



Our Commitment to Environmental Management

ICMM principles:

Environmental Performance | Conservation of Biodiversity

Responsible Production



We express our commitment to environmental management through a declaration to achieve Net Zero Emission in scopes 1 and 2 by 2050, in line with the Paris Agreement. The nickel plant we operate in Sorowako has a carbon intensity of 27.30 Ton CO₂eq/Ton Ni, making PT Vale the company with the lowest carbon intensity in Indonesia. In addition, PT Vale started testing electric cars and trucks in Sorowako on January 14 and August 4, 2022.

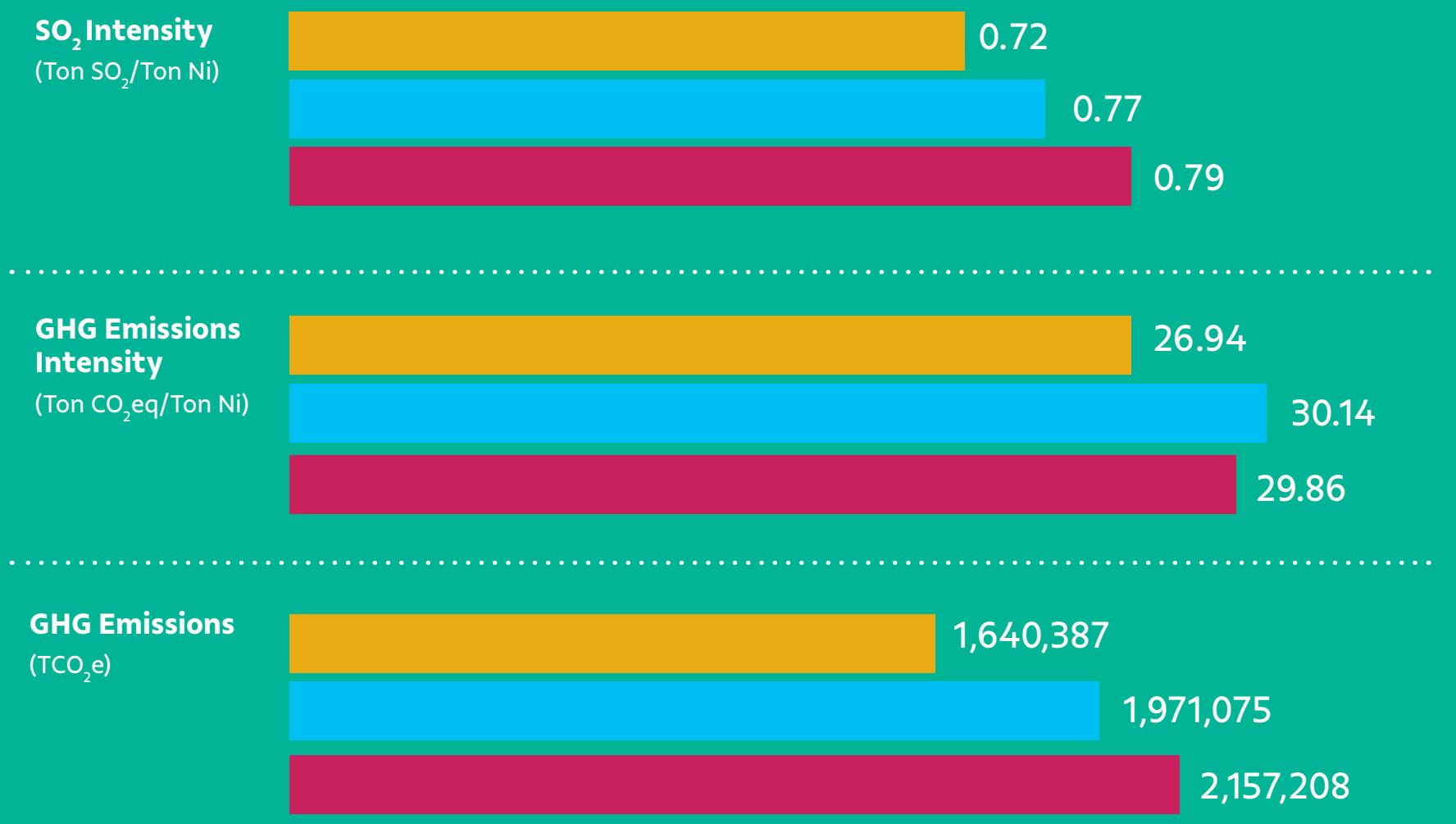
PT Vale has been progressively reclaiming post-mining land, targeting the reclamation of 70% of the total area by 2025, and rehabilitating watersheds. The area of land rehabilitated until the end of 2022 is 10,280 hectares, comprising 10,000 hectares outside the operational area and 295.5 hectares within the operational area. We also planted 3.7 million trees, including endemic species.

Environmental Sustainability Performance Highlights [POJK51-B.2]

› PROPER Achievement



› Emission Control Performance [POJK51-2.b.2]



› Energy Usage

Description	Unit	2022	2021	2020
Energy Usage	GigaJoule	26,689,441	28,551,417	30,628,679
Energy Intensity	GigaJoule/Ton Ni	444.2	436.6	424.00
HSFO Usage Intensity	Barrel/Ton Ni	23,75	19,85	18,15
Coal Usage Intensity	Ton/Ton Ni	5.00	5.79	5.94
HSD Usage Intensity	Liter/Ton Ni	994.11	1,094.92	1,083.64
Gasoline Usage Intensity	Liter/Ton Ni	3.27	1.69	3.55
Power (hydroelectric and thermal power plants) Usage Intensity	MWh/Ton Ni	36.82	35.85	33.88

› Waste Management Performance

Description	Unit	2022	2021	2020
Non-Industrial Domestic Waste Generated	Ton	670	1,001	1,880
Non-Industrial Domestic Waste Segregated	%	15.23	10.17	7.03
Industrial Non-Hazardous Waste	Ton	13,792	8,721	7,651

› Land and Biodiversity Management Performance

Description	Unit	2022	2021	2020
Rehabilitated Land Area		295.43	283.74	176.24
Accumulated Area of Rehabilitated and Reclaimed Land	Ha	3,500.22	3,249.11	3,012.44
Total Trees Planted	Trees/Ha	179,993	219,595	104,333
Local Tree Type	Trees	49,242	10,761	31,837
Endemic Tree Type	Trees	17,631	22,206	11,140

› Renewable Energy Usage

Description	Unit	2022	2021	2020
Hydroelectric Power Plants	Unit	3	3	3
	MW	365	365	365
Biodiesel B30	Liter	17,579,105	20,844,892	23,152,568



Our Commitment to Community Development (Social)

ICMM principles:

Human Rights Social Performances
Stakeholder Engagement Health and Safety



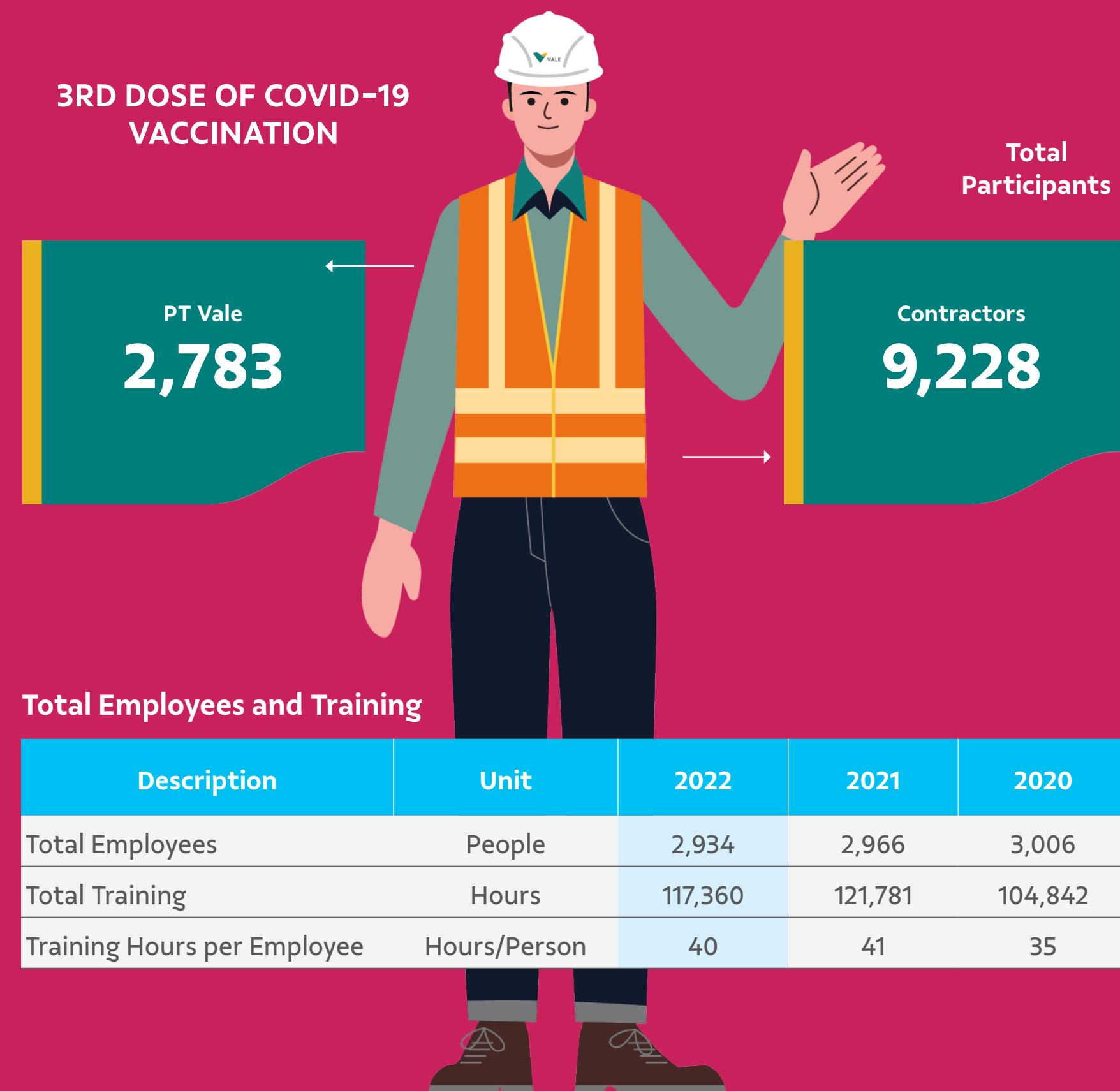
Since its establishment, PT Vale has been committed to benefitting community members in its working areas. The company has contracted 11,000 local people, either as employees or suppliers/partners, 87% of which come from East Luwu Regency and other areas in South Sulawesi.

To improve the quality of our human resources, we facilitated several of our employees to take an engineering study program at various universities, including the University of Hasanuddin. In addition, PT Vale facilitated and encouraged the relevant employees to get a professional engineering certificate and an engineering registration certificate from the Indonesian Engineer Association. PT Vale also established the Academy Teknik Sorowako (Sorowako Technical Academy), from which 1,516 people have graduated.

We contributed 44% to the Gross Regional Domestic Product of East Luwu Regency, the largest in the mining sector. Our support for the local economy can also be seen from the transfer of the Sorowako Airport to the provincial government of South Sulawesi through the signing of a deed releasing the Sorowako Airport between the President Director of PT Vale Indonesian Tbk and the Governor of South Sulawesi on May 12, 2022. Sorowako Airport management by the provincial government is expected to support tourism and agribusiness in East Luwu and South Sulawesi in general.

Social Sustainability Performance Highlights [POJK51-B.3]

› Support for COVID-19 Pandemic Control



› Occupational Health, Safety, and Environment

Description	Unit	2022	2021	2020
Employee OHS Training	Hours	71	64	48
Recordable Injury Frequency Rate	%	0.68	0.70	0.51
Safe Working	Hours	14,182,199	5,006,592	9,571,366
Lost Work Days	Days	6,009	170	38
Environment Training	Hours	24	136	120

› Integrated Community Empowerment and Development Program

Description	Unit	2022	2021	2020
Number of Programs/Activities	Units	82	54	28
Total Funds	Million USD	4.9	2.6	4.1
Estimated Number of Beneficiaries	Villages	38	38	38
	Individuals	15,540	43,205	21,000

Donations and Assistance

Additional Donations Beyond the Integrated Community Empowerment and Development Program	Thousand USD	938*	39	79
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*Sorowako and Bahodopi Blocks



Our Commitment to Sustainability Governance

[EM-MM-000.A]

ICMM principles:

Ethical Business Decision Making Risk Management



PT Vale places great importance on regulatory compliance in every activity aspect and conducts assessments of all development projects' environmental, social, and governance (ESG) aspects, referring to ICMM and IFC related to carbon footprint, mine closure, indigenous peoples, and biodiversity management. To implement the operational plan in Bahodopi, we organized a public consultation and environmental impact assessment on July 29, 2022. We carried out the activity per Government Regulation No. 22/2021 on Environmental Protection and Management.

During the public consultation, we confirmed our commitment to implementing sustainable mining practices according to the Minister of Energy and Mineral Resources Regulation No. 26 of 2018 concerning the implementation of good mining practices and mineral and coal mining supervision. PT Vale also applies the principles in the International Council on Mining Metals (ICMM) Sustainable Development Framework.

Sustainability Governance Performance Highlights

Description	Unit	2022	2021	2020
Nickel Ore Production Performance and Volume				
Nickel in Matte Production	Ton	60,090	65,388	72,237
Ore:				
• Proven Ore Reserves	Million Tons (DKP)	62,0	65,7	61,9
• Probable Ore Reserves		46,9	42,1	41,4
Economic Performance [POJK51-B.1]				
Nickel in Matte Sale	Ton	60,960	66,515	72,846
Revenue		1,179,452	953,174	764,744
Total Economic Value Distribution	Thousand USD	1,047,489	842,205	730,410
Total Economic Value Retained		142,654	113,683	38,806
Net Profit		200.40	165.78	82.92
Involvement of Local Suppliers				
Number of Local Suppliers	Unit	301	295	295
Eco-Friendly Products [POJK51-F.5]				
Power Generated from Hydroelectric Power Plants	MW	365	365	365

Violation Reporting Handled Through Vale Whistleblower Channel (VWC)

Description	2022	2021	2020
Number of Allegations Received	27	33	74
Percentage of Valid Allegations	20	28	74
Number of Allegations Followed Up	74%	85%	99%



CEO Message

[POJK51-D.1][2-22a]

Febriany Eddy

CEO and President Director



"We hope that the support provided will continue, and the cooperation that has been built will get even better to lead PT Vale to realize its ambition to become a pioneer of sustainable mining practices in Indonesia and even the world."

Dear stakeholders,

The current global dynamics emphasize environmental and social aspects to mitigate risks and support sustainable economic performance. Taking on our commitment to embed a culture of sustainability, we constantly improve our best sustainability practices. Entering 2022, PT Vale Indonesia Tbk, as part of Vale S.A., began to adopt sustainable mine management principles based on the International Council of Mining and Metals (ICMM) Sustainable Development Framework.

We carry out every company activity by referring to the Sustainable Mine Management Principles and ensure related parties' activities comply with the same principles and initiative. By complying with the principles and initiative, we seek to ensure that our mineral (nickel) products are the results of responsible production processes. In this way, we can continue to meet demands for sustainable nickel, support global economic decarbonization, and contribute to achieve the Sustainable Development Goals (SDGs).

The Company's efforts to be sustainable in 2022 faced formidable challenges, including stakeholders' different

perceptions about and interests in their sustainability performance delivery. Another challenge was the limitation that the Company had in applying all methods of calculation and documentation to manage the negative impact of operations. Two solutions we were continuously working on were improving communications and training and monitoring calculation data recording to be the basis for performance evaluation. Another challenge we faced was the Furnace#4 Rebuild, leading to a decrease in the production number compared to the previous year.

Dear stakeholders,

We recorded positive achievements in environmental, social, governance, and economic management in 2022. Overall, the total GHG emissions up to 2022 have cumulatively decreased by 373,563 tons of CO₂eq, from the 2017 baseline of 2,013,950 tons of CO₂eq. This achievement is still in the projected net zero emission roadmap which will be gradually implemented at PT Vale. However, we also recorded that there are fluctuations in the volume of GHG emissions every year, influenced by the proportion of fuel used in operations and the amount of production. We rehabilitated transboundary land and forests outside our mining operation areas in 13 South Sulawesi districts

and three West Java districts. During our operations for more than 50 years, we have protected Lakes Matano, Mahalona, and Towuti from pollution resulting from the impacts of our mining operations and our nickel in matte production.

