Leading The Charge



Pioneering Indonesia's Battery Industry

PT Trimegah Bangun Persada Tbk







Copyright 2023 PT Trimegah Bangun Persada Tbk

Disclaimer

This Report contains PT Trimegah Bangun Persada Tbk (the "Company"), its subsidiaries' and associated companies' business activities and operation performance, production process, strategies and further plans. Such forward looking statements are subject to know and unknown risks (prospective), uncertainties, and other factors that could cause actual results to differ materially from expected results and not the giving any advice. Prospective statements in this report are prepared bases on numerous assumptions concerning current conditions and future events of the Company, its subsidiaries' and associated companies' business environment in which the Company conducts its business. Every effort is made by the Company to ensure the accuracy and completeness of information contained. However, the Company shall have no obligation to guarantee that the presented forward looking statements will bring specific results as expected, takes no responsibility and assumes no liability for any error/ omission or accuracy of the information contained in this Report. Recipients of this material should rely on their own judgments and conclusions from relevant sources before making any decision including but not limited to decision of investment. Past performance is not a guide for future performance.

Subsequently, you may not use this Report for any other purpose. However, you may reproduce data and information in this Report subject to the following conditions:

- i. any disclaimers that appear in this Report shall be retained in their original form and applied to the data and information reproduced from this Report;
- ii. the data and information shall not be modified from its original form; and $% \left(1\right) =\left(1\right) \left(1\right) =\left(1\right) \left(1\right) \left$
- iii. The reproduction shall not be represented as an official version of the materials reproduced, nor as having been made in affiliation with or with the endorsement of the Company, its subsidiaries' and associated companies.

Limitation of Liability: caveats to limits of liability; interpretation of limits of liability; no liability for force majeure; no liability for business losses; no liability for loss of data or software; no liability for consequential loss; aggregate liability cap under document.

Contents

01	Nickel from Obi
02	Essential nickel
03	Clean production
04	Nickel extraction
05	Value addition
06	Responsible operations
07	Protecting biodiversity
80	Innovative waste management
09	Water resources
10	Decarbonisation
11	A positive legacy
12	Transparency
13	Contact us

Nickel from Obi

Trimegah Bangun Persada (TBP) operates one of the world's most important integrated nickel and cobalt mining and refining projects.
Strategically located on Obi Island, TBP responsibly transforms natural resources into prosperity by delivering products essential for a sustainable future.

TBP and its subsidiaries operate a range of facilities, including:

- Limonite and saprolite mining activities
- Rotary kiln electric furnace (RKEF) smelters producing ferronickel
- High pressure acid leach (HPAL) plants, producing mixed hydroxide precipitate
- Refinery, producing nickel sulfate (operating) and cobalt sulfate (under construction)
- Infrastructure, including power plants, ports and roads



Essential nickel

Nickel occurs naturally in soil and water, and is also an essential nutrient for plants. TBP's suite of products are essential for our planet's present and future.

Nickel is sought after because of its outstanding physical and chemical properties, which make it essential in thousands of products used around the world every day. Today, its biggest use is in alloying to produce stainless and heat-resisting steels. For our future, as the world transitions to renewable energy, nickel will be increasingly used in batteries, including those for electric vehicles.

UN Sustainabile Development Goals

Although often hidden, nickel plays a key role in many technologies needed to achieve the UN Sustainable Development Goals. For example, nickel-containing stainless steel plays a vital role in the manufacture of advanced medicines as well as medical devices and equipment.













Nickel enhances the ability of stainless steel to withstand repeated sterilization while remaining strong and resistant to corrosion, giving costly instruments a long lifespan without loss of quality, essential to sustainable development goal number 3, 6, 9, 11 and 12. In relation to goal number 7, nickel is a key component in batteries, wind turbines, solar cells, bio energy plant and equipment as well as carbon capture and storage and nuclear power. Without nickel, there can be no transition to a renewable future.

