actors with access to political power. Through the issuance of a new permit, WBN secured legitimacy to continue its operations and paved the way for the development of an integrated industrial zone under PT IWIP. This configuration of interests has transformed Weda Bay into an arena of global strategic investment but at the same time shifted the ecological and social spatial arrangements of the Sawai ethnic group residing in Weda Bay and its surroundings.

4.3 Diversion of the Ake Sake River, Evidence of Weak Governance

One striking example of weak environmental governance in PT IWIP's operations is the case of the diversion of the Ake Sake River's flow for downstreaming purposes—an action that exceeded the national regulation. The action was justified as a measure to adjust to the spatial planning of the industrial area under PT IWIP. However, the Environmental Agency of North Maluku revealed that facts on the ground show that the diversion of the river's flow has already been carried out before any recommendations were issued and prior to the granting of a technical permit for river flow diversion by the Ministry of Public Works and Housing (PUPR).

On December 17, 2020, PT IWIP submitted a letter to the Ministry of Public Works and Housing requesting permission to divert the flow of the Ake Sake River. The letter numbered 170/PTIWIP-YC/LO/12/20 contained a formal request to alter the river's course. However, before receiving an answer from the Ministry, PT IWIP had already diverted the river's flow for up to two kilometers—without authorization. A reply from the central government was sent by the Ministry on May 10, 2021. Through a letter signed by the Director General of Water Resources, Jarod Widyoko, the Ministry rejected PT IWIP's request. This letter also affirmed the findings of the River Basin Agency (Balai Wilayah Sungai (BWS)) of North Maluku in Technical Recommendation No. SA.03/BWS-MU/62/2021, which reveals that field inspection on February 10, 2021, confirmed that the diversion of Ake Sake River's flow had already taken place prior to PT IWIP obtaining a formal approval (Nuansamalut.com, 2022).

The Ake Sake River was one of the water sources for the surrounding communities, before mining activities and PT IWIP's operations began in Weda Bay. However, after the area was incorporated into the company's concession, the river's flow was diverted and repurposed as a channel for waste discharge from nickel processing facilities which then flows into the ocean (Belseran, 2022). The Environmental Agency of North Maluku Province reported that this diversion was carried out without adequate planning of the water pathways. As a result, during the rainy season, the altered flow triggers extensive flooding in the surrounding areas. In such event, the rapid surge of water even submerged the project's heavy equipment belonging to the companies.

Diverting the river's flow without formal authorization contradicts the precautionary principle of environmental management that requires assessments and permits prior implementation. The Environmental Agency and the River Basin Agency of North Maluku Province protested these actions because the diversion process did not undertake adequate technical and environmental assessments. However, their capacity to intervene is limited as their authority was removed by the central government, particularly in connection with Ake Sake River, which is part of PT IWIPs' industrial zone. In practice, the role of the Environmental Agency of North Maluku Province has been reduced to merely accompanying the parties involved, without having access to technical documents and impact assessments that should be the basis for oversight.

4.4 Data Inconsistencies and Potential State Losses

In December 2024, Commission VII of the House of Representatives conducted a working visit to the PT IWIP industrial area in Central Halmahera Regency. During the visit, the representatives found indications of data manipulation regarding the capacity of nickel ore production, suggesting actual output may have potentially exceeded the quotas stipulated in the work plan and budget.

In October 2025, an interview with Sugeng Suparwoto, Deputy Head of Commission XII of the House of Representatives—responsible for the energy and mineral resources, environmental, and investment sectors—revealed a number of fundamental problems in the management of mines within the PT IWIP area, operated by PT WBN. Sugeng acknowledged that operational practices of both companies remain far from meeting transparency and accountability principles.

There were several key findings, one of which revealed that the nickel ore weighing equipment had not been functioning and had not been for years. During this period, the companies took no measures to replace the equipment. The condition was further worsened by the absence of surveyors to verify the grade and volume of the nickel ore produced. Consequently, production data is inaccurate and suspectable to manipulation. In addition, approximately 70% of nickel was sold through direct land distribution, while about 30% was shipped by sea. The sea route could be monitored through the Office of Harbormaster and Port Authority which records incoming and outgoing vessel activities but there was no -

oversight of distribution by land, as no formal institutions monitor the movement of nickel ore outside the port area.