The same is true for our health sustainability performance. While fostering employment relations, we keep promoting to increase employee awareness about gender equality and diversity following our Diversity and Inclusion Charter. In occupational health and safety (OHS), PT Vale implements the Mineral and Coal Mining Safety System (SMKP Minerba) and has audited our compliance with the mining safety system and IMS—Environment Health and Safety Management System, with a compliance rate of 70.24% in 2022 as a result, lower than that in 2021, which was 75.18%. However, we also note that we should have managed our OHS performance better because there was a fatal incident involving a contractor or work partner in this reporting period. This incident left deep sorrow for PT Vale, as for us safety is everything. As a follow-up, PT Vale has implemented a complete safety stand down for all lines of operations. Besides, PT Vale has also cooperated with the international consultant to investigate the case and has improved occupational safety in all workshops involving tires.

We manage our social impacts by building synergy with the local governments and contributing to regional economic development. In 2022, PT Vale still implemented the Integrated Community Empowerment and Development Program (PPM) covering the Sorowako, Bahodopi, and Pomalaa Blocks with the funding support of US\$6,381,165. PT Vale transferred the Sorowako Airport to the provincial

government of South Sulawesi in this reporting period. The airport is now a public airport under the provincial government's management. It is expected to support tourism in the province, particularly in East Luwu. We continuously opened dialogues with the local communities native to our operational areas to find the best solution to some differences that were our shared concerns. Our sincerity in managing our social impacts earned support from the communities, local governments, and other stakeholders, leading to the Company's smooth activities without significant upheavals in 2022.

We put sustainable governance into practice to support our sustainable operations, which in turn will increase stakeholders' trust. We place importance on legal compliance based on business ethics, prompting us to take our actions responsibly, honestly, confidently, respectfully, and loyally. As a form of compliance, PT Vale implemented several activities in this reporting period, including a public consultation on the environmental impact assessment of the plan to produce nickel ore in Blocks 2 and 3 in Bahodopi, according to Government Regulation No. 22/2021 on Environmental Protection and Management. Stakeholders from the district government of Morowali in Central Sulawesi and representatives from the Ministry of Environment and Forestry and the Ministry of Energy and Mineral Resources attended the public consultation.

Despite the decrease in nickel production, the Company was able to optimize the economic value generated from nickel in matte sales to U\$1,179,452 thousand, growing 23.7% from 2021 which reached US\$953,174 thousand. This achievement was also supported by a commitment to managing ESG during

2022, which was carried out among others through energy efficiency, implementation of occupational safety and health (OSH), and regulatory compliance. PT Vale also supports transparency and Indonesia's EITI reporting. Moreover, during the reporting period, PT Vale contributed US\$179,020 thousand in tax and non-tax state revenue payments to the state, a 58% increase from US\$113,080 thousand in 2021.

Dear stakeholders,

Our adoption of ISO 31000:2018, ISO 55001:2014, and COSO-ERM on Risk and Asset Management in managing risks contributed to the achievement of PT Vale's sustainability performance in 2022. One of our focuses in sustainability risk management is climate change, which we manage by referring to the Task Force on Climate-Related Financial Disclosure (TCFD). We set a Roadmap Towards Carbon Neutral 2050, with energy efficiency and optimized use of renewable energy as the short-term target, 33% absolute emission reductions from scopes 1 and 2 as the mid-term target for 2030, and carbon neutral (net zero emission) as the long-term target for 2050 or 10 years earlier than Indonesia's target.

PT Vale always involves the community in managing the risks of all activities that we will carry out. We should be grateful because no work was delayed due to rejection from the community or other non-technical factors in 2022. It confirms that PT Vale carried out all operational activities responsibly and by considering the community. In this reporting period, the Company realized cooperation in constructing a ferronickel processing plant in Bahodopi, a High-Pressure Acid Leaching (HPAL) facility Pomalaa and Sorowako.



The HPAL projects have provided us with opportunities to improve our contribution to the joint effort to reduce GHG emissions. The plant and facilities were built using eco-friendly technology by gradually using liquefied natural gas (LNG) for power generation to supply energy to reduction furnaces, making them low emissions. In a projection prepared by an expert team, the ferronickel processing facility in Bahodopi will be Indonesia's second plant with the lowest emission intensity in 2030 after the nickel-in-matte processing plant in Sorowako with an estimated 38 tCO₂e/tNi. Additionally, the carbon emission intensity of the HPAL facility. Another contribution comes from processed nickel products from each processing facility, which will be a vital commodity in the energy transition, particularly in building renewable infrastructure and supporting electrification through electric vehicles. Increased demand for nickel will lead to PT Vale's positive financial performance in the coming years.

Indeed, we are aware that our commitment to implementing best practices faces external local, national, and global dynamics. One of them is the various standards for sustainability performance evaluation and initiatives to support ESG management. We are responding to it by trying to gradually comply with the

various standards – including the International Council on Mining and Metals (ICMM), ISO 26000, and Sustainable Development Goals (SDGs) – and the existing initiatives while still taking into account our investors' needs. In 2022 PT Vale has conducted an ESG gap assessment and prepared a 5 year roadmap based on these standards. We ensure that our investors have comprehensive information about PT Vale's sustainability practices.

Dear stakeholders,

Concluding this message, we would like to thank all stakeholders for supporting PT Vale's sustainability practices. We hope that the support will continue and the established cooperation will be better to lead us in realizing our ambition to pioneer sustainable mining practices in Indonesia and even the world.

Jakarta, April 2023

Febriany Eddy
CEO and President Director

Board of Commissioners' and Board of Directors' Statement of Responsibility for the PT Vale Indonesia Tbk 2022 Sustainability Report

We, the undersigned,
hereby declare that all
information contained in the
PT Vale Indonesia Tbk 2022
Sustainability Report has
been presented in its entirety,
and that we assume full
responsibility for the accuracy
of the report based on POJK 51/
POJK.03/2017.

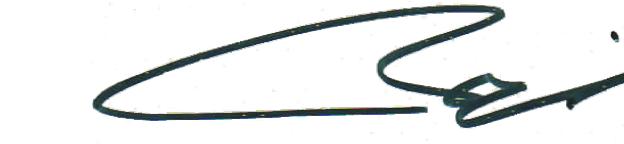
This statement is hereby made
in all integrity.

Board of Directors



FEBRIANY EDDY

President Director



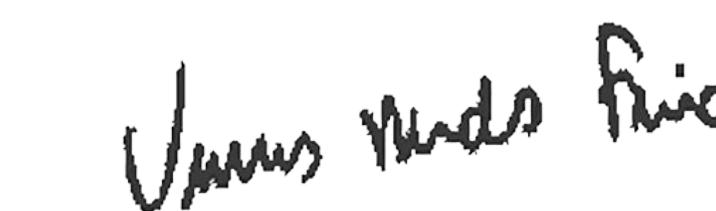
ADRIANSYAH CHANIAGO

Vice President Director



BERNARDUS IRMANTO

Director



VINICIUS MENDES FERREIRA

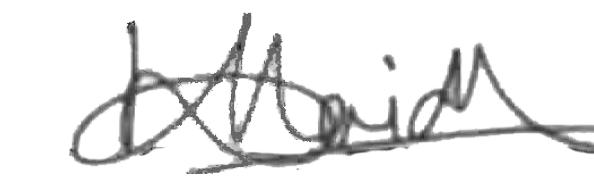
Director

Board of Commissioners' and Board of Directors' Statement of Responsibility for the PT Vale Indonesia Tbk 2022 Sustainability Report

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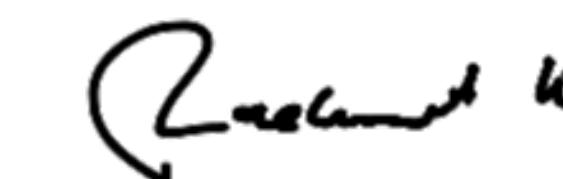
This statement is hereby made
in all integrity.

Board of Commissioners



DESHNEE NAIDOO

President Commissioner



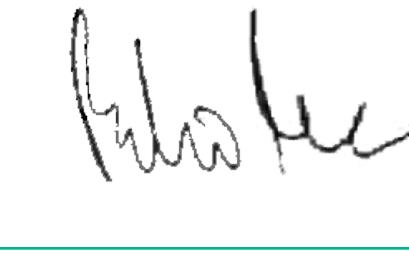
MUHAMMAD RACHMAT KAIMUDDIN

Vice President Commissioner



GUSTAVO GARAVAGLIA

Commissioner



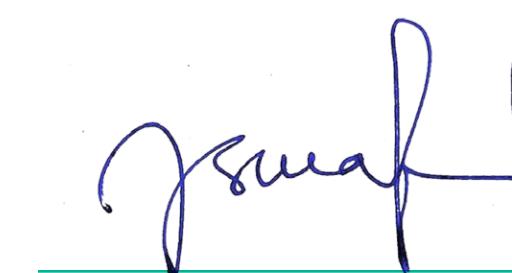
FABIO FERRAZ

Commissioner



YUSUKE NIWA

Commissioner



M. JASMAN PANJAITAN

Commissioner



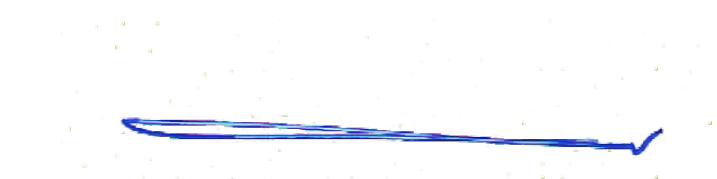
FARRAH CARRIM

Commissioner



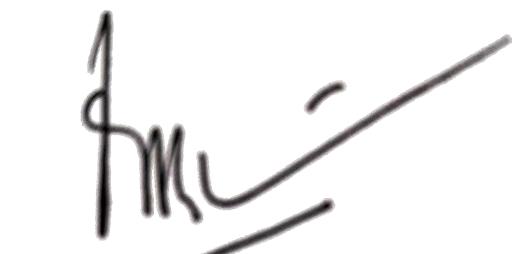
RADEN SUKHYAR

Independent Commissioner



RUDIANTARA

Independent Commissioner



DWIA ARIES TINA PULUBUHU

Independent Commissioner

About PT Vale Indonesia Tbk

Company Name and Locations [POJK51-C.2]

Company Name [2-1a]

Legal Name: PT Vale Indonesia Tbk

Known as: PT Vale

Head Office Address [2-1c]

Sequis Tower, 20th Floor, Unit 6 & 7

Jl. Jend. Sudirman Kav. 71 Jakarta 12190, Indonesia

Phone: +62-21 5249000

Fax: +62-21 5249020

Website: <https://vale.com/indonesia>

Email: ptvcommunications@vale.com

Representative Office

Makassar, Sulawesi Selatan
Jl. Somba Opu No. 281
Makassar 90113
Sulawesi Selatan, Indonesia
Phone: +62 411 366 9000
Fax.: +62 411 366 9020

Processing Plant Address

Main Office Plant Site Sorowako
Luwu Timur 92984
Sulawesi Selatan, Indonesia
Phone: +62 475 332 9100
Fax.: +62 475 332 9575



■ 2022 ■ 2021 ■ 2020

Business Scale [POJK51-C.3]

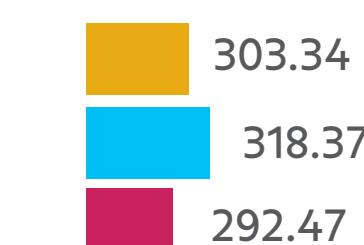
Total Assets (Billion US\$)



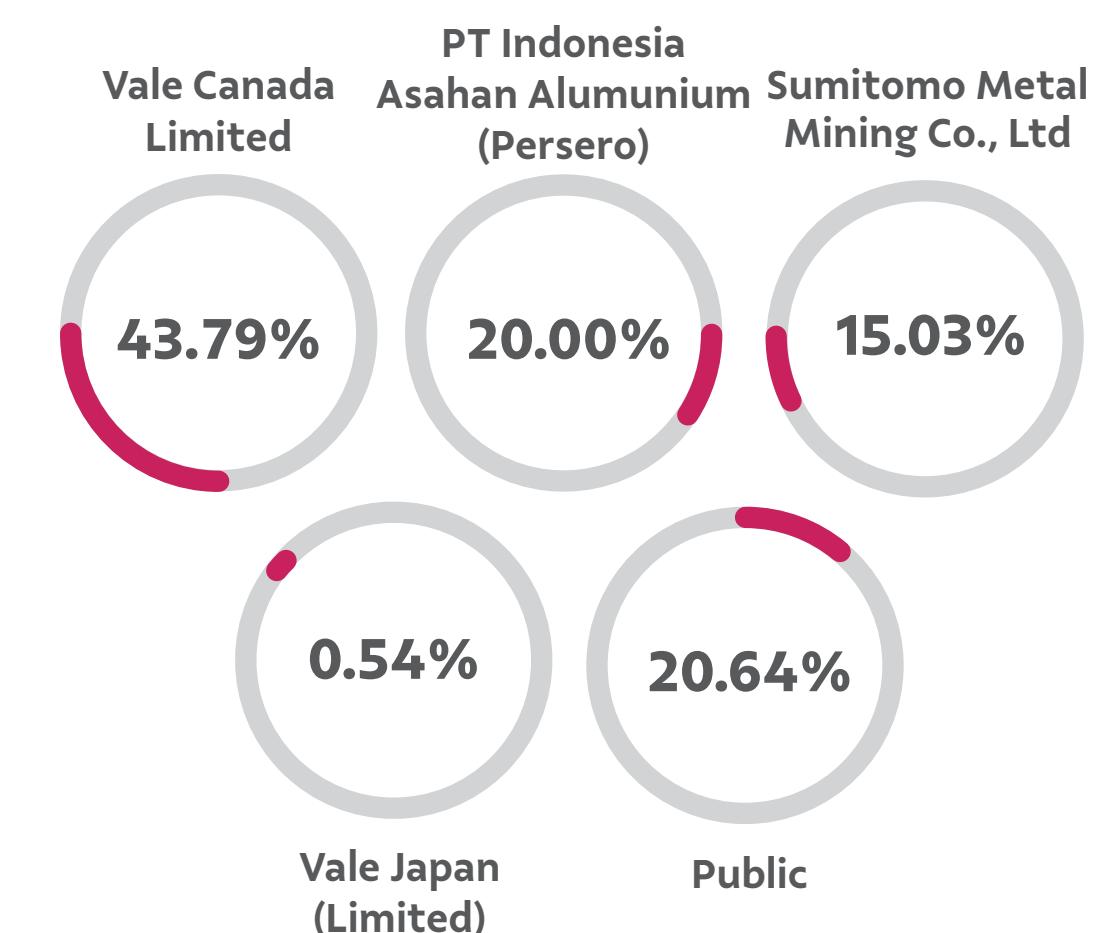
Total Equities (Billion US\$)



Total Liabilities (Billion US\$)



Shareholders [2-1b]