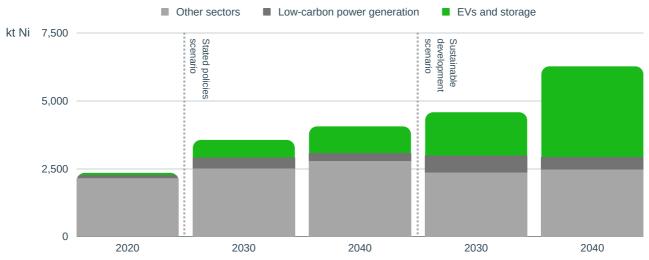
Economic impact

Nickel production plays a major role in the economy. Under Indonesia's value-adding policy, nickel has become a key export, leading to a trade surplus in 2022. In practice, this means Indonesia, as a whole, is becoming wealthier, leading to greater overall prosperity for all.

TBP plays a major contributing role to this. As of the start of 2023, TBP has installed production capacity to produce over 120,000 tonnes of nickel per year, with a further 36,000 tonnes due for completion in 2023.

This production leads to significant benefits at the national and local level. TBP's value adding investments have led to a major increase in gross regional product for the South Halmahera Regency, which grew from IDR 6,300 billion in 2018 to over IDR 14,300 billion in 2022.

Global nickel demand



IEA, Total nickel demand by sector and scenario, 2020-2040, Paris

Clean production

Over the past decade, TBP has played a pioneering role in Indonesia's value-adding journey. In alignment with the government's minerals policy, TBP leveraged its position as a prominent nickel mining company to establish one of Indonesia's first modern RKEF plants. Additionally, TBP went on to develop Indonesia's first HPAL plant, providing nickel for the production of electric vehicles.



RKEF Technology

TBP selected RKEF technology for its first project, which commenced operation in 2017. RKEF technology was the most appropriate technology for this initial investment, as it was a proven technology that was and still is the most efficient mode of producing nickel for use in stainless steel. The product, ferronickel, is an alloy of iron and nickel, which are the key ingredients of stainless steel.

The market conditions at the time of this initial investment supported RKEF technology, due to the strong demand for ferronickel for stainless steel, and the availability of saprolite ore in the TBP license areas.

This provided strong cashflow for TBP to expand the plant and consider additional investments to suit the emerging market trends.

HPAL Technology

For its second investment, TBP selected HPAL technology. This allowed TBP to produce mixed hydroxide precipitate (MHP), which is used to make electric vehicle battery chemicals.

HPAL technology is a more energy-efficient technology, and thereby has a lower carbon intensity than RKEF technology.

It also uses a lower grade ore, known as limonite, which allows the ore body to be more efficiently utilized. This means that more nickel can be produced within a given footprint, lowering the overall impact of the mine.

Production process

Mining

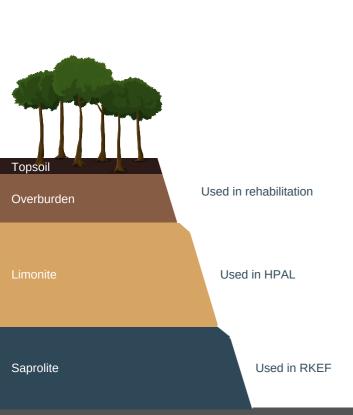
TBP mines lateritic nickel ore, which lies relatively close to the surface. The ore is found in two distinct layers, known as limonite and saprolite.

Prior to TBP's HPAL development, all mines in Indonesia targeted only the saprolite layer, which is suitable for processing through RKEF technology. The limonite layer had to be removed to access the saprolite beneath.

Since TBP's pioneering development of a HPAL plant, the limonite layer can now be utilized. This means that more nickel can be produced for the same footprint, which reduces the environmental burden of production.

This also supports the government goals of conserving mineral resources and reducing waste and emissions.

75%
additional nickel recovery per ha, by utilizing limonite





RKEF Processing

RKEF stands for Rotary Kiln-Electric Furnace, which is a technology used to extract ferronickel from saprolite. Ferronickel is an alloy made by combining nickel and iron, and it is used in the production of stainless steel.

The RKEF process involves several steps. First, the saprolite is placed into a dryer to reduce the moisture content. Then, the dried saprolite is mixed with a reductant in a reduction kiln, which is a large, rotating cylinder that heats the material to a high temperature. Inside the kiln, the mixture undergoes a process called reduction, where the reductant reacts with the oxygen, preparing the mixture for the next stage in the process, which occurs in the electric furnace.