The absence of a credible monitoring system has led to discrepancies in information between the companies' reported nickel ore production capacity and the government's official record, particularly in determining royalties and documenting mining output. According to the House of Representatives, such practices could result in significant losses for the state, as government revenue relies on the accuracy of companies' reported data on nickel volume and grade. This situation illustrates weak state control over the governance of large-scale mining industries under projects designated as national strategic projects.

The issue is further complicated by ineffective coordination between monitoring institutions. The House of Representatives holds only monitoring and reporting functions, while the authority to act on violations lies with the Ministry of Energy and Mineral Resources, Ministry of Environment, Ministry of Industry and Trade, and law enforcers. This condition led to overlapping authority and weak institutional synergy, resulting in inadequate law enforcement on the ground.

4.5 Administrative Noncompliance

Based on data from the Industry and Trade Agency of North Maluku Province, at least 52 tenant companies under PT IWIP are engaged in nickel processing. However, data from the National Industry Information System (SIINAS) , only lists 39 tenants.

Of these 39 tenants, seven have not yet submitted periodic reports, and three others do not yet have SIINAS accounts. This situation indicates ongoing noncompliance with the provisions of Law No. 3 of 2014 on Industry and Minister of Industry Regulation No. 13 of 2025, which require all industrial actors to report their business activities through the system. The details of the 39 companies operating at IWIP as of July 25, 2025, are as follows.

Table 16. List of PT IWIP Tenants

No.	Company	SINAS Status
1.	PT Lipe Metal Industry	Reported
2.	PT Jadebay Metal Industry	Reported
3.	PT Jaya Metal Industry	Reported
4.	PT Jiaman New Energy	Reported
5.	PT Jiu Long Metal Industry	Reported
6.	PT Kao Rahai Smelters	Reported
7.	PT Kemajuan Aluminium Industry	Not yet reported
8.	PT Lancon Metal Industry	Reported
9.	PT Langit Metal Industry	Has not made an account
10.	PT Maluku Utara Metal Industry	Reported
11.	PT Nicole Metal Industry	Reported
12.	PT Infei Metal Industry	Reported
13.	PT Huaxiang Refining Indonesia	Reported
14.	PT Eternal Nickel Industry	Reported
15.	PT Guang Ching Nickel Cobalt	Not yet reported
16.	PT Guang Tsing Halmahera Nickel	Not yet reported
17.	PT Huafei Nickel Cobalt	Reported
18.	PT Huake Nickel Indonesia	Reported
19.	PT Huaneng New Material	Reported
20.	PT Debonair Nickel Indonesia	Reported
21.	PT Cosan Metal Industry	Reported
22.	PT Blue Sparking Energy	Reported
23.	PT Lin Victor Metal Industry	Reported
24.	PT Sunny Metal Industry	Reported
25.	PT Perkasa Metal Industry	Reported
26.	PT Bumi Semen Indonesia	Not yet reported
27.	PT Angel Nickel Industry	Reported
28.	PT Andalan Metal Industry	Reported

No.	Nama Perusahaan	Status SINAS
29.	PT Universe Smelter Metal Industry	Reported
30.	PT Walhsu Metal Industry	Reported
31.	PT Weda Bay Nickel	Not yet reported
32.	PT Westrong Metal Industry	Reported
33.	PT XCMG Manufacturing Indonesia	Not yet reported
34.	PT Yashi Indonesia Investment	Has not made an account
35.	PT Youshan Nickel Indonesia	Reported
36.	PT Rept Battero Indonesia	Reported
37.	PT. Makmur Oksigen Indonesia	Not yet reported
38.	PT. Pelita Industri Indonesia	Has not made an account
39.	PT XCMG Indonesia Manufacturing	Reported

Source: Industry and Trade Agency (Disperindag) of North Maluku Province, as of 25 July 2025

Data inconsistencies between the condition on the field and SIINAS official records are not mere technicalities or administrative oversight. This clearly demonstrates poor governance as well as weak accountability within the national nickel industry. When strategic industry data —such as the number of tenants, production capacity, investment value, heavy equipment, workforce, and waste management—are inconsistent, all processes of supervision, policy evaluation, as well as environmental and social protection, will not function optimally.