Share Ownership Composition and Percentage

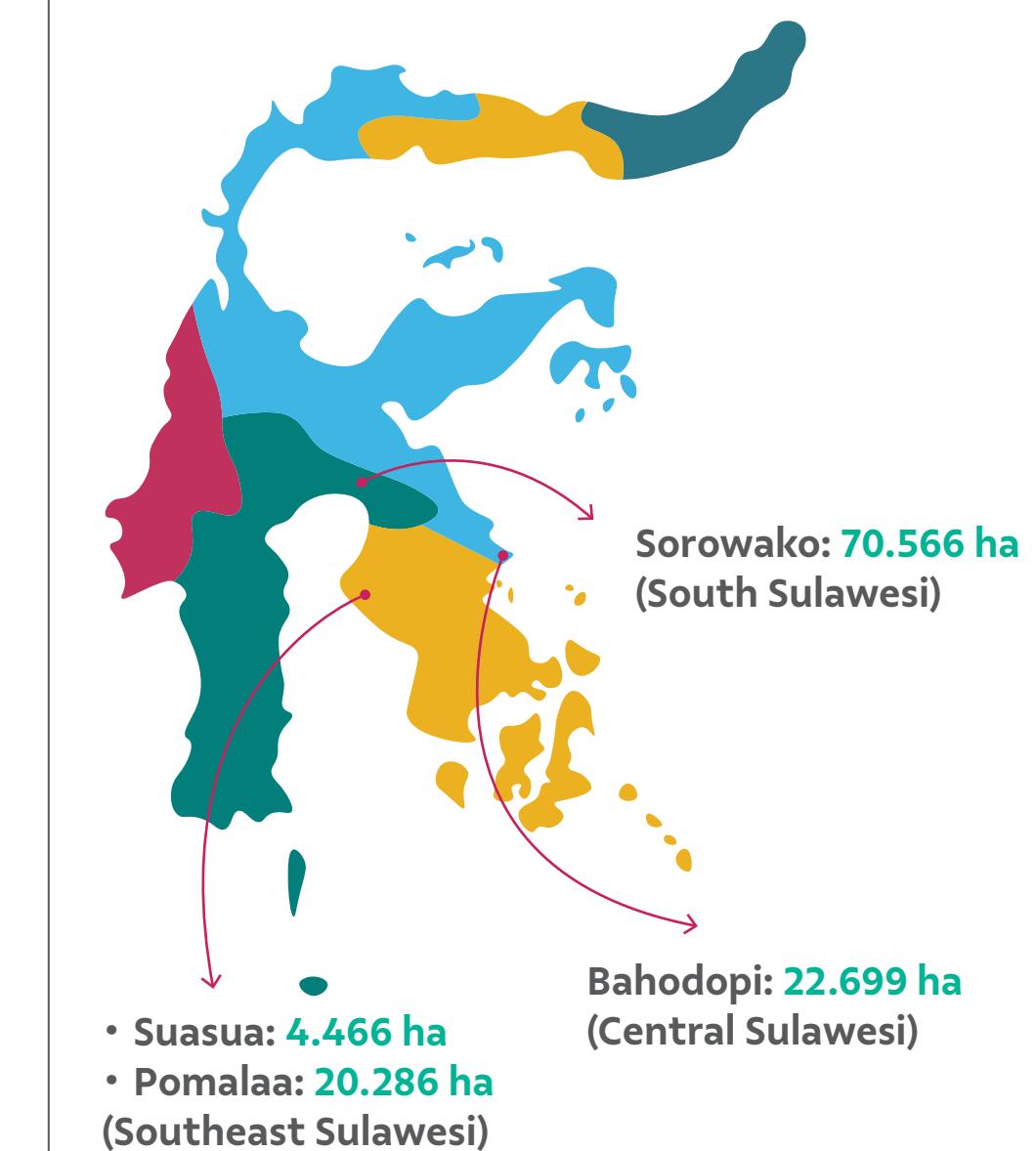
Legal Entity Status: [2-1b]

- Limited Liability Company
- Listed on the Indonesia Stock Exchange (IDX) on May 16, 1990
- Stock Code: INCO

Operational Area

Country where the Company operates [2-1d]

- Republic of Indonesia. The Company does not operate in any other countries.



Nickel ore mining activities and nickel in matte production are carried out in the Sorowako Block, East Luwu Regency, South Sulawesi. Production results are sold to Vale Canada Limited (VCL) and Sumitomo Metal Mining Co. Ltd (SMM). [2-6]

Employees

[POJK51-3.c.2]

Information about employees was obtained from the People & Culture Department Function. The total number of employees in 2022 was 2,934 people, consisting of 2,678 men and 256 women, all working full-time. Of all PT Vale employees, 99.8% are Indonesian citizens, while the remaining 0.2% are expatriates. Most of the employees are locals from East Luwu Regency and other regencies in South Sulawesi. They are placed in Sorowako, and 154 employees, or 5.2% of the workforce, hold managerial posts.



Number of Employees by Gender [2-7a]

Year	Men		Women		Total	
	Total	%	Total	%	Total	%
2022	2,678	91.3	256	8.7	2,934	100
2021	2,710	91.4	256	8.6	2,966	100
2020	2,749	91.5	257	8.5	3,006	100

Number of Employees by Gender and Employment Status [2-7a]

Employment Status	2022			2021			2020		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Permanent Employees	2,624	253	2,877	2,682	253	2,935	2,727	252	2,979
Contract Employees	54	3	57	28	3	31	22	5	27
Total	2,678	256	2,934	2,710	256	2,966	2,749	257	3,006

Number of Employees by Age Group and Gender [2-7a]

Age Group	2022			2021			2020		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
>50 y.o	557	17	574	484	15	499	433	14	447
31-50 y.o	2,023	209	2,232	2,137	213	2,350	2,222	224	2,446
<30 y.o	98	30	128	89	28	117	94	19	113
Total	2,678	256	2,934	2,710	256	2,966	2,749	257	3,006

Number of Employees by Education and Gender [2-7a][2-4a]

Education	2022			2021			2020		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Doctorate	1	0	1	1	0	1	1	0	1
Master's degree	53	16	69	50*	13	63	55*	13	68
Bachelor's degree	609	134	743	607	136	743	577	121	698
Diploma	284	58	342	287	59	346	295	72	367
High school	1,705	48	1,753	1,740	48	1,788	1,795	51	1,846
Junior high school	26	0	26	25	0	25	25	0	25
Elementary school	0	0	0	0	0	0	1	0	1
Total	2,678	256	2,934	2,710	256	2,966	2,749	257	3,006

* Restatement of 2020 and 2021 data in the 2021 Sustainability Report after verification. [2-4]

Number of Employees by Position and Gender [2-7a]

Position	2022			2021			2020		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Management	4	1	5	4	1	5	6	1	7
Senior General Management	17	2	19	16	1	17	13	0	13
General Management	83	10	93	74	9	83	71	7	78
Senior Staff	358	64	422	343	45	388	321	42	363
Staff	680	102	782	678	117	795	606	101	707
Non-Staff	1,536	77	1,613	1,595	83	1,678	1,732	106	1,838
Total	2,678	256	2,934	2,710	256	2,996	2,749	257	3,006


Number of Employees by Placement Area and Gender [2-7a]

Placement	2022			2021			2020		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Jakarta	47	24	71	41	21	62	44	21	65
Makassar	4	2	6	3	2	5	4	2	6
Sorowako	2,627	230	2,857	2,666	233	2,899	2,701	234	2,935
Total	2,678	256	2,934	2,710	256	2,966	2,749	257	3,006

Number of Employees by Citizenship and Gender

Citizenship	2022			2021			2020		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Indonesian	2,673	256	2,929	2,705	256	2,991	2,742	257	2,999
Expatriate	5	0	5	5	0	5	7	0	7
Total	2,678	256	2,934	2,710	256	2,966	2,749	257	3,006

PT Vale has other workers who are not its employees, such as contractors and suppliers who work based on a work agreement. This report does not include them due to their dynamics. [2-8a][2-8b][2-8c]



Business Activities, Products and Services, and Other Relevant Business Relationships [POJK51-C.4]

There were no significant changes in PT Vale's activities and the products we produced throughout 2022 compared to the previous period. [POJK51-C.6] [2-6d]

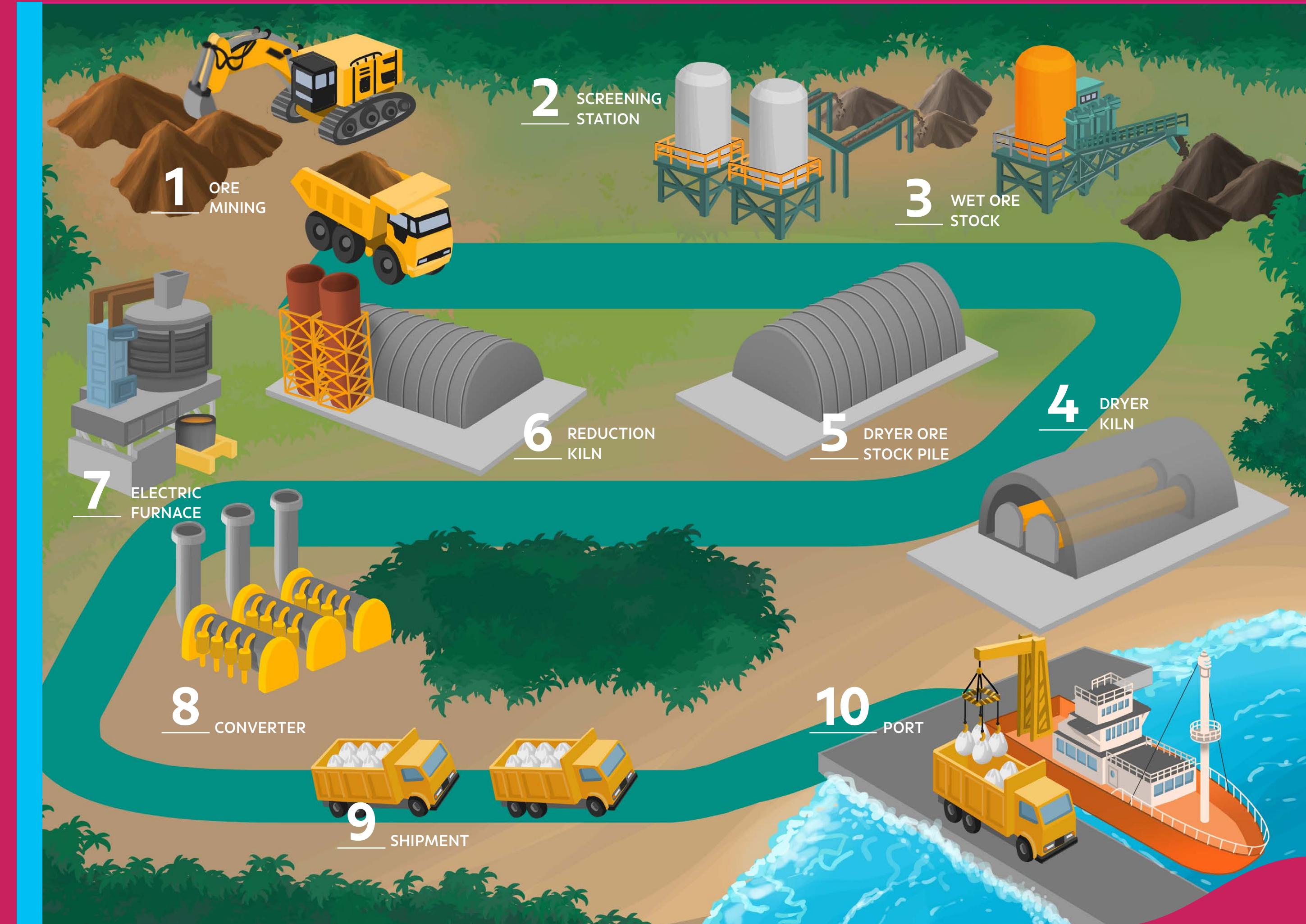
- The scope of activities listed in the Company's Article of Association: [2-6c]

Mining, wholesale trading, transportation, electricity supply, real estate, waste water management, waste management and recycling, and remediation activities.

- The scope of activities in the 2022 fiscal year: [2-6a]

Nickel ore mining operations, nickel in matte production, and nickel matte sales. Total nickel-in-matte production in 2022 was 60,090 tons.

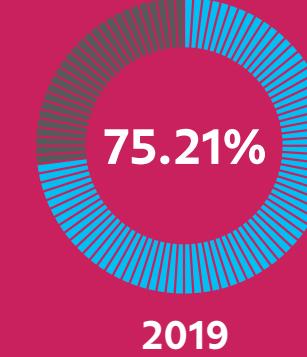
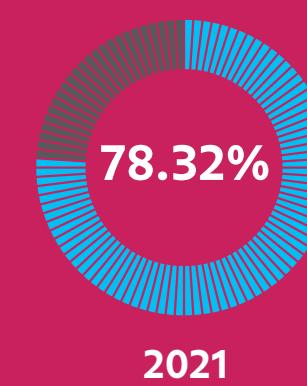
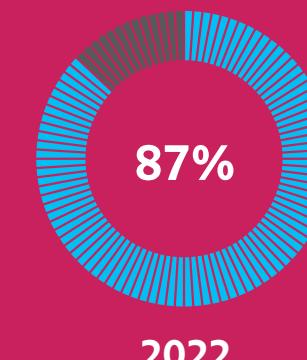
PT Vale's Business Process and Supply Chain [2-6b]



We include national and local suppliers in our supply chain, and will keep increasing our domestic component level (TKDN).



PT Vale's Domestic Component Level (TKDN)



Significant Changes in the Company [POJK31-3.f]

In an annual shareholder meeting organized on June 21, 2022, the shareholders accepted Mr. Dani Widjaja's resignation from his director seat, starting effectively April 30, 2022, and Mr. Hendi Prio Santoso's resignation from his vice president commissioner seat, starting effectively May 31, 2022. Further, the shareholders agreed on the appointment of Mr. Muhammad Rachmat Kaimuddin to be the vice president commissioner and Mr. Yusuke Niwa to be the commissioner to replace Mr. Nobuhiro Matsumoto, effective from the closing of the meeting until the closing of the 2024 annual shareholder meeting. Complete information about it can be found in the 2022 Annual Report of PT Vale Indonesia Tbk.

Note: The certification scope can be found at

https://www.vale.com/awards-and-certifications?p_l_back_url=%2Fin%2Fsearchcenter%3Fq%3Dsertifikasi

Membership in Associations

[POJK51-C.5][2-28a]



Member
Scope: global



Febriany Eddy
as Vice Chairman
Scope: global



Member
Scope: global



Member
Scope: global



Extraordinary
Member
Scope: national



Member
Scope: national



Member
Scope: national



Member
Scope: national



Member
Scope: national



Member
Scope: global

Certification and External Awards

Certificate No. ID004085, by Bureau Veritas

Validity: October 2021 – October 2024

Scope: Mining, processing plant of nickel, including its support and services



ISO 17025 Laboratory Test and Calibration Standards

Certificate No. LP-1729-DN, by the National Accreditation Committee

Validity: 28 Desember 2022 – 27 Desember 2027

Scope: Competence of Testing Laboratories and Calibration Laboratories

Certificate No. 01 407 2135341

ISO 50001 Energy Management System by TÜV Rheinland

Validity: November 2022 – November 2024

Scope: Mining and processing of Nickel Matte product





**Aside from Green Proper,
we received external awards and
appreciations throughout 2022,
including:**



**The 'Highly Commended'
award at the 2022
Sustainable Business
Awards.**

organized by the Global
Initiatives, PwC, the
Indonesia Business Council
for Sustainable Development
(IBCS), and the Indonesia
Business Coalition for Women
Empowerment (IBCWE).

**"Strengthening the
Economic Institutional
Pillar, Joint Village-Owned
Enterprises" program
in 2022.**

The award was given by
the Ministry of Villages,
Disadvantaged Regions,
and Transmigration,
in collaboration with
the Indonesian Social
Sustainability Forum (ISSF).

**2022 Good Mining Practice
(GMP) Awards organized by
the Ministry of Energy and
Mineral Resources:**

• An Environmental
Management trophy from the
group of mining businesses
with a work contract.

• Aditama awards for Mining
Technique Management,
Mining Environment
Management, and Mineral and
Coal Conservation.

**The 2022 Subroto Award
in the mineral commodity
category for the most
innovative community
development and
empowerment program in
the health sector** from the
Ministry of Energy and Mineral
Resources. It is the highest
award for stakeholders
who are considered to have
contributed to development
through the energy and
mineral resources sector.

About the Sustainability Report

Basis and Reference for Issuing Sustainability Reports



1. ***Law No. 40 of 2007 concerning Limited Liability Companies;***
2. ***Financial Services Authority Regulation (POJK) No. 51/ POJK.03/2017 concerning the Implementation of Sustainable Finance in Financial Services Institutions, Issuers, and Public Companies;***
3. ***Global Reporting Initiative (GRI) 2021 standards, with conformity according to the GRI Standards;***
4. ***Mining and Metals Sector Supplement (MSSS) GRI-4;***
5. ***Sustainability Accounting Standards Board (SASB) Metals and Mining 2021;***
6. ***Task Force on Climate-related Financial Disclosure (TCFD).***

Reporting Principles and Consistency with Other Reports

This report has been compiled according to the principles of accuracy, balance, clarity, comparability, completeness, sustainability context, time management, and verified. The information provided is accurate and includes positive and negative impacts and the management, narrated in an easy-to-understand language and presenting different periods as performance comparison to illustrate environmental and social sustainability management and governance. The timing of the report has been well managed, with a tested and verified process. It complements the 2022 Annual Report of PT Vale Indonesia Tbk.