In the electric furnace, the mixture is further heated and melted to a temperature at which it melts. The furnace uses electrodes to generate an electric current, which melts the mixture and allows the heavier nickel and iron to sink to the bottom. The nickel and iron is then refined to remove any impurities, and the resulting ferronickel is poured into molds to cool and solidify.

TBP has designed its RKEF to be energy efficient. Waste heat from stacks is recycled to reduce the consumption of fossil fuels and reduce carbon emissions.

RKEF technology has emerged as the most efficient and cost-effective way to extract ferronickel from laterite ores for use in stainless steel production.

HPAL Processing

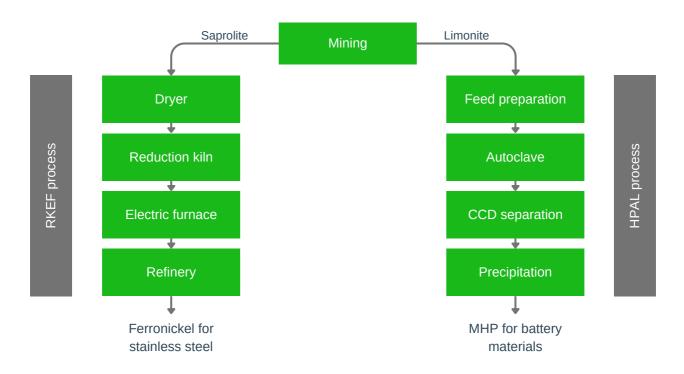
HPAL, which stands for High Pressure Acid Leaching, is a technology used to extract nickel and cobalt from laterite ores to produce a mixed hydroxide precipitate (MHP). MHP is a value-added nickel and cobalt product that can be further processed to produce battery chemicals for use in electric vehicles.

The HPAL process involves several steps. First, the laterite ore is screened and mixed with water, and then pumped to a high-pressure vessel called an autoclave. In the autoclave, sulfuric acid is added and the mixture is heated to a high temperature and pressure, which allows the acid to dissolve the nickel and cobalt from the limonite ore.

Impurities such as iron and magnesium are not dissolved in the acid, and instead they remain in the residue which is separated by gravity.

The nickel- and cobalt-rich solution is then cooled and neutralized with an alkaline solution to precipitate the nickel and cobalt as a mixed hydroxide precipitate. The MHP is then filtered and washed to remove any remaining impurities.

TBP was the first company to develop and operate HPAL technology in Indonesia. This groundbreaking technology is able to produce nickel and cobalt in a form suitable for use in battery chemicals, which are essential for the transition to a renewable future. The process also generates lower emissions, with a much lower carbon footprint compared to RKEF technology.

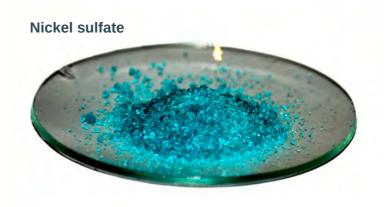


Further value adding

TBP has recently commissioned a refinery to process the MHP to produce two higher value products, nickel sulfate and cobalt sulfate. This is Indonesia's first sulfate plant, which is a major milestone for the nation's efforts to establish a complete battery chemicals supply chain.

To produce the nickel sulfate and cobalt sulfate, the MHP is refined to eliminate impurities.

The MHP is dissolved in dilute sulphuric acid and the resulting solution is purified using a process known as solvent extraction. The nickel sulfate and cobalt sulfate solutions are then cooled and converted into crystals using a crystallizer.





TBP has produced Indonesia's first nickel sulfate for EV batteries

Responsible operations

As a home-grown Indonesian company, TBP aims to provide a positive contribution to the nation. This is demonstrated through the company's value-adding investments that have been made in response to the government's minerals value-adding policy.

Yet TBP's commitment goes beyond value-adding investments. Responsible production is at the core of TBP's operating philosophy. TBP's mission statement centers on sustainable excellence. This means that TBP puts sustainability considerations into all decisions and actions, and at all phases of development.

This is done from the conceptual planning stage through to closure, by following a systematic approach that considers environmental, social, and economic factors.

In the planning phase, TBP considers the impact of operations on the environment, local communities, and the economy through the environmental and social impact assessment process. This identifies potential

risks and opportunities and includes development of strategies to minimize negative impacts and maximize positive ones.