On the other hand, SIINAS is not merely a system of online reporting but a national strategic database which should guarantee transparency and policy integration across institutions, from the Ministry of Industry, Ministry of Investment/BKPM, Ministry of Energy and Mineral Resources. Ministry of Environment, to regional governments. When data within these institutions is inaccurate or outdated, industrial transparency becomes mere jargon, meanwhile implementation in the field proceeds without adequate public oversight.

Furthermore, data discrepancies reveal a pattern of systematic intransparency in the management of industrial zones: companies tend to conceal strategic information to safeguard investment interests. Consequently, the public is denied access to basic data that serves as the –

foundation of social and environmental monitoring. Therefore, this is not an issue of administrative failure, but a logical consequence of centralized economic power and information concentrated in the hands of a small group of industrial and bureaucratic actors.

At the local level, regional governments are frequently overwhelmed by this situation. Some government agencies have issued official reprimands, but such measures rarely elicit responses from companies because of strong political and economic backing by influential actors. This condition affirms the power imbalance between local authorities and large capital interest. Regional governments are only at the receiving side of the impact without having any real control over industrial activities. As a result, public monitoring is effectively incapacitated and transparency is just a formality on paper, while industrial practices continue in the field without clear accountability.

4.6 Pollution Risks from the Use of Nickel Slag and Coal Ash (FABA) from Power Plants

Since the issuance of Government Regulation No. 22 of 2021 on the Implementation of Environmental Protection Management (particularly Attachment XIV), nickel slag and coal ash (FABA) from power plants have been officially omitted from the list of hazardous and toxic waste (B3). This regulation fundamentally changes the way coal and smelter industries manage their production residues.

Under the previous regulation, namely Government Regulation No. 101 of 2014 on the Management of Hazardous and Toxic Waste, slag was classified as hazardous waste (B3) because it potentially contains heavy metals such as chromium (Cr), nickel (Ni), mercury (Hg), and arsenic (As) (Kementerian Pekerjaan Umum, 2021). The same applies to FABA; when it interacts with water, a number of toxic elements within it can dissolve and gradually leach into the environment. Substances that may leach include arsenic, boron, cadmium, hexavalent chromium, lead, mercury, radium, selenium, and thallium. These elements are known to be carcinogenic, neurotoxic, and highly dangerous to humans, fish, aquatic biota, and other wildlife (Wicaksono, 2021). Because of its toxic nature, uncontrolled leaching of FABA can contaminate groundwater, rivers, and coastal ecosystems in the long term. Given these risks, the management of nickel slag and FABA from power plants must be carried out under special permits, with enclosed storage and strict monitoring to prevent pollution.

Figure 14. Coastal Reclamation and Nickel Transport Vessels in Weda Bay, IWIP



Documented by Rifki Anwar, 2025

However, under the new regulation, namely Government Regulation No. 22/2021, both nickel slag and FABA from power plants may now be utilized as construction materials, road embankments, reclamation fill, and land infill. The condition for using these two materials is that they must be declared safe through characteristic testing by an accredited laboratory and receive approval from the Ministry of Environment.

However, this regulatory shift has created ambiguity in monitoring. Many mining and smelter companies have used slag and FABA on a massive scale without transparent public oversight. PT IWIP is one example. The company has employed nickel slag and FABA in the construction of airports, internal roads, industrial land reclamation projects, and building materials. Although such practices are legal, to date there have been no credible government publications of environmental assessments measuring the cumulative and long-term impacts of heavy metal residues on soil quality, groundwater, and air around the IWIP area.

In addition, the absence of regional government authority to request laboratory data or technical evaluations makes it difficult to verify the results of slag and FABA usage tests. Institutions such as the Environmental Agency of North Maluku Province also lack the authority to enter the IWIP -

industrial zone to assess or examine the feasibility of waste utilization. When accompanying central government representatives during visits to the IWIP zone, their role is limited to technical support. They have no access to official reports or documentation regarding the testing and use of slag and FABA.

This lack of transparency risks undermining the environmental monitoring system, as the regional government has no baseline data to track changes in soil quality, water, and air resulting from industrial waste usage at PT IWIP. Meanwhile, the central government—which holds authority over the industrial zone—is geographically distant from the affected area. Consequently, local communities are the ones directly dealing with contamination risks and environmental changes. The absence of a proximate decision-making authority in the field—namely the central government—renders responses not commensurate with the urgency of the damage due to informational gaps in monitoring and the geographical distance across islands.