Entity, Period, and Frequency of Reporting

Information in the Company's Financial Statements is presented in a consolidated basis, for a fiscal year ending on December 31, 2022, and have been audited by a public accountant. The sustainability performance information was obtained only from PT Vale, covering the operational areas in Sorowako, Bahodopi, Pomalaa, the representative office in Makassar, and the head office in Jakarta. The reporting period is January 1, 2022 – December 31, 2022. The Company publishes a sustainability report every year. The previous report was published on 31 May 2022. [2-2a][2-2b][2-2c] [2-3a][2-3b][2-3c]

Contact Person [2-3d]

Adriansyah Chaniago
Vice President Director
Phone: +62-21 5249000
Fax : +62-21 5249020
Email: ptvcommunications@vale.com

Feedback and Responses for the Company [POJK51-G.2] [POJK51-G.3]

You will find a feedback page at the end of this report. We would like to thank our investors and other stakeholders for the input in the feedback page of the 2021 Sustainability Report.

PT Vale followed up on the input by providing more information, including the Company's environmental initiatives, social programs, and commitment to human rights.

External Assurances and Restatement [POJK51-G.1]

We have restated some information from previous reports, including our support for Sustainable Development Goals (SDGs) as they have been adjusted to the SDGs indicator metadata of the Ministry of National Development Planning. The President Director, as the highest sustainability governance office in PT Vale, has approved all information disclosures. This sustainability report has been through an external assurance process by an independent party based on the approval of the Board of Directors, which is the Indonesian representative of SR Asia who has a US AA1000 license. There was no conflict of interests during the verification process taking place on 27 – 31 January 2023. [2-4a][2-14a][2-14b][2-5a][2-5b][2-5c]



Stakeholders in Material Topic Determination

There were no changes in the material topics from the previous reporting period. The material topics were determined using a sample survey form and through a discussion involving internal and external stakeholders. The discussion was facilitated by an independent party acting as an expert team. The results of the discussion selected ten material topics according to the sustainability context and aligned with support for achieving SDGs. [3-1a][3-1b][3-2a]
[3-2b]

Stakeholders in Material Topic Determination

Internal

- Management – from a FGD
- Employees – from an employee survey

External

- Public – from a public survey
- The media – using Sprinklr media monitoring
- Local stakeholders – from the sample survey

Material Topics, Impact Coverage, and the Management [3-3a][3-3b][3-3c][3-3d][3-3e][3-3f]

	Material Topic	Main Topic	Impact Coverage	Material Topic Importance and Management
 ENVIRONMENT	Post-mining rehabilitation	<ul style="list-style-type: none"> The restoration of post-mining land. Biodiversity preservation. 	Operational area: Sorowako	<p>Post-mining land restoration will restore the environmental setting and bring sustainable benefits. Restoration activities should involve the community and is evaluated by the Board of Directors and relevant authorities according to their designation through periodic reporting.</p>
	Emission Control	<ul style="list-style-type: none"> Greenhouse gas (GHG) emission measurement and reduction. Net zero emission by 2050. 	<ul style="list-style-type: none"> Head office Operational areas: Sorowako, Bahodopi, Pomalaa. 	<p>GHG emission control will help limit climate change by involving all stakeholders. Evaluation is carried out against the GHG emission reduction target of 33% by 2030 by the Board of Directors and relevant authorities through periodic reporting and carbon neutral by 2050 (according to the Paris Agreement and 10 years ahead of the national target).</p>
	Energy Usage	<ul style="list-style-type: none"> Energy efficiency and renewable energy usage. Reducing dependence on fossil fuels. 	<ul style="list-style-type: none"> Head office Operational areas: Sorowako, Bahodopi, Pomalaa. 	<p>Energy efficiency and renewable energy usage affect the competitiveness of the production cost, and are carried out involving all stakeholders. Evaluation is carried out by the Board of Directors and relevant authorities through periodic reporting and the achievement of key performance indicators for the implementing functions.</p>
	Waste Management	Reducing pollution load and preventing environmental pollution.	<ul style="list-style-type: none"> Head office Operational areas: Sorowako, Bahodopi, Pomalaa. 	<p>Waste management involves workers, contractors/work partners/vendors, and the community. It is carried out through recycling, reusing, and reducing (3Rs) waste. Evaluation is conducted by the Board of Directors and relevant authorities through periodic reporting and the achievement of key performance indicators for the implementing functions.</p>
	Water and Effluents	<ul style="list-style-type: none"> Reducing water usage, and managing effluents. Reducing the usage intensity of new water by 10% by 2030. 	<ul style="list-style-type: none"> Head office Operational areas: Sorowako, Bahodopi, Pomalaa 	<p>PT Vale is controlling the impacts of water usage by reducing the use of water newly extracted from the nature and managing effluents to meet quality standards. The activity is implemented by involving workers, contractors/work partners/vendors, the community, and the government. Evaluation is carried out by the Board of Directors and relevant authorities through periodic reporting and the achievement of key performance indicators for the implementing functions.</p>

	Material Topic	Main Topic	Impact Coverage	Material Topic Importance and Management
 HUMAN (SOCIAL ASPECT)	Occupational Health and Safety (OHS)	<ul style="list-style-type: none"> A safe, comfortable, and healthy workplace. Zero incident 	<ul style="list-style-type: none"> Head office Operational areas: Sorowako, Bahodopi, Pomalaa. 	<p>OHS management affects production, operation and supply chain performance. OHS is managed by implementing the 10 New Golden Rules, obtaining a safe work permit, and standardizing OHS. OHS management involves workers, contractors/work partners/vendors, and the government. Evaluation is carried out by the Board of Directors and relevant parties through periodic reporting and the achievement of key performance indicators for the implementing functions.</p>
	Local Community	Managing negative impacts and improving positive impacts on the community.	Area operasi: Sorowako.	<p>Community development and empowerment will generate sustainable support for PT Vale. The Integrated Community Empowerment and Development Program was planned and is implemented and evaluated through community and local government involvement, and is reported periodically to the Board of Directors.</p>
	Diversity and Equality	<ul style="list-style-type: none"> Prevention of discrimination at work, especially against women. Doubling women's representation by 2030. Human Rights Management. 	<ul style="list-style-type: none"> Head office Operational areas: Sorowako, Bahodopi, Pomalaa. 	<p>Diversity and inclusiveness are two among several foundations of the Company's sustainability, ensured through an equality approach involving workers, contractors, and suppliers/vendors. Evaluation is carried out by the Board of Directors and relevant authorities through periodic reporting and the achievement of key performance indicators for the implementing functions.</p>

	Material Topic	Main Topic	Impact Coverage	Material Topic Importance and Management
 GOVERNANCE	Business Ethics	<ul style="list-style-type: none"> Internalizing compliance and anticorruption. Acting with integrity and transparency. 	<ul style="list-style-type: none"> Head office Operational areas: Sorowako, Bahodopi, Pomalaa 	<p>PT Vale always complies with regulations and never tolerates corruption. Every year, the Company conducts socialization and training of employees, contractors/work partners/vendors, and other stakeholders on anticorruption. Evaluation is carried out by the Board of Directors through periodic reporting, a reporting channel, and the achievement of key performance indicators for the implementing functions.</p>
	Economic Performance	<ul style="list-style-type: none"> Economic value generated and distributed. Risk Management. 	<ul style="list-style-type: none"> Head office Operational areas: Sorowako, Bahodopi, Pomalaa. 	<p>Economic performance is a basis for the Company's activities and, therefore, every risk must be managed by involving all stakeholders. Evaluation is carried out by the Board of Directors and relevant parties through periodic reporting and the achievement of key performance indicators for the implementing functions.</p>



Sustainability Policy and Strategy

[POJK51-A.1]

PT Vale strives to build strong and long-lasting relationships with our stakeholders, is investing in reducing any negative impacts from our activities, always works with high ethical standards, promotes transparent management, and actively contributes to environmental and biodiversity conservation, and sustainable development. We often express these commitments in various forums inside and outside the Company.

[2-23a][2-23d][2-23e][2-23f]

Internalizing Sustainability

[POJK51-6.a][2-24a]

We apply and ensure the new principle reflected in the phrase 'Learning Together' as a compass for sustainable transformation. We will keep internalizing this new culture.



Learning Together

Why do we exist? Our Purpose

We exist to improve life and transform the future. Together.

What do we believe? Values

Life matters most.
Act with integrity.
Value the people who build our company.
Make it happen.
Respect our planet and communities.

How do we act? Key Behaviours

Obsession with safety and risk management.
Open and transparent dialogue.
Empowerment with accountability.
Sense of ownership.
Active listening and engagement with society.

Our Levers

Safety
Vale Production System (VPS)
People
Innovation
Sustainability

What do we look for? Our Ambitions

A great company recognized by society for being:
Benchmark in safety.
Best in class reliable operator.
Talent driven organization.
Leader in sustainable mining.
Reference in creating and sharing value.

Priority Strategy for Sustainability

We set sustainability priorities according to the sustainability strategy that has been prepared for implementation until 2025. PT Vale focuses on commitments to mitigate climate change, energy and water efficiency, forest conservation, and improving social contribution as a transitional step toward neutral-carbon mining.

1 Contribution to Carbon-Neutral Socio-Economy

- Develop a roadmap and phased-implementation toward carbon neutral (33% GHG emission reduction by 2030 from the 2017 baseline, completion of limited-scale field biomass trials, and certification of ISO 50001: Energy Management System). The target refers to the Paris Agreement and is earlier than Indonesia's NDC.
- Finalize the social agenda: Dongi relocation and land encroachment.
- Completion of gap assessment and preparation of LST roadmap.

2 High performance culture

- Complete succession planning and implement IMPACT & role-modeling training.
- Implement the Supervisor Training Program.
- Carry out Superior Employee Training.
- Prepare for diversity and inclusion and implement programs to overcome performance problems.
- Improve the quality of Vale Production System (VPS) implementation.
- Conduct local talent development programs.

3 Environmental Protection & Management

- Implement the Green PROPER environmental compliance agenda, compliance audit, emission targets, and monitoring system.
- Reclaim 70% of post-mining land progressively by 2025.
- Carry out rehabilitation outside the contract area of work.
- Implement biodiversity conservation programs.
- Implement waste reduction and utilization.
- Implement water efficiency and reduce pollution load.
- Implement an environmental management system consistently, one of which is the completion of routine ISO 14001: 2015 audits in 2022.

4 Obsessed with Risk and Safety Zero N1 and N2

- Complete the follow-up HIRA and implement critical controls.
- Reproduce N3 & Hi-Po non-energy release reports.
- Promote the Golden Rules, INS003, and RAC/MHS.
- Set up Integrated Operations Control (COI).
- Complete the health program and facilities repair.
- Implement the Leadership in the Field (LIF) program.

5 60kT HPAL Sorowako 90kT Sorowako 120kT Pomalaa 73kT Bahodopi

- Improve ore quality by reducing dilution and moisture content.
- Reduce operating variability – kiln standby and stability of the power supply.
- Complete the Continuous Improvement (CI) process plant and mass-balance synchronization program.
- Implement a de bottlenecking program.
- Conserving minerals by utilizing low-grade ore (limonite).

6 Asset Integrity and Maintenance Adherence

- Implement Zero-Based Maintenance.
- Complete the Asset Integrity program from the 2012 assessment.
- Implement immersion to improve supply chain & maintenance synergy.



PTVI's ESG Roadmap

Mastery

Enhance mutual understanding on ESG, policy improvement, collective option:

- Become a member of International Communities that support Sustainability
- Increase awareness, knowledge, understanding, and common perception of all divisions regarding the relationship between ESG and their division
- Formulate ESG policies
- Formulate SOPs, formulate metrics/targets, formulate KPI and incentive
- Socialization

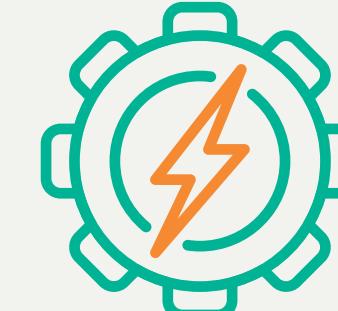
2022



Performing

Implementation of ESG, partnership, monitoring:

- Ensure ESG programs have sufficient resources
- Formulate monitoring mechanism
- Seek for relevant partners
- Execute partnership with IGCN, ICMM, etc
- Execute and monitor planned programs
- Measure program success
- Formulate a communication strategy
- Continue programs to support Net-Zero Carbon



2023

Inspire

Internal and external communication:

- Communicate ESG impacts using all communication media
- Identify key stakeholders for communication targets
- Communicate internally and externally to these target stakeholders
- Continue the implementation of other ESG programs, constructing improvements



2025

2024

Excellence

Impact evaluation, impact reporting, ESG performance measurement, incentive:

- Evaluation of impacts created by ESG programs
- ESG performance measurement
- Evaluate KPIs, metrics, and ESG targets for improvement purposes
- Recognition for ESG achievements
- Formulate improvements for ESG programs



BEYOND

Sustaining

Become global leader in ESG:

- To be a leading in mining company in ESG in Indonesia
- To become a world-class mining company that carries out sustainable mining practices
- To become a mining company that contributes to the achievement of NDC
- Maintain an excellent ESG system and pursue continuous improvement



Sustainability Strategy

Support sustainable development in the region and enhance Vale's reputation with the community.

Principle Guide

- Low carbon chain induction.
- Shared-value generation.
- Territorial development.
- Trust and credibility.
 - Transparency and listening.
 - Response agility.
 - Participatory process.
 - Embodiment of different view.
 - Converging paths discovery.
- Clear and measurable KPIs.



Vale 2030 Commitments

Climate Change

Reduce greenhouse gas emissions by 33% in line with the Paris Agreement and achieve net zero GHG emissions by 2050, ahead of Indonesia's NDC target.

Energy

Increase clean energy usage

Water

Reduce new water collection by 10%

Note: PT Vale has carried out climate scenarios.

Forests

Reclamation of ex-mining land, rehabilitation of land outside the contract of work and protection of biodiversity

Socio-economic Contribution

Healthcare, education, and income generation

ESG Gaps

Eliminate main ESG gaps in relation to best practices

Vale Global's Sustainability Strategies and Commitments

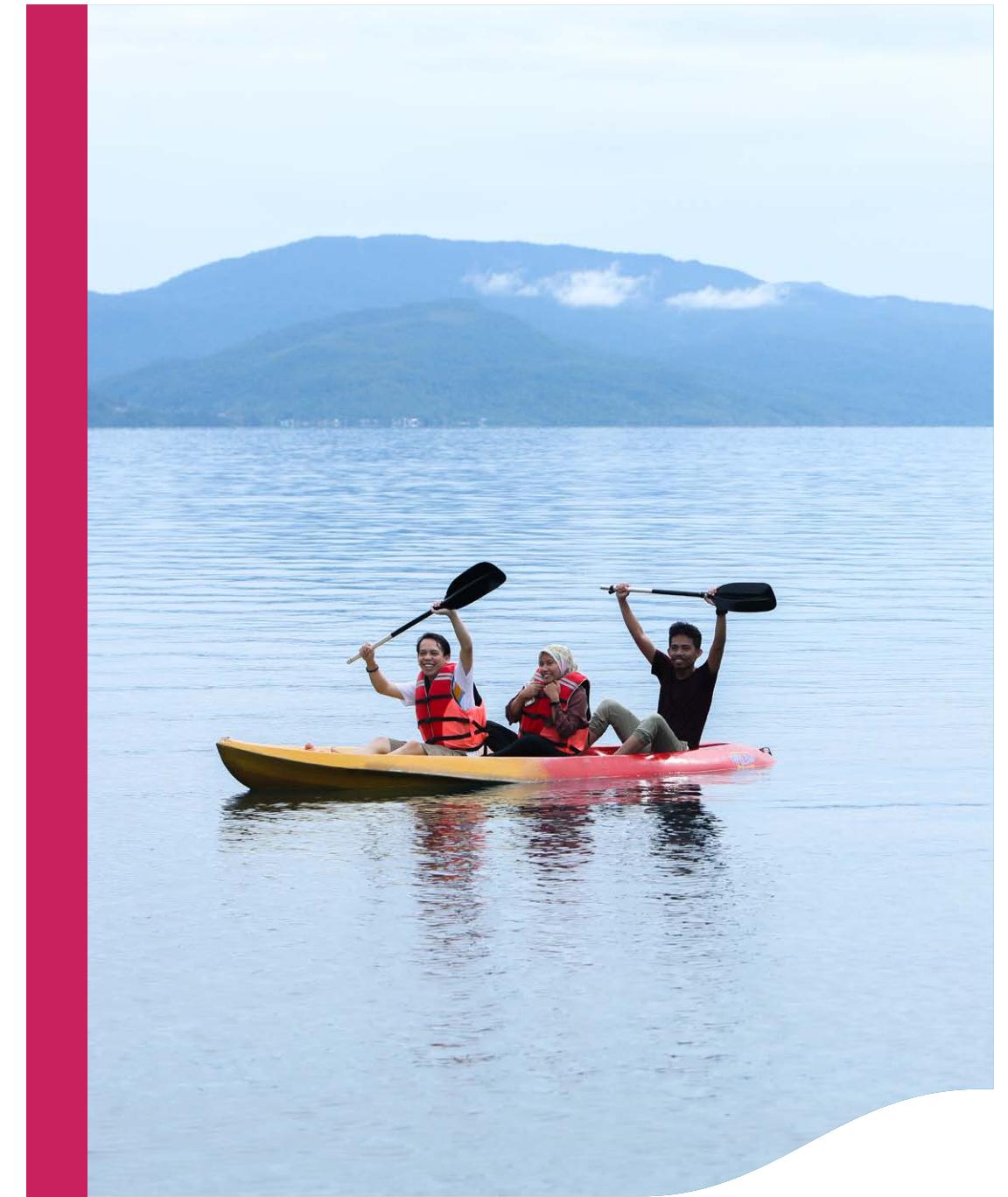
1 We need to have a greater responsibility for everyone involved in our operations, the society, and the earth. We are required to perfect ways to improve the quality of life.