During exploration and construction, TBP employs efforts to minimize its impact on the environment and local communities by using environmentally friendly exploration methods and sustainable construction practices. This includes engagement with local communities to ensure that their rights are respected, and working with contractors to maximize construction opportunities.

In the operations phase, TBP follows good mining practices to minimize its environmental footprint and maximize the benefits for local communities.

With a long-term view, TBP is also actively planning for the eventual closure of mining operations, to ensure a smooth transition of the local economies and long term positive impact on biodiversity.



Protecting biodiversity









Biodiversity protection is a foundational principle of TBP's mine planning process. TBP recognizes the high value biodiversity in the vicinity of its operational areas, and employs best practices to avoid and mitigate impacts.

Biodiversity protection is a key part of TBP's environmental and social impact assessment process. Habitat management planning is one key output of this process.

TBP always seeks to minimize the area of land disturbed for its activities. This requires careful mine planning to design mines and infrastructure with minimal footprint. As one of Indonesia's first mining operations to produce nickel from limonite ore, TBP has been a leader in this space, producing more nickel per hectare than most other laterite mining companies, alongside its consistent focus on ore quality and quantity.

The forest is quickly restored after mining

As the mining area progresses, TBP immediately restores the land to its original forested state. This is done as quickly as possible to minimize the duration of its mining impact.

TBP has one of Indonesia's best mine rehabilitation programs. As soon as practical after mining is completed, the mined out area is rehabilitated. This restored the forest cover, in accordance with the original land use.





Innovative waste management

TBP produces two main forms of waste. Nickel slag is produced from the RKEF plant, while the waste from the HPAL plant is known as dry tails. TBP has been at the forefront of innovation in the management of both slag and tailings in Indonesia.

Nickel slag

TBP has undertaken extensive tests to demonstrate the inert nature of its slag. This means that the slag is stable and does not leach harmful metals, and complies with government requirements.

TBP has been a leading voice for the responsible management of slag from nickel facilities, and has

contributed with evidence and benchmarking studies to raise awareness of the inert nature of slag and its beneficial uses. This resulted in the Indonesian Government designating slag as a by-product under its waste rules.

TBP has also pioneered the use of slag and waste ash from its power plant to produce high quality building blocks for local construction. After a lengthy research and development phase, TBP has commenced production of these blocks for use in local construction projects. TBP has also undertaken trials to explore the use of slag in the construction of box culverts, shoreline armoring, and structures for artificial reefs.





Dry tails

Tailings management is a key issue in the mining industry. TBP has pioneered the use of dry stacking of its HPAL waste, becoming Indonesia's first company to use this method. This is widely considered to be the safest form of tailings storage, due to the stability of the structure. This is especially important in the high rainfall and seismically active region in which TBP operates.

TBP's dried stack is located in a mined out area that is backfilled with dry tails. All water from the tails area is collected and treated to meet regulatory limits. When full, the stack will be capped and revegetated back to its original forest cover to reduce risks to the environment.

Considering land availability and the complexity of tailings handling over larger distances, for the next phase, TBP will develop a tailings storage facility (TSF). This option was chosen after careful consideration of various factors, including the safe delivery of tailings over longer distances, and to reduce the operational risks of tailings management. This was done in consultation with relevant stakeholders, including local communities and government authorities.

The new tailings dam is designed to meet international standards, including the Australian National Committee on Large Dams (ANCOLD) and International Committee on large Dams (ICOLD), to ensure the highest level of safety design. The design is subject to a thorough review by the Indonesian Dam Safety Commission, which includes an international review. To provide for dam safety, as well as environment and infrastructure protection, TBP is also evaluating the new Global Industry Standard on Tailings Management (GISTM), and where appropriate will adopt these principles in the design and operation of the TSF.