This situation illustrates how nickel and FABA are utilized within the IWIP industrial zone amid the lack of information and weak monitoring access. If these industrial activities continue without control mechanisms and transparency, the use of industrial waste will not only generate environmental uncertainty but also leave local communities most vulnerable to bearing the long-term consequences. Without governance reform and data transparency, the use of slag and FABA will potentially worsen environmental damages rather than contribute to sustainability.

4.7 The Urgency of Implementing Environmental, Social, and Governance Standards

As mining business unit, particularly within the PT WBN structure, Eramet emphasizes its commitment to sustainable mining practices, including the adoption of internationally recognized standards such as the Initiative for Responsible Mining Assurance (IRMA). In 2022, Eramet and Tsingshan agreed to prepare PT WBN for auditing processes under IRMA standards and established a new office in Jakarta as a long-term commitment to exploring and developing opportunities that support Indonesia's economic growth and accelerate its energy transition.

Eramet subsequently developed a new partnership with the Ministry of Energy and Mineral Resources through the Geological Body to strengthen -

Indonesia's electric vehicle ecosystem, including research collaborations to assess the domestic potential of lithium as a step to further develop critical mineral. In 2025, Eramet signed an MoU with Daya Anagata Nusantara Investment Management Agency (Danantara Indonesia) and Indonesia Investment Authority (INA) to explore the establishment of a strategic investment platform in the nickel sector.

The urgency to implement environmental, social, and governance (ESG) principles has intensified alongside growing global attention to the importance of sustainable supply chains. Mining and mineral processing companies are faced with demands to not only produce competitive goods, but to also ensure operations that are environmentally friendly, respectful of community rights, and governed with transparency. The failure to meet these standards risks restricted access to international markets, which have been increasingly stricter in selecting suppliers.

In practice, many global buyers rely on international standards as credible references. One of these standards is IRMA, which is widely recognized by mineral and metal buyers worldwide. IRMA provides an independent auditing framework to assess how mining operations fulfill environmental, social, and governance aspects.

Presently, IRMA applies Standard 1.0, which focuses on setting ESG benchmarks for mining companies—covering more than 400 indicators organized into 26 chapters and four main pillars. To broaden its scope, IRMA is now updating Standard 1.0 into Standard 2.0, which is targeted for completion by the end of 2025 and scheduled to take effect on January 1, 2026. The new standard expands the audit coverage beyond mining companies to include integrated smelters. This means that companies registering with IRMA after ratification will be assessed under a more comprehensive framework aligned with global market demands.

In Indonesia, particularly within the IWIP area, PT WBN mining company has committed to registering as a member of IRMA in 2020. However, today, the company is still held up at the self-assessment stage. This means that the process towards full audit has yet to be achieved and consequently, its operational status cannot be independently verified. This situation is in contrast with other mining companies, such as Vale and Harita, which have only been registered in September 2024, but within a few months have -

successfully completed their self-assessment and are preparing for audit.

The uneven progress among these mining companies demonstrates that PT WBN and its operational networks continue to face serious challenges in meeting sustainable standards required under IRMA. The slow process of self-assessment indicates that many environmental, social, and governance aspects remain insufficiently prepared for independent evaluation. In addition, auditing under IRMA extends beyond document reviews; it also examines field practices, which include community involvement, protection of workers' rights, public safety, waste management, and biodiversity impacts.

Findings from civil society groups, academic reports, and community complaints in recent years—from river contamination, land conflicts, to the absence of a free, prior, and informed consent mechanism—indicate that PT WBN still needs to address many aspects before it can be recognized as meeting international sustainability standards. Insufficient readiness for independent auditing under IRMA means that many issues are left without external verification that could ensure improvements have truly been achieved.

Thus, the slow progress of auditing under IRMA is not merely an administrative issue but an important indicator that PT WBN's environmental and social governance remains far from meeting the expectations of the global market. Falling behind amid growing international demand for meeting environmental and social governance standards potentially poses a serious obstacle to Indonesia's future sustainable nickel chain supply. These challenges highlight that the nickel produced by PT IWIP and supplied by PT WBN continues to fall short of established environmental, social, and governance standards.

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