2 We have instigated a sustainability strategy to improve the quality of life and change the future. Together.

3 For us, the future is the process of constantly evolving, creating and reinventing.

4 For this future, PT Vale welcomes ideas by listening and working together, and creating an unbroken cycle that brings prosperity to everyone.

5 We want PT Vale's future resources to be used to create value for everyone.



Pillar Goals and Focus for the Future

[[POJK51-C.1]

Pillar Goal

Serving the communities by contributing to all.

From the beginning, PT Vale has served the communities, turning natural resources into self-sufficient areas, contributing to the development of the country. PT Vale is expected to serve the communities by providing them with what they need and want, including mining materials and other resources to improve their quality of life, while preserving the earth and creating prosperity for all.

Doing together.

Doing together means willingness to listen. Everyone must listen: society, governments, customers, and especially the people who are involved in PT Vale's operations. After all, we are the communities. Communities are PT Vale. Doing together means creating a collective capacity to think, design, and realize possible futures for everyone. Doing together means acting with responsibility, transparency, and consistency; walking the talk, a system to enable PT Vale to always transform for the better.



Using Vale's mobility to do something extraordinary.

All mining companies are required to preserve the nature, protect the community and those involved in the Company's operations.

Transforming the future by taking care of the present.

We are generating development for communities, well-being for society and permanent environmental preservation mechanisms. Creating a better world than before PT Vale establishment. Putting the benefits intrinsic to mining at the service of society as a whole.

In addition, we use the knowledge, human resources, and technical, financial and catalytic capacity that PT Vale has developed over the years to rebuild a virtuous cycle of prosperity that points to an inclusive and comprehensive future, in which everyone benefits and PT Vale's horizons expand to meet the needs of a world in constant transformation.

Focus for the Future



Safety

This is one of the key aspects to increase and regain public trusts. Ensuring safety of life and operations is Vale's priority.



VPS

A strong management mode is essential to increase the level of operational excellence. Having standards is our way of becoming a unified with Vale organization wherever we operate, as well as contributing to building a more reliable company.



People

Our Company is built by human hands—they are the key elements to achieving the future we want.



Innovations

Investing in innovations, leaving the comfort zone, is the main factor that makes our Company more competitive and profitable.



Sustainability

Contributing to improving environmental conditions, focusing on three dimensions: environmental, social, and governance. This is our new mindset: investing with a purpose.

A complete description of our approach to sustainability can be accessed from the Company's website at:
<https://www.vale.com/indonesia/annual-and-sustainability-reports>



Environmental Sustainability Management Performance

PT Vale's commitment to environmental management is supported by PTVI's EHSS policy and policy specific to every environmental aspect consistent with the reporting material topics (i.e., energy efficiency, emission reductions, waste management, water efficiency, pollution reduction, and biodiversity conservation), which our CEO and COO have approved. We support external initiatives by adopting sustainable mine management principles based on the ICMM Sustainable Development Framework, which we have aligned with our Five Environmental Management Commitments 2022. PT Vale also manages the environment based on ISO14001:2015 and has been certified for its mines, processing, and supporting facilities since 2018.

[2-25]

Sustainable Mine Management Principles Based on the ICMM Sustainable Development Framework

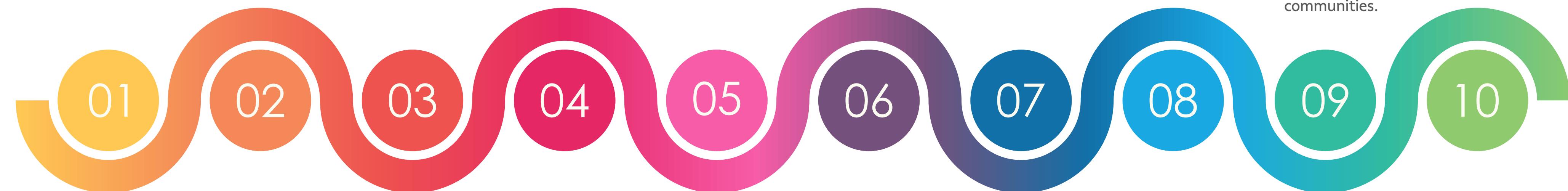
Adopt ethical business practices, good corporate governance, and transparency to support sustainable development.

Respect the human rights, cultures, customs, and values of employees and communities affected by our activities.

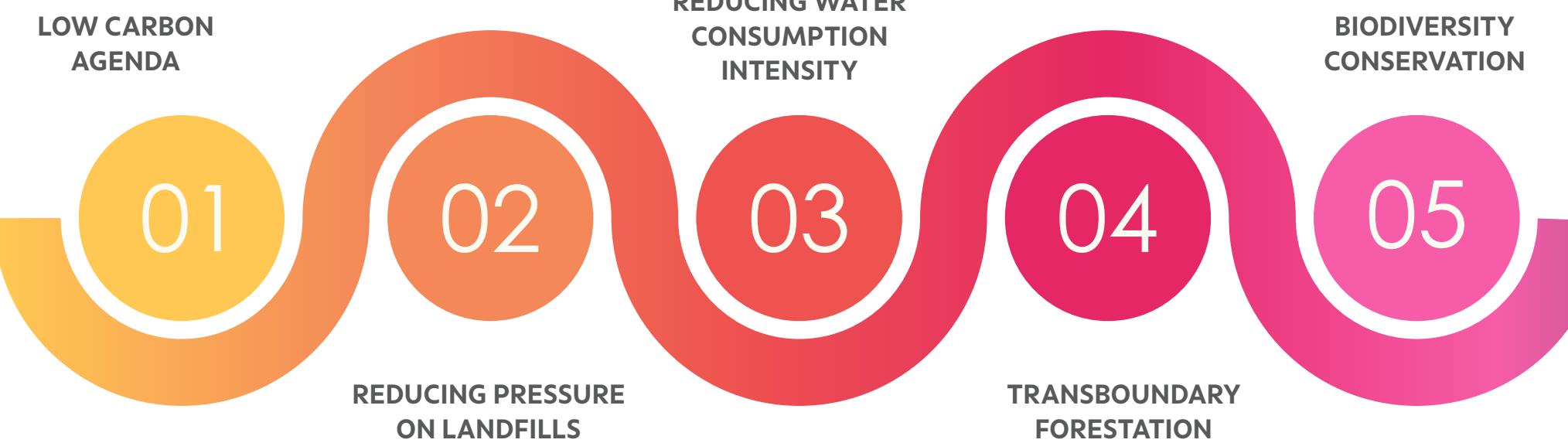
Pursue continual improvement in health and safety performance with the ultimate goal of zero harm.

Contribute to biodiversity conservation and integrated approaches to land-use planning.

Pursue continual improvement in social performance and contribute to the social, economic, and institutional development of host countries and communities.



Five Environmental Commitments 2022



By adopting the ICMM Sustainable Development Framework principles, we oversee our production processes and ensure that our mineral (nickel) products are the results of responsible production. Thus, we can continue to meet the demand for sustainable nickel products, support global economic decarbonization, and contribute to the achievement of Sustainable Development Goals (SDGs). [\[EM-MM-160a.1\]](#)

PT Vale Indonesia Tbk's Energy Roadmap Towards Carbon Neutral 2050

The strategy focuses on Energy Efficiency (EE) and Energy Transition (TE) dan Transisi Energi (TE)

Materials Used

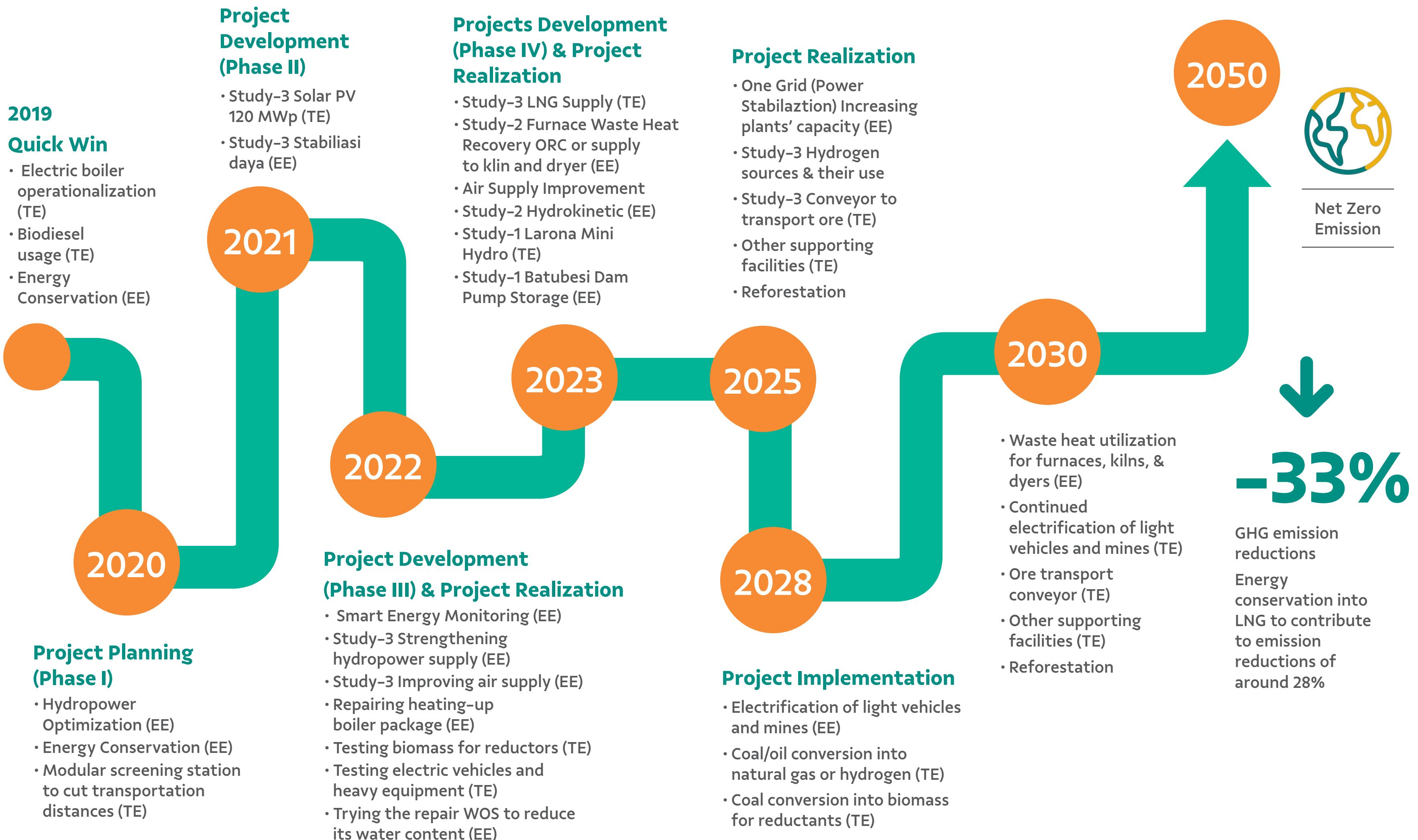
The key material used in our nickel-in-matte production is nickel ore, a non-renewable material mined in Sorowako. The total volume of nickel ore used in 2022 was 11,552,911 MT. None of the materials come from recycling. We ship our nickel in matte in special packaging, entirely collected back by the buyers. [\[301-1a\]](#)[\[301-2a\]](#)[\[301-3a\]](#)[\[301-3b\]](#)

Reducing Emissions Together

PT Vale's Global Contribution

Climate change risk management is one of PT Vale's sustainability focuses and is carried out following the Task Force on Climate-Related Financial Disclosure (TCFD). We have set a Road Map Towards Carbon Neutral 2050. The short-term targets are energy efficiency and optimized use of renewable energy; the mid-term target for 2030 is 33% absolute emission reductions from scopes 1 and 2; and the long-term target for 2050 is to become carbon neutral (net zero emission). [\[EM-MM-110a.2\]](#)[\[TCFD Strategi.a\]](#)

We believe energy transition is one of the keys to success in controlling climate change and limiting global temperature increase to below 2°C, a goal the Paris Agreement reaffirms. Nickel, which is PT Vale's product, will be a vital commodity in the energy transition, especially in building renewable infrastructure and supporting electrification through electric vehicles. An increase in the demand for nickel will lead to the Company's positive financial performance in the coming years. [\[TCFD Strategi.b\]](#)[\[TCFD Strategi.c\]](#)



GHG Emission Calculation and Reductions

[POJK51-F.11] [POJK51-F.12]

We calculate GHG emissions from activities in Sorowako, including scope 1 emissions from production activities and fuel consumption and scope 2 emissions from electricity consumption. The calculation results are expressed as total GHG emissions in tons of CO₂eq, including the conversion of non-CO₂ GHG emissions (CH₄, N₂O, and HFC). We do not calculate biogenic CO₂ emissions. The calculations use the energy consumption balance method for fossil fuels and gases that cause the greenhouse effect using a 2017 baseline, the Global Warming Potential/GWP=1 index, and the Intergovernmental Panel on Climate Change (IPCC) guidelines with the GWP index referring to the assessment of the fifth report in 2014 (AR-5). Based on the calculation, the total GHG emissions in 2022 decreased by 9.4% from those in 2021 and 18.54% from the 2017 baseline. [305-1a][305-2a][305-1b][305-2c][305-2b][305-1c][305-1d][305-2d][305-1e][305-2e][305-1f][305-2f][305-1g][305-2g]

PT Vale has not yet calculated scope 3 emissions but is gradually trying to reduce GHG emissions from its supply chain activities. Our strategy is to encourage suppliers and customers to be committed to reducing emissions from their activities. [305-3]

PT Vale reduced its GHG emissions by 330,688 tons of CO₂eq to 1,640,387 tons of CO₂eq in 2022, 17% lower from 1,971,075 tons of CO₂eq in 2021. Overall, the total GHG emissions up to 2022 have cumulatively decreased by 373,563 tons of CO₂eq, from the 2017 baseline of 2,013,950 tons of CO₂eq. This achievement is still in the projected net zero emission roadmap which will be gradually implemented at PT Vale. However, we also recorded that there are fluctuations in the volume of GHG emissions every year, influenced by the proportion of fuel used in operations and the amount of production. We are committed to reducing absolute greenhouse gas (GHG) emissions from scopes 1 and 2 by 33% by 2030 and achieving a net zero emission by 2050.