TBP's dry stack is an industryleading method for safely storing tailings

Water management

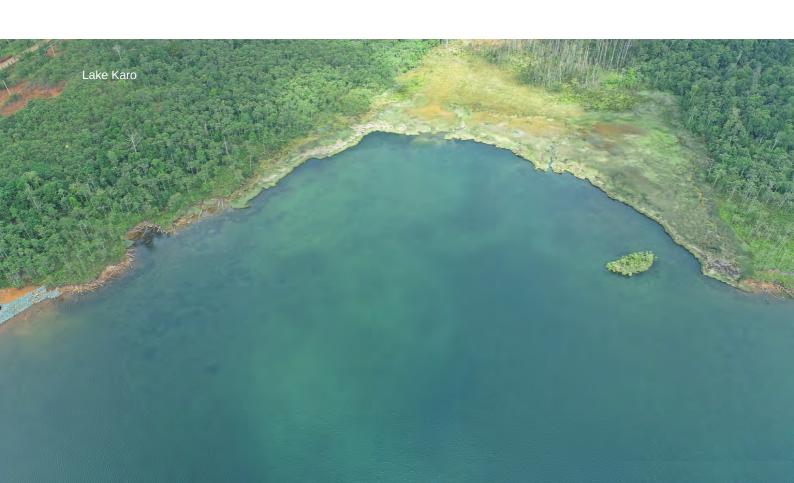
As a major operator on Obi Island, TBP recognizes the critical role it plays in managing water usage to support its operations and to protect the needs of the local community. TBP's approach to water resource management goes beyond legal compliance, and includes a range of actions in line with the UN sustainable development goal number 6.

To ensure responsible water management in the operating region, the quantity and quality of water availability are thoroughly assessed, taking into consideration the needs of other users in the catchment. This involves consulting the water usage data from environmental agencies and direct community consultation. Based on these analyses and feasibility assessments, TBP works with the local authorities to obtain necessary permissions for water usage and effluent discharge.

A clean water source is essential for the reliable operation of TBP's HPAL plant. TBP obtains this fresh water from Lake Karo, which is in the northern portion of TBP's operating area. TBP's intake volumes are limited to ensure a sustainable rate of usage, which preserves the environmental flows in and from the lake.

A portion of the wastewater from the HPAL plant is recycled within the process. This reduces the volume of water extracted from Lake Karo, and reduces the amount of wastewater discharged to the environment.

Water usage is carefully managed



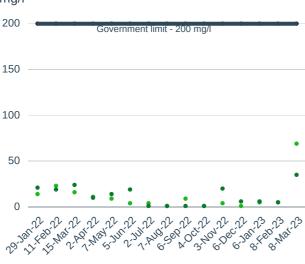


The water monitoring program was developed during the environmental assessment phase, and was approved by the relevant government authorities. This program involves daily & monthly monitoring of all water discharges from the operational area.

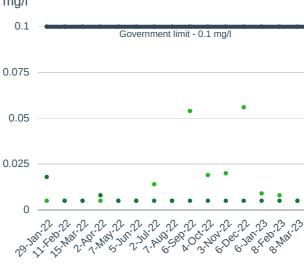
Water discharges must comply with strict government criteria. TBP's monitoring data transparently demonstrates compliance, providing confirmation that the water management actions are effective.

Water monitoring shows that all parameters, including the important TSS and chromium levels, are consistently within government limits.





Hexavalent chromium (Cr6+) mg/l





Low emissions technology

TBP's technological advances have led to significant reductions in carbon emissions.

TBP's initial RKEF investment, which commenced operations in 2018, provided an appropriate entry to the nickel supply sector, taking into account available technology and market conditions at that time. The carbon emission intensity of that investment was around 75 tonnes of carbon dioxide equivalent per tonne of nickel in ferronickel produced (t CO2e per t Ni).

Since that time, TBP has made critical investments to reduce carbon emissions. TBP's second RKEF development, which was commissioned in 2022, uses a range of energy efficiency improvements, such as the use of gasified coal. It is expected that this will reduce the carbon emission intensity of the new RKEF. Quantifiable reductions will be available by early 2024, once the plant has reached steady operations.

TBP's HPAL development uses a low energy and low emissions technology, making it Indonesia's lowest-emission nickel, alongside the other HPAL plants that have been built after TBP's breakthrough investment. The carbon emission intensity from the HPAL plant is just 10 t CO2e per t Ni, significantly lower than all previously built nickel plants in Indonesia.