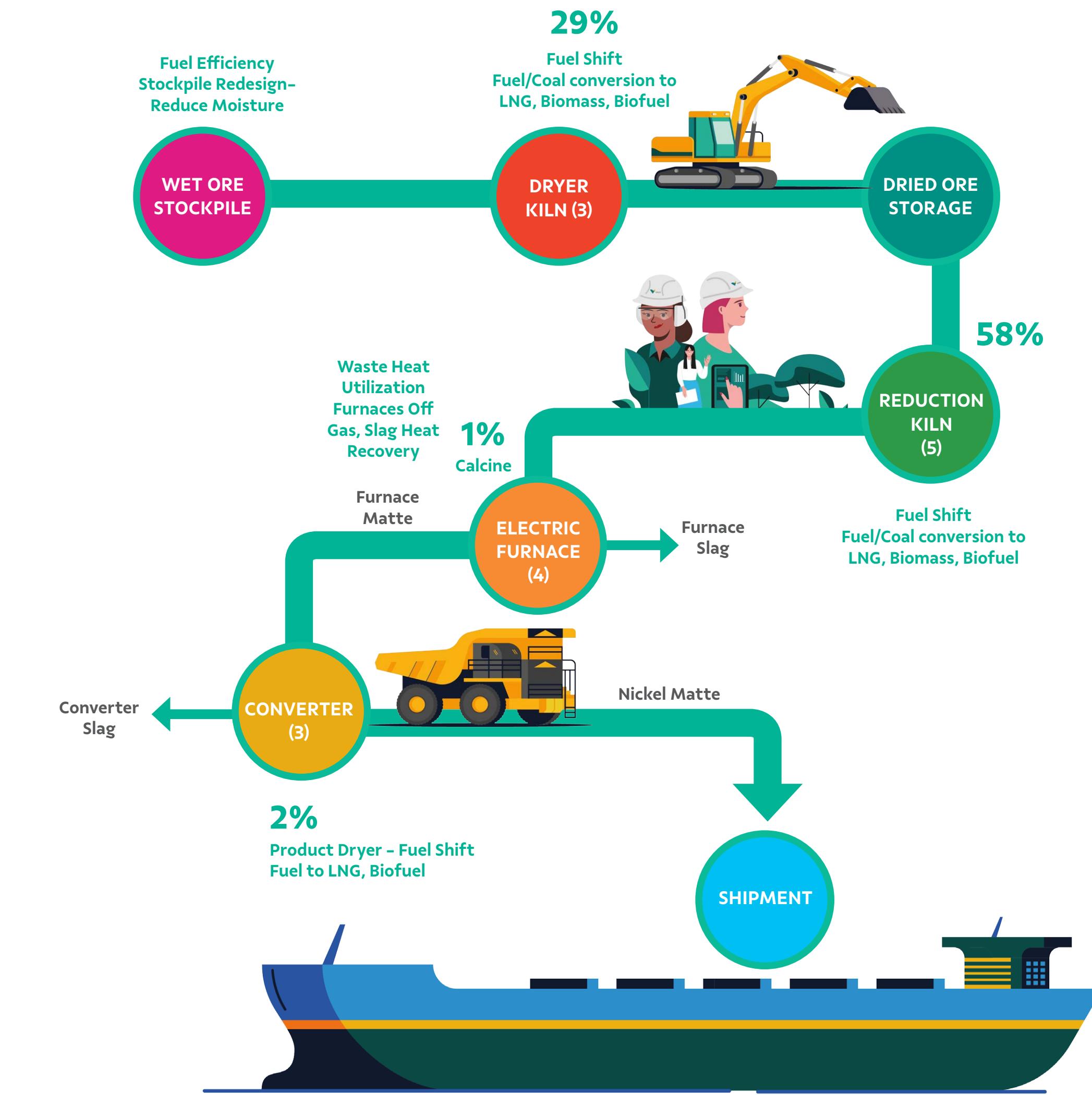
GHG Emission Calculation and Reduction Results Based on the 2017 Baseline

Description	Unit	2022	2021	2020	Baseline 2017
Total GHG Emissions	Tons of CO ₂ eq	1,640,387	1,971,075	2,157,208	
GHG Emission Reductions	Tons of CO ₂ eq	(373,563)	(42,875)	143,258	2,013,950
	%	(19)	(2)	7	

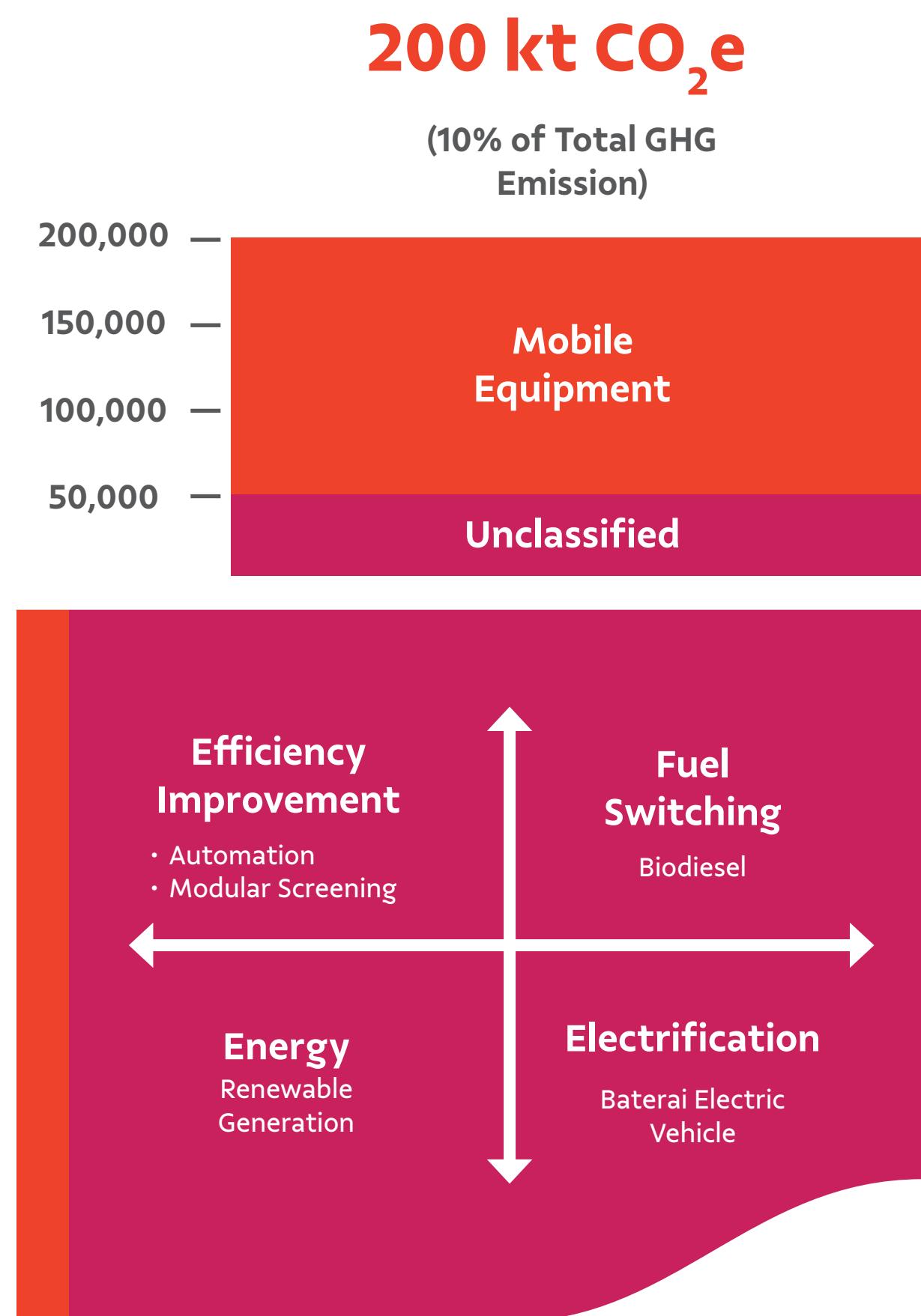
Restatement of the 2021 and 2020 data in the 2021 Sustainability Report due to data update. [2-4]

PT Vale's low GHG emission intensity can be attributed to three hydropower plants, which can avoid additional scope 1 emissions equivalent to 1,118,231 tons of CO₂eq per year if calculated based on the fuel volume used for a diesel power plant or 2,292,375 tons of CO₂eq per year using coal for a steam power plant. We continue to develop opportunities to reduce GHG emissions from production processes with a potential of 1,800 kilotons of CO₂eq, or 90% of the total GHG emissions. Another opportunity is mining areas with potential GHG emission reduction of 200 kilotons of CO₂eq. [305-5a][305-5b][305-5c][305-5d][305-5e]

GHG Emission Reduction Opportunities



GHG Emission Reduction Opportunities



In 2022, we made the following efforts to reduce GHG emissions:

- Electric car and charging station trials to support the Energy Department's operations in the Sorowako area until Malili. The trials have been carried out, covering a distance of 10,326 km and reducing 2.73 tons of CO₂eq.
- Trial of an electric truck starting August 4, 2022, in the Sorowako Block for a year. The truck has a payload capacity of 70 tons and runs on 100% electricity. The operationalization of one electric truck can potentially avoid 604 tons of CO₂eq per year, which is otherwise emitted by a conventional truck.
- PT Vale participated in the Indonesian Climate Change Expo & Forum (ICCEF) 2022 organized by the Ministry of Environment and Forestry.
- PT Vale actively participated in several forums, including COP-26, COP-27, and the Kadin Net-zero hub.

GHG Emission Intensity [POJK51-F.11]

GHG emission intensity calculates carbon equivalent emissions (CO₂eq), including CH₄, N₂O, HFCs, etc., based on the total GHG scopes 1 and 2 emission calculation for every ton of nickel in matte produced. The results are expressed in tons of CO₂eq/ton Ni, using the IPCC calculation method. The GHG emission intensity in 2022 was 27.30 tons of CO₂eq/ton Ni, a 0.9% decrease from 30.14 tons of CO₂eq/ton Ni in 2021.

[305-4a] [305-4b] [305-4c] [305-4d]

GHG Emission Intensity [305-4a]

Description	Unit	2022	2021	2020
Total GHG Emissions	Ton	1,640,387	1,971,075	2,157,208
Nickel Production	Ton of CO ₂ eq	60,090	65,388	72,237
GHG Emission Intensity	Ton of CO ₂ eq/Ton Ni	27.30	30.14	29.86

Restatement of the 2021 and 2020 data due to differences in calculation methods

Emissions Containing Ozone-Depleting Substances (ODS)

PT Vale no longer uses HCF-22 (CHF₂Cl) freon and has replaced it with R32 freon, which is a non-ozone depleting substance, as it has an Ozone Depletion Potential (ODP) value of 0 and a Global Warming Potential (GWP) value of 675. All R32 freon is purchased from suppliers. We have yet to calculate the volume of R32 freon used, disallowing this Report to include an explanation of the calculation method and results.

[305-6a] [305-6b] [305-6c] [305-6d]

Non-GHG (SO₂ and Particulate) Emission Control

[EM-MM-120a.1]

SO₂ emissions result from using sulfur for sulfidation in nickel ore processing using High Sulphur Fuel Oil (HSFO) and coal. We are controlling our SO₂ emissions through monitoring and calculation to ensure they meet the quality standard stipulated in Regulation of the Minister of Environment No. 4/2014 on the Quality Standard of Emissions

from Immovable Sources for Mining Businesses and Activities. The calculation uses the mass balance method, which determines emission intensity by comparing the weight of the emitted SO₂ with the weight of the produced product, and is expressed in tons of SO₂/ton Ni. The 2022 calculation shows that the SO₂ emissions met the quality standard.

SO₂ Emission Measurement and Calculation [305-7a]

Description	Unit	2022	2021	2020
Total Nickel Production*	Ton	60,090	65,388	72,237
Total SO ₂ Emissions	Ton	43,377	50,666	57,320
Emission Intensity	Ton SO ₂ eq/Ton Ni	0.72	0.77	0.79
Quality Standard	Ton SO ₂ eq/Ton Ni	0.80	0.80	0.80



Note:

* The total nickel production only includes nickel, without a mixture of cobalt and sulfur



We control our particulate emissions by monitoring and measuring our dryer kilns, reduction kilns, electric furnaces, and product dryers. The measured particulate intensity is expressed in tons of particulates/ton Ni. A measurement we have carried out reveals that the particulate concentrate in 2022 was 0.009 tons of particulates/ton Ni. [305-7a][305-7b][305-7c]

Particulate Intensity Measurement Results [305-7a]

Description	Unit	2022	2021	2020
Total Nickel Production	Ton	60,090	65,388	72,237
Total Particulate Emissions	Ton	681	1,613	1,531
Particulate Intensity*	Ton of Particulates/ Ton Ni	0.01	0.02	0.02

Note:

*The Quality Standard is based on Regulation of the Minister of Environment No. 4/2014

Low-Emission Technology for New Plants

In this reporting period, PT Vale agreed to cooperate with various parties to establish new processing facilities in Bahodopi, Pomalaa, and Sorowako. The factory in Bahodopi will use eco-friendly technology and phase in liquefied natural gas (LNG) as an energy source for reduction kilns and furnace at RKEF, making them low emissions. In a projection prepared by an expert team, in 2030 the factory/processing facility in Bahodopi will be a factory with the second lowest emission intensity in Indonesia after PT Vale's factory in Sorowako.

The same is true for the new HPAL plants in Pomalaa and Sorowako. We are committed to developing them without using coal for energy to slow down climate change.



Managing Energy Together to Support a Low-Carbon Economy

About Vale Power Shift (VPS)

We follow the Vale Global internal program, VPS, to support the transition to a low-carbon economy. The VPS aims to improve PT Vale's energy matrix by focusing on the use of renewable energy and alternative fuels and efficiency by using new technologies. VPS-related initiatives are expected to contribute around 5% of the planned reduction by 2030. In addition, we carried on our debottlenecking project in 2022, scheduled to be completed in 2024. To meet our energy efficiency commitment, PT Vale has been ISO 50001 certified for energy management systems.

As a follow-up to the cooperation in building nickel processing facilities (smelters) in the Xinhai Industrial Park, Bahodopi, and Morowali, and a High-Pressure Acid Leaching (HPAL) smelter in Pomalaa, we plan to use LNG and electricity supplied by the State Electricity Company PT PLN (Persero) to meet the energy need of RKEF in Bahodopi and HPAL in Pomalaa, respectively. In this reporting period, we initiated a dialogue with the Special Task Force for Upstream Oil and Gas Business Activities (SKK Migas) to ensure domestic LNG supply.

Energy Consumption and Efficiency

[POJK51-F.6]

Energy consumption calculation includes the volume of energy consumption for heavy equipment used during nickel ore mining operations and nickel in matte production in the Company. We do not calculate energy consumption outside the Company. The consumed energy is sourced from hydropower – which is renewable, thermal power, and fossil fuels – which are not renewable. The total energy consumption is calculated by adding up the volumes of all energy sources used.

The result is converted into Gigajoule (GJ) based on the International Energy Agency (IEA) conversion. [302-1a][302-1b][302-1e][302-1f][302-1g] [302-2]

The total energy consumption in 2022 was 26,689,441 GJ, a 6.52% decrease from 28,551,417 GJ in 2021. The consumption of hydropower biodiesel B30 was 7,797,981 GJ and 580,915 GJ, representing 29.72% and 2.18% of the total energy need; the remaining 18,175,588 GJ, or 68.10%, is non-renewable, 9.054.678 GJ of which was from marine fuel oil (MFO), an increase from 8,087,926 GJ of MFO used in 2021.

[302-1a][302-1b][302-1e][EM-MM-130a.1]

Energy Consumption Volume in the Company (GJ)

[302-1a][302-1b][302-1e][302-1f][302-1g] [EM-MM-130a.1] [POJK51-6.d.3.a] [POJK51-6.e.1] [EM-MM-130a.1]

Energy Source	Allotment	2022	2021	2020
Non-Renewable Energy				
Coal	Drying Kilns	3,042,982	4,969,801	5,390,589
	Reduction Kilns – Reductant	3,226,793	3,002,054	3,767,909
	Reduction Kilns – Combustion	1,623,993	1,973,050	2,453,737
	Total Firing Kilns	7,893,769	9,944,905	11,612,235
High Speed Diesel (HSD)	Thermal Generators	2,505	23,181	7,692
	Steam Boilers	6,803	14,268	44,124
	PP Dryer Furnaces & others	314,317	332,241	396,459
	Reduction Kilns	47,087	34,943	32,524
	Refining – Nickel 78%	36,774	39,450	43,589
	Heavy Vehicles	1,409,258	1,676,108	1,820,529
	Light vehicles, trucks, and others	1,528,897	1,847,138	2,023,073
	Total	2,547,463	2,291,223	1,936,386
High Sulfur Fuel Oil (HSFO)	Steam Boilers	11,764	22,983	502.25
	Drying Kilns	1,971,654	640,555	593,444
	Reduction Kilns	7,071,259	7,424,387	7,226,966
	Total	9,054,678	8,087,926	7,820,912
Gasoline*	Light Vehicles	6,624	3,616	8,593
Renewable Energy				
Hydropower**	Processing Plants	7,797,981	8,223,745	8,639,474
	Biodiesel B30	580,916	687,367	764,239
Non-Renewable Energy + Renewable Energy				
Total		26,689,441	28,551,417	30,628,679

Note :

* Excluding consumption data in Jakarta and Makassar

** Hydropower calculation in 2022 for PT Vale and PT PLN (Persero), while in 2021 and 2020 the calculation was only for PT Vale

We distribute 10.7 MW or 38.52 GJ from our hydropower plants to the people of East Luwu through PT PLN (Persero). [302-1d]

Energy Intensity [POJK51-F.6]

Energy intensity is calculated as the energy needed for electricity and fuel consumption to produce one ton of nickel in matte. The calculation does not include energy usage outside the Company. The energy intensity value in 2022 was 444.16 GJ/ton Ni, higher than 436.64 GJ/ton Ni in 2021. [302-3a][302-3b][302-3c][302-3d]

Energy Intensity Measurement Results [302-3a]

Description	Unit	2022	2021	2020
Total Nickel Production	Ton	60,090	65,388	72,237
Total Energy Used	GJ	26,689,441	28,551,417	30,628,679
Energy Intensity	GJ /Ton Ni	444.16	436.64	424.00

Restatement of the 2021 data due to differences in calculation methods.

**Energy Consumption Reduction** [POJK51-F.7]

A comparison of energy consumption reveals that we have been able to reduce 5,415,794 GJ in energy consumption compared to the 2017 baseline and that the total energy consumed in 2022 was lower than in 2021 as the result of energy efficiency policy adoption, including: [302-4a][302-4b][302-4c][302-4d]

- Use of biodiesel B30, which contains 30% fatty acid methyl ester (FAME), thereby reducing the use of fossil fuels by 30%;
- Trial of one electric truck, which can save 276,000 liters of Biodiesel B30 per year.

Energy Consumption by Source in 2022 and Its Comparison with Energy Consumption by Source in 2021 [302-4a][302-4b][302-4c][302-4d]

Energy Source	Unit	2022	2021	2022	1:2	
		1	2	3	Volume	%
HSFO	Million liters	1,467,781	1,291,027	1,310,298	176,754	113.69
HSD		58,597,015	69,482,974	77,175,228	(10,890,959)	84.33
Coal	Ton	292,341	374,918	426,429	(82,577)	77.97

Restatement of the 2021 and 2020 data due to differences in calculation methods.

This report does not include a calculation of the energy efficiency of products and services sold in 2022. It is because our nickel in matte was transported using ships provided by the buyers, eliminating energy calculation based on fuel consumption volume conversion from PT Vale's responsibility. [302-5a][302-5b][302-5c]



Contribution to New and Renewable Energy Development [POJK51-F.7]

PT Vale supports the transition to new and renewable energy by developing nickel-based new and renewable energy through the production of batteries for electric cars, thereby supporting the transition to a low-carbon economy. We focus on realizing our strategic plan for the next five years by preparing nickel processing plants in Bahodopi and Pomalaa. The HPAL plants in Pomalaa and Sorowako will produce Mix Hydroxide Precipitate (MHP), raw materials for electric-car batteries. PT Vale's mining costs are divided into 22% for Pre-mining Conservation, 53% for the mining itself and 25% for Post-mining Conservation.

PT Vale Obtained ISO 50001: Energy Management

In November 2022, PT Vale obtained an ISO 50001 certificate issued by TÜV Rheinland. ISO 50001 is a globally-recognized standard that sets requirements for developing, implementing, maintaining, and improving an energy management system in a company.

The Company's Energy Management team has made thorough preparation since 2020. It ensured its ongoing and new energy efficiency programs were well implemented according to standards as a continuous improvement effort.

The ISO 50001 certification is a critical milestone in the Company's effort to meet the commitment to reducing and neutralizing greenhouse gas emissions, consistent with the statement in the 26th Conference of Parties (COP-26) in 2021 in Glasgow, Scotland. In the national nickel mining arena, even among Vale companies globally, PT Vale is the only one able to obtain ISO 50001.

Mine Land Reclamation and Biodiversity Conservation Together

[POJK51-F.10]

Environmental Cost [POJK51-F.4] [MM10][304-3b]

We have a Mine Closure Plan, drafted in 2009, approved in 2015, and renewed every five years. We have communicated this plan to stakeholders, including the government and surrounding communities. The plan covers the entire (100%) mining operation area in Sorowako. PT Vale also guarantees mine closure. Provincial financial allocations, which include an environmental cost component in our Financial Statements, support our commitment to land reclamation and rehabilitation. Our actual environmental management cost in 2022 was US\$20,142,498 for Sorowako and Pomalaa.

Watershed Land Rehabilitation Outside CoW

[EM-MM-160a.2]

Former mine land reclamation aims to improve land ecosystems, endemic flora and fauna conservation and protection, and compliance with Government Regulation No. 78/2010 on Reclamation and Post-Mining. We are committed to limiting the open land areas for mining operations and managing biodiversity in the mining operation areas following Approval Letter No. 188.4/66/II/BAPEDALDA. We also carry out land rehabilitation and transboundary reforestation activities outside the mining operation areas, particularly in critical land and watersheds, per Regulation of the Minister of Environment and Forestry No. 59/2019 on Planting for Watershed Rehabilitation. We have rehabilitated watersheds in 13 South Sulawesi districts and three West Java districts. PT Vale's mining costs are divided into 22% for Pre-mining Conservation, 53% for the mining itself and 25% for Post-mining Conservation..

Locations and Total Area of Watersheds B#1 Rehabilitated by PT Vale

Province	District	Watershed	Area (Ha)
South Sulawesi	East Luwu	Labongko, Kalaena, and Pangkeru Watersheds	1,490
South Sulawesi	North Luwu	Rongkong Watershed	895
South Sulawesi	Luwu	Tomboe, Keppe, Larompong, and Lamasi Watersheds	1,101
South Sulawesi	Tana Toraja	Saddang Watershed	1,190
South Sulawesi	North Toraja	Saddang and Paremang Watersheds	329
South Sulawesi	Enrekang	Saddang Watershed	200
South Sulawesi	Pinrang	Saddang Watershed	450
South Sulawesi	Soppeng	Bila Walanae Watershed	400
South Sulawesi	Bone	Bila Walanae and Matuju Watersheds	1,735
South Sulawesi	Barru	Lisu Watershed	250
South Sulawesi	Maros	Bila Walanae Watershed	1,000
South Sulawesi	Gowa 1	Jeneberang Watershed	100
South Sulawesi	Gowa 2	Jeneberang, Kelara, and Tangka Watersheds	735
South Sulawesi	Takalar	Pamukkulu Watershed	125
Total			10,000

Locations and Total Area of Watersheds B#2 Rehabilitated by PT Vale

West Java	Sumedang	Cipunagara Watershed	191
West Java	Pangandaran	Cikembulang and Cikeuleuweung Watersheds	35
West Java	Tasikmalaya	Cisaringi, Cipatujah II, Cikamuning, Cipanyerang, Cipalireman, Cilanglah, Cilanglah II, Ciwulan, Cimedang, Cipacor, Cipadabumi, and Cipadabumi II Watersheds	209
Total			435

The Ministry of Environment and Forestry has entrusted PT Vale to rehabilitate 435 Ha of watersheds in six sub-districts in West Java: Tanjungmekar Sub-district in Sumedang, Parigi Sub-district in Pangandaran, and Cikalang, Cipatujah, Karangnungan, and Sodong Hilir Sub-districts in Tasikmalaya. We will carry out the rehabilitation until 2025. By the end of 2022, we have planted 25 Ha in Sindang Jaya Village, Cikalang Sub-district, Tasikmalaya District. We will plant another 410 Ha in 2023. Furthermore, PT Vale handed over 140 Ha of critical land in a rehabilitated watershed to the Ministry of Environment and Forestry in 2022. The handed-over land was in Pongkeru sub-watershed in Ledu-Ledu and Kawata Villages, Wasuponda Sub-district, East Luwu District, South Sulawesi.

Post-Mining Rehabilitation Activities



PT Vale's mining operation areas are privately owned based on a Contract of Work with the Government of Indonesia, which was amended in 2014. Some of the operation areas are in protected forests. We have obtained Borrow-to-Use Forest Permits (IPPKH) from the Ministry of Environment and Forestry to use the protected forests. [304-1a][EM-MM-210a.1][EM-MM-160a.3]

Borrow-to-Use Permits, Total Areas, and Percentages of Protected Areas [304-1a][EM-MM-210a.1][EM-MM-160a.3]

Block	Borrow-to-Use Permit Number	Protected Area (Ha)	Percentage
Sorowako	SK No.645/MenLHK/SetJen/PLA.0/12/2018	8,199	
	SK No.866/MenLHK/SetJen/PLA.0/10/2021	3,730	41%
	SK No.850/MenLHK/SetJen/PLA.0/10/2021	17,239	
Bahodopi	SK No.341/MenLHK/SetJen/PLA.0/5/2019	2,143	68%
	SK No.5/MenLHK/SetJen/PLA.0/1/2022	13,362	
Pomalaa	SK No.238/1/KLHK/2021	11,439	46%
Total		56,114	48%

Note: The percentage is calculated as a ratio of the protected area to the operation area in each block.

PT Vale carries out open pit mining activities, resulting in changes in the natural setting, ecosystems, and biodiversity. To minimize the impact, we adopt a policy of limiting the area cleared for mining activities every year, according to the application document for the revised reclamation guarantee for 2021–2022 approved by the Ministry of Energy and Mineral Resources. Accordingly, we limited the area we could clear in 2022 to a maximum of 1,981.57 Ha in 2022. The size of land newly cleared for mining operations in the reporting period was 199.80 Ha, making the total area used for mining operations as of late 2022 to be 5,458.60 Ha. [304-2b]

Area of Disturbed and Rehabilitated Land (Ha) [304-3]

Year	Total Unrehabilitated Disturbed Area at the Beginning of the Year	Total Disturbed Area in the Current Year	Total Rehabilitated Area in the Current Year	Total Unrehabilitated Disturbed Area at the End of the Year
	1	2	3	1+2-3
2022	2,054.10	199.76	295.43	1,958.43
2021	2,076.74	261.09	283.74	2,054.10
2020	1,971.22	281.44	176.24	2,076.42

Our post-mining rehabilitation program involves trained local communities, NGOs, the government, and a third party. The Ministry of Energy and Mineral Resources regularly monitors and evaluates its success to ensure the rehabilitated areas are eligible for handover to the government through the Ministry of Environment and Forestry. The success criteria include land use, revegetation, and final settlement standards, according to Regulation of the Minister of Energy and Mineral Resources No. 26/2018 and Decision of the Minister of Energy and Mineral Resources No.1827K/30/MEM/2018 on Guidelines for Implementing Good Mining Principles. [304-3b][304-3d]

Protecting Biodiversity [POJK51-F.10]

We manage the species affected by our mining activities by identifying and relocating them to other areas, including post-mining rehabilitated areas. The total area we reclaimed in 2022 was 295.43 Ha, or 1% of the 293.44 Ha target, with 179,993 trees planted. We target over 10,000 Ha to be reclaimed and rehabilitated by 2024. We are gradually handing over the rehabilitated areas to the government for reforestation. For example, in 2022, PT Vale handed over 140 Ha of critical land in a rehabilitated watershed to the Ministry of Environment and Forestry. The handed-over land was in the Pongkeru Sub-watershed, stretching across Ledu-Ledu and Kawata Villages in Wasuponda Sub-district, East Luwu District, South Sulawesi Province. [304-2a] [304-3a] [MM1]

PT Vale is committed to conserving protected and endangered fauna and flora species. A study conducted in collaboration with the University of Hasanuddin in 2020 found 43 protected species based on the IUCN Red List in our mining operation area in the Sorowako Block. The species list can be found in the Appendix hereto. [304-4a][MM2]



Reducing Landfill Loads Together

Solid waste we produce consists of non-hazardous and hazardous waste. We still adopted the policy of reducing landfill loads in 2022, referring to the PROPER policy, by optimizing the management of waste produced from our mining operations, production processes, and supporting and domestic activities. Prior to the final waste disposal stage, we treat our waste through efforts to reduce, reuse, recycle, and recover (4R). In the reporting period, no hazardous and toxic waste was shipped internationally, and no environmentally endangering waste was spilled. [POJK51-F.13][POJK51-F.14][POJK51-F.15] [306-3][306-4][EM-MM-150a.9][EM-MM-150a.10][EM-MM-150a.4][EM-MM-150a.5][MM3]



Types of Non-Hazardous Solid Waste and Their Volumes

[306-1][306-2][EM-MM-150.a.6]

Type of Waste	Unit	2022	2021	2020
From Mining Activities				
Solid Waste	WMT	1,506,693	1,447,074	898,926
Overburden		30,103,483	36,438,882	40,730,655
From Production Activities				
Furnace Slag	Ton	3,533,347	3,739,088	3,928,494
Converter Slag	Ton	377,804	417,906	394,431
Total		3,911,151	4,156,994	4,322,925
From Supporting Activities				
Non-industrial domestic waste generated	Ton	670	1,001	1,880
Non-industrial domestic waste segregated	%	15.23	10.17	7.03
Industrial domestic waste generated	Ton	6,295	3,492	2,893
Scrap metal waste generated	Ton	7,497	5,229	4,812

Types of Hazardous Solid Waste and Their Management Methods

[306-1][306-2][EM-MM-150.a.6]

Activity	Type of Waste	Management Method
Production and Supporting Activities	Used lubricants and grease	Used to substitute fuels
	<ul style="list-style-type: none"> • Used batteries • Waste containing heavy metals • Asbestos • Healthcare waste (incinerator ash) • Waste contaminated by lubricants and grease • Specific waste 	Sent to third parties
	Medical waste	Treated internally by a licensed incinerator (RS INCO) and the ash is sent to a third party

**Types of Hazardous Solid Waste and Their Volumes**

[306-1][306-2][EM-MM-150.a.6]

Type of Waste	Unit	2022	2021	2020
From Production Activities				
Used lubricants and grease		1,079.7	1,102.0	1,151.4
Used batteries		53.6	54.6	78.2
Waste containing heavy metals		356.8	44.6	2.5
Asbestos		3.8	2.7	3.5
Healthcare waste (incinerator ash)	Ton	4.1	4.3	3.5
Waste contaminated by lubricants and grease		292.1	360.1	663.5
Specific waste		45.4	47.4	44.7
Medical waste		29.8	29.8	28.4

Restatement of the 2021 and 2020 data due to differences in the calculation methods



Reducing Water Consumption Intensity Together

We pursue optimized water consumption for every ton of nickel in matte produced, in line with PT Vale's Water Efficiency and Wastewater Pollution Reduction Policy. This policy can be found at <https://vale.com/our-policy>.

The biggest need for water is for hydropower operations on the Larona River, with water supplied from Lakes Matano, Mahalona, and Towuti. Water from the lakes flows into a reservoir and is channeled to a canal to move the turbine. The amount of water consumed is the same as the water extracted from the lake, and no water is extracted from the water stress area. [303-3]

The locals also utilize lakes Matano, Mahalona, and Towuti for their domestic needs, as a livelihood source for those who work as fishers and farmers, and as a

transportation route. PT Vale regulates the water volume and discharge for the hydropower to ensure that the lakes are preserved and can still be utilized by the community. We are also committed to protecting the three lakes to support their status as a Natural Tourism Park Conservation Area based on the Decision of the Minister of Agriculture No. 274/Kpts/Um/4/1979 dated April 24, 1979. [303-1][303-2]

[EM-MM-210b.1]

The total water consumed in 2022 was 8,519,762 m³ (equivalent to 8,519.167 megaliters), a decrease of 161,558 m³

(equivalent to 161.558 megaliters) or 1.86% from the 8,681,643 m³ consumed in 2021.