TBP's HPAL plant produces low carbon nickel



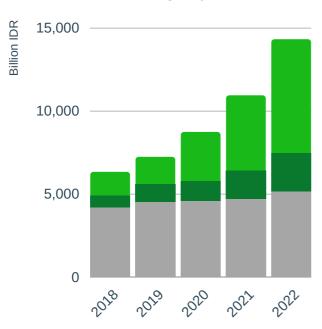
A positive legacy

TBP understands the importance of building positive relationships with the local community, and is committed to creating a lasting legacy in the region

To achieve this goal, TBP works closely with local stakeholders to understand their needs and priorities. The company also engages in open and transparent communication to ensure that the community and other stakeholders are informed about company activities and has a say in the decision-making process. TBP recognizes that their success is intertwined with the well-being of the community and is dedicated to supporting local initiatives that promote economic and social development. By fostering strong partnerships and contributing to the local economy, TBP aims to build a positive legacy that benefits both the company and the community for years to come.

Gross regional domestic product

Halmahera Selatan Regency



Ave. annual economic growth 23%

TBP's investments have been one of the driving forces in the Indonesian economy, opening up the path for Indonesia's end-to-end electric vehicle battery industry. At the local level, TBP's value adding investments have led to a major increase in gross regional product for the South Halmahera Regency, which grew from IDR 6,300 billion in 2018 to over IDR 14,300 billion in 2022.

This regional growth has led to a significant increase in employment in Obi Island. TBP and its subsidiaries and associated companies alone have over 13,000, making it a top-20 employer on the Indonesian Stock Exchange. Furthermore, TBP's activities lead to significant indirect employment opportunities, which potentially provide livelihoods to over 50,000 families in the region, based on internal company estimates.

Community development & empowerment

To ensure the local communities are in a good position to take full advantage of the regional economic growth, TBP administers a community development and empowerment program.

TBP focuses on five pillars of community development and empowerment: education, health, economic development, social culture, and infrastructure development. By investing in these five pillars, TBP aims to support local communities to achieve their goals, while fostering long term resilience.



Education

TBP provides a range of programs in the field of education. The company provides scholarships to local students to study at the Labuha Agricultural School.

TBP has also provided direct educational activities to over 800 students, and provides support to over 50 local teachers.

Jobs created through community programs

570+

The community development and empowerment program has been recognized by stakeholders. Most recently, TBP received four awards in the Corporate Social Responsibility (CSR) and Sustainable Village Development (PDB) Awards 2023. The event was organized by the Ministry of Villages, Development of Disadvantaged Regions and Transmigration (PDTT) in collaboration with the Indonesia Social Sustainability Forum (ISSF). TBP received three Gold Awards for its programs and one Silver Award in an individual category.

TBP provides a suite of support for economic empowerment, including the construction of an integrated agriculture facility.



Community engagement

As a major operator in the region, TBP understands that its activities have the potential for significant influence on local communities. Consequently, TBP understands the importance of engaging with the local community in the decision-making process.

This engagement process commences during the planning stage and includes a structured approach that adheres to the regulations set forth by the Indonesian environmental and social assessment process. TBP also engages the local community outside this regulated framework, and holds formal and informal meetings to gather feedback.

TBP has established a formal grievance mechanism to ensure that any community concerns are properly addressed. There is also a whistleblowing mechanism for any concerns with corporate governance.

To monitor its performance, TBP measures community satisfaction through regular surveys. In 2021, TBP achieved a Community Satisfaction Index score of 82.60, which is within the "good" category for community support.



TBP has strict policies and procedures to respect human rights

Human rights

Respecting human rights is important to the sustainable operation of TBP's business. TBP understands its potential to directly impact, contribute to or be linked to human rights impacts on people through its operations and relationships with business partners stakeholders.

TBP respects internationally recognised human rights as set out in the Universal Declaration on Human Rights. TBP also ensures full compliance with the applicable laws and regulations of Indonesia, and operates in a manner consistent with the United Nations (UN) Guiding Principles on Business and Human Rights and the 10 UN Global Compact Principles.

As a significant producer of cobalt, TBP is aware of the importance of respecting human rights, including the use of child labor, which has been found in other cobalt mining regions around the world. While these problems are not present in the regulated Indonesian mining sector, TBP maintains strong policies to prevent human rights issues within its business entities and contractors.

TBP strictly prohibits, and is committed to taking strict and measurable action against any form of human rights violations, including but not limited to:

- · The use of underage workers
- · All forms of forced labor
- · All forms of human trafficking
- All forms of discrimination based on differences in religion, ethnic group, gender, and language, as well as disabilities
- All forms of violence, sexual harassment/harassment, bullying, or intimidation between workers, work partners, stakeholders, and parties related to the TBP's operations.

TBP follows the following principles in recruitment:

- No recruitment of underage children.
 Each applicant must be at least 18 (eighteen) years of age.
- · Recruitment is free of charge.
- The company does not cooperate with any travel agency.
- Announcements regarding job vacancy information are only through the TBP's official information channel.

Safety

TBP's highest priority is the safety of its workforce and nearby communities.

TBP's occupational health and safety management systems are certified under ISO 45001. This system has two areas of focus:

Compliance to mining safety rules and regulations

- Mineral mining safety management system compliance & internal audit
- Employee training
- · Competence testing
- · Workplace inspection and hygiene

Risk-based control program through global standards approach

- Implementation of an integrated HSE management system
- Implementation of process safety approaches (HAZOPS, HAZID, PSSR)
- · Covid-19 examination and screening
- Emergency training through the involvement of the local community

In 2022, TBP's total recordable injury frequency (TRIF) performance improved by 11% for employees, and by 20% for contractors. This improvement reflects the continued emphasis on training, including contractor training. While TBP continues to seek continuous improvement, the statistics indicate that TBP's safety performance is on par with leading mining companies around the world.

TRIF	2020	2021	2022
Employees	1.39	3.12	2.77
Contractors	4.65	6.54	5.15





Transparency

Transparency is a critical component of any successful business. As it progresses to be a globally significant producer of batter metals, TBP recognizes the significance of transparency now more than ever.

Having listed as a public company in 2023, and having experienced rapid growth in recent years, TBP understands that stakeholders expect it to be open and honest in its operations. To meet this expectation, TBP is implementing changes to increase transparency across all areas of its business. This includes providing clear and comprehensive financial reporting, and annual disclosures on sustainability and governance metrics. This commitment to transparency is a key part of the company's ongoing efforts to build trust with stakeholders and ensure the long-term success of its business.

Acknowledgements

Written by

Klaus Oberbauer Tonny H Gultom Muharwan Syaroni Sian Choo Lim Dicky Nugraha

Independent reviews



Steven BrownResponsible mining and metals expert

TBP demonstrates its position as a leader in responsible nickel production in Indonesia. The company is leading the Indonesian industry in low emissions technologies and value-adding production. It has the systems in place to continuously improve its performance, in line with growing stakeholder expectations.



Eric Wakker PT Inovasi Digital

This report provides a crystal-clear description of TBP's operations that are well-managed. It offers essential baseline information, and it thereby addresses various misconceptions about the company's operations. As such, this report offers an excellent starting point for stakeholder engagement.



Fachruddin Tukuboya ST.MM Head of Environment Office (DLH) North Maluku Province

This report shows TBP's commitment in maintaining its responsible operations. The company ensures the principles of health and safety as well as sustainability are well integrated into the entire business operations. This report is also developed to communicate with stakeholders, allowing them to understand and evaluate the performance on Environment, Social, and Governance (ESG) areas. Proactively engaging the stakeholders throughout the process and making sure there are measurable impacts we can monitor from the operation is also an essential part of the company's sustainable-mining practices.



Ir. Irwan Iskandar, S.T, M.T, Ph.D. Institute Teknologi Bandung

As a leading HPAL technology company in Indonesia, the company has implemented good mining practices, including managing tailings and water properly and can be a role model in this business. The important key in mining sustainability is environmental management that does not only comply with quality standard parameters, but also how mining management pays attention to local wisdom and post mine development in the future.



Dr. Ir. Irdika Mansur M.For Head of Advanced Research Laboratory Unit at IPB University

This report gives a clear yet comprehensive report on TBP's business activities and its continuous improvement on the mining operation to ore processing, environmental impact management, social responsibility, and governance. From this report, stakeholders would find a strong commitment of the company to regulation.

Contact us

Trimegah Bangun Persada

Gedung Bank Panin Lt. 2

Jalan Jendral Sudirman Kav. 1

Jakarta Pusat 10270

Site Location:

Desa Kawasi, Kecamatan Obi, Kabupaten Halmahera Selatan, Provinsi Maluku Utara,

Indonesia

Phone: 021-572-2924

Email: investor.relations@haritanickel.com

Website: https://tbpnickel.com/