The water consumption intensity in 2022 was 141.77 m³/Ton Ni (0.14 megaliters/Ton Ni), higher than the 132.85 m³/Ton Ni (0.13 megaliters/Ton Ni) in 2021 due to a decrease in production. We report our water consumption intensity to the authority and the public via <https://vale.com/our-policy>. [303-5][EM-MM-140a.1]

Water Consumption Intensity

Description	Unit	2022	2021	2020
Nickel in Matte Production Volume	Ton	60,090	65,388	72,237
	m ³	8,519,167	8,680,725	9,610,093
Water Consumption Volume	Megaliter	8,519.167	8,680.725	9,610.093
	m ³ /Ton Ni	141.77	132.85	135.30
Water Consumption Intensity	Megaliter/Ton Ni	0.141	0.132	0.135

Note: 1 m³ is equivalent to 0.001 megaliters

In 2022, PT Vale made the following efforts to make water consumption more efficient:

- Reducing and controlling leaks in water supply pipelines in its operation areas;
- Controlling and reducing water overflow from the matte pond;
- Implement a water efficiency program in PTVI's business process flow based on the Hotspot Life Cycle Assessment (LCA) and Water Audit;
- Raising employees' awareness of water efficiency and reporting daily water consumption in daily FMDS meetings;
- Making water consumption intensity a KPI.

Impact of Wastewater and Its Management

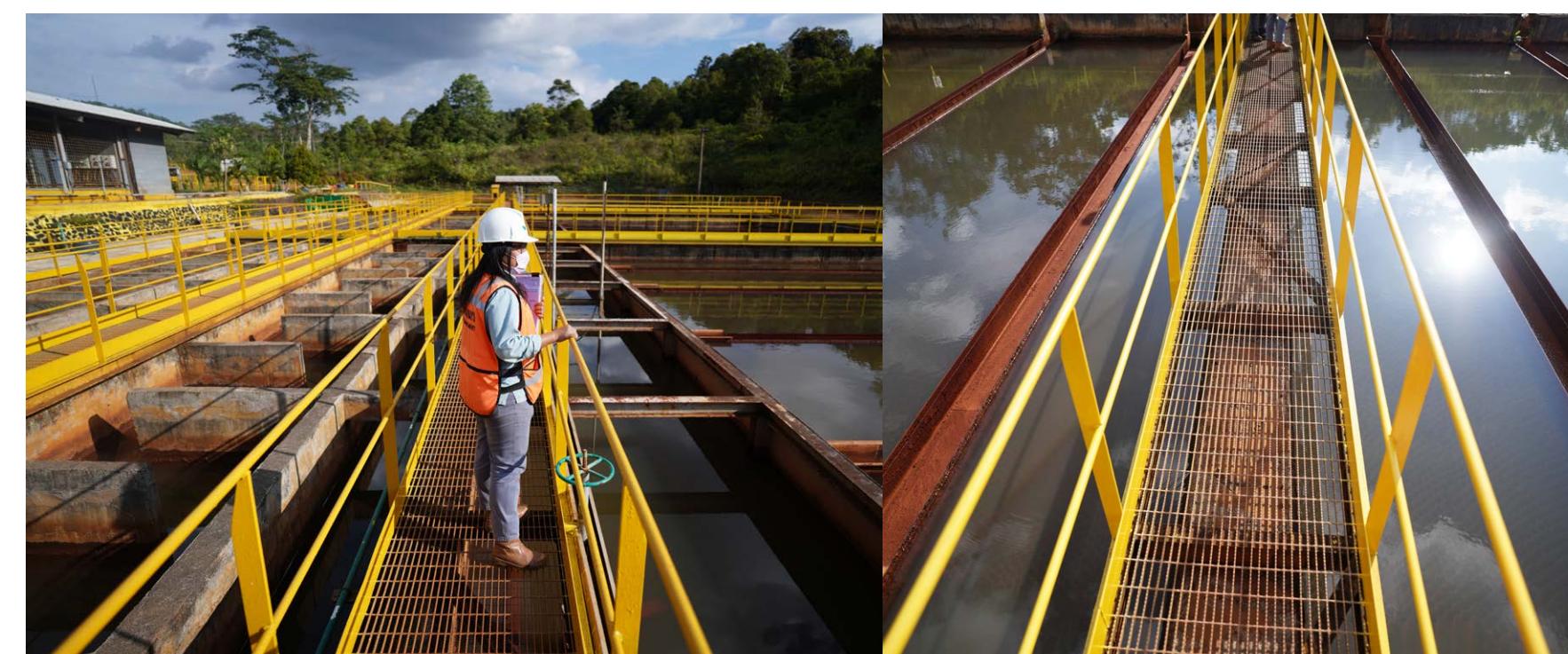
[\[POJK51-F.9\]](#) [\[POJK51-F.14\]](#)

We regularly analyze processed effluent that will be discharged to Lake Matano through its tributary. The purpose is to ensure compliance with the quality standards according to the Regulation of the Minister of Environment No. 9/2006 on Wastewater Quality Standards for Nickel Ore Mining Businesses and/or Activities. We usually commission an accredited independent laboratory to conduct the analysis using the SNI 6989.59:2008 Water and Wastewater method and the American Public Health Association (APHA) standard method. An analysis conducted in 2022 found that the quality of our processed effluent met the quality standards. [\[303-4\]](#)

[\[EM-MM-140a.2\]](#)

Results of Effluent Quality Measurement in 2022

Location	Processed Volume (m ³)	Parameter, Quality Standard, and Measurement Result				
		TSS	Cr Total	Cr6+	Fe	Ni
		<200 ppm	0.5 ppm	0.1 ppm	5 ppm	0.5 ppm
Petea Timur	540,682	10.25	0.04	0.02	0.60	0.012
Petea Barat	965,211	14.58	0.05	0.04	0.26	0.011
Petea Timur Jauh	2,426,003,112	13.25	0.05	0.02	0.45	0.011
Lorraine	164,646	8.08	0.04	0.02	0.11	0.010
Kathryn	364,362	6.67	0.04	0.02	0.12	0.010
Lamoare Creek A	241,898	8.08	0.05	0.03	0.04	0.012
Lamangka 1	292,101	7.75	0.03	0.03	0.13	0.009
Lamangka 2	336,592	9.08	0.04	0.03	0.25	0.010
Lamangka 3	611,988.9	9.83	0.04	0.02	0.18	0.012
Petea Car Wash	5,478	11.25	0.04	0.03	0.33	0.024



Compliance, Complaint Handling, and Evaluation of Suppliers/Work Partners

[\[POJK51-F.16\]](#)

In managing the environment, PT Vale complies with all applicable regulations. We use an application named the Regulation Compliance System (RCS) and adopt global standards for regulation compliance, enabling us to access and identify our compliance level. The Environment Committee, comprising senior managers and directors, also evaluates the Company's environmental management performance. We work well with independent parties, including Bureau Veritas, an external auditor that evaluates our environmental performance. An evaluation carried out in 2022 found that we had 100% compliance. We ensured that there were no suspicions of environmental management non-compliance that could make PT Vale receive fines or other legal sanctions. [\[2-27a\]](#)[\[2-27b\]](#)[\[2-27c\]](#)[\[2-27d\]](#)

PT Vale also regularly evaluates its suppliers' or work partners' environmental management performance. During 2022 evaluations have been carried out for all (100%) new suppliers/work partners. Based on the evaluation carried out, there was no termination of the work contract with the supplier/work partner because they did not manage the environment according to PT Vale's regulations and standards. [\[308-1a\]](#)[\[308-2a\]](#)[\[308-2b\]](#)[\[308-2c\]](#)[\[308-2d\]](#)[\[308-2e\]](#)

Social Sustainability Management Performance

The performance of social sustainability management to mitigate the impacts of PT Vale's activities is disclosed by focusing on fulfilling the needs of employees and community members as the directly-affected stakeholders. Social sustainability performance in this reporting period is consistent with the material topic, which covers occupational health and safety (OHS), the local community, and diversity and equality. We also support awareness raising and respect for human rights.

[2-25]

Commitment to Human Rights

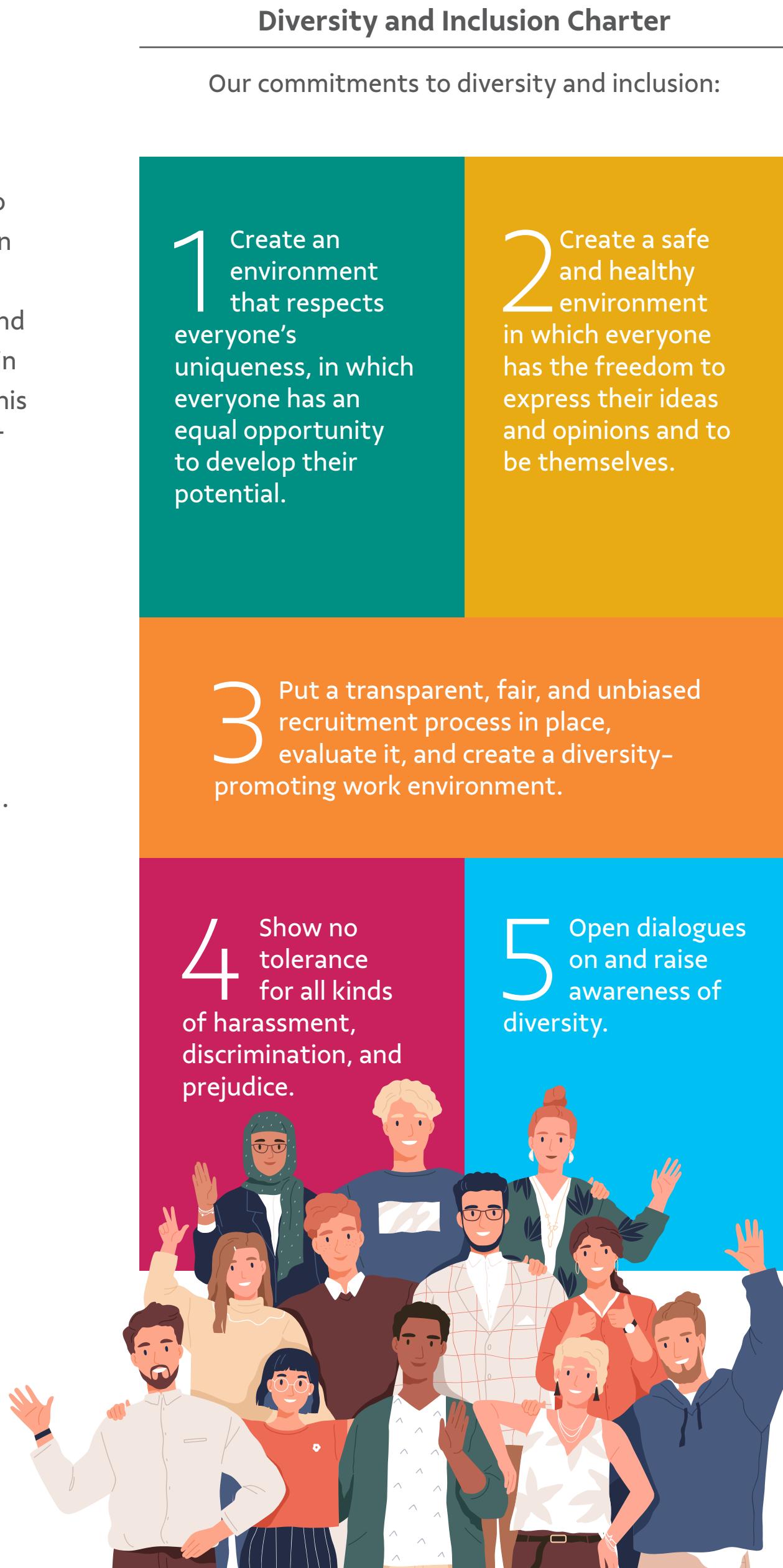
Our human rights policy is laid down in our Code of Conduct (CoC) and refers to the United Nations Guiding Principles on Business and Human Rights. PT Vale is committed to respecting, protecting, and remedying the human rights condition in the Company and of all stakeholders. This commitment is also realized through PT Vale's participation in the membership of the United Nations Global Compact (UNGC). [\[2-23b\]](#)[\[EM-MM-210a.3\]](#)

Promoting Equality and Diversity [\[POJK51-F.18\]](#) [\[EM-MM-210a.3\]](#)

PT Vale has a Diversity and Inclusion Charter, setting out the Company's five commitments to diversity and inclusion. We encourage raising employees' awareness of gender equality and diversity through programs targeting supervisors and above. During 2022, PT Vale conducted training related to diversity and inclusivity which was attended by 711 participants.

Diversity and Inclusion Charter

Our commitments to diversity and inclusion:



1 Create an environment that respects everyone's uniqueness, in which everyone has an equal opportunity to develop their potential.

2 Create a safe and healthy environment in which everyone has the freedom to express their ideas and opinions and to be themselves.

3 Put a transparent, fair, and unbiased recruitment process in place, evaluate it, and create a diversity-promoting work environment.

4 Show no tolerance for all kinds of harassment, discrimination, and prejudice.

5 Open dialogues on and raise awareness of diversity.

We provide opportunities equally to everyone who works and pursues a career at PT Vale. Every process is gone through without looking at gender, ethnicity, religion, group, political affiliation, physical restrictions, and other discriminatory reasons. In 2022, we never received allegations of discrimination in the workplace. [\[406-1a\]](#)[\[406-1b\]](#)

In 2022, 102 new employees were recruited, consisting of 88 (86.3%) men and 14 (13.7%) women, while 134 employees left the Company. We provide allowances and other facilities by taking into account employees' employment status and placement. PT Vale gives 120 calendar days' leave to female employees who are about to give birth and two calendar days (on-site) and three calendar days (off-site) to male employees to accompany their wives in childbirth. All female employees who have completed their maternity leave have returned to work in the same position; none resigned from PT Vale.

[\[401-1a\]](#)[\[401-1b\]](#)[\[401-2a\]](#)[\[401-2b\]](#)[\[401-3a\]](#)[\[401-3b\]](#)[\[401-3c\]](#)[\[401-3d\]](#)[\[401-3e\]](#)

We are gradually increasing the number of female employees. By the end of 2022, the number of female employees had already reached 256 people or 8.7% of the total employees. Of this number, 25 people, or 8.3% of the total employees, held a managerial post, with General Manager as the highest rank, and 11 people, or 4.3% of the total female employees, were in the management. [\[405-1a\]](#)[\[405-1b\]](#)

PT Vale also accepts competent and able people with disabilities for vacant posts. The number of employees with disabilities in 2022 was four people, one more employee than that in 2021, representing 0.1% of the total employees. The Company recruited them as non-staff and senior staff employees. [\[405-1a\]](#)[\[405-1b\]](#)

Number of Employees in 2022 by Position, Gender, and Age Group [\[405-1a\]](#)

Position	Gender		Age Group		
	Men	Women	<31	31-50	>50
Management	4	1	0	3	2
Senior General Management	17	2	0	15	4
Senior Staff	83	10	0	75	18
Staff	358	64	37	296	89
Non-Staff	680	102	52	575	155
Total	1,536	77	39	1,268	306
	2,934		2,934		

Number and Percentage of Employees by Gender, Persons with Disabilities, and Local Workers [\[405-1a\]](#)

Description	2022		2021		2020		
	Total	%	Total	%	Total	%	
Gender	Men	2,678	91.3	2,710	91.4	2,749	91.5
	Women	256	8.7	256	8.6	257	8.5
	Total	2,934	100.0	2,966	100.0	3,006	100.0
Persons with Disabilities	4	0.1	3	0.1	4	0.1	
Local Workers	2,550	86.9	2,570	86.6	2,616	87.0	

Number of Female Employees in Management Positions [\[405-1b\]](#)

Description	2022	2021	2020	Δ%	
	1	2	3	1:2	2:3
Director	1	1	1	0.0	0.0
Senior Manager	2	1	0	100.0	-
Middle Manager	10	9	7	11.1	28.6
Supervisor	64	45	12	42.2	275.0
Specialist	102	117	51	(12.8)	129.4
Technician	77	83	186	(7.2)	(-55.4)
Total	256	256	257	0.0	(-0.4)

Srikandi Heroine Behind the Electric Truck Wheels



PT Vale has entrusted **Yulianti Marcelina** to be the first female operator of an electric truck that the Company was trying out. Yulianti Marcelina, originally from Wasuponda in East Luwu, joined PT Vale in 2011. She is the mother of two children aged 5 and 6 years old. We give opportunities to female employees to take on various roles identified as male jobs, including welders and emergency workers.

Support for the Trade Union and Collective Labor Agreements

Nothing hindered employee activities in unions or establishing a trade union in 2022. Through representatives in the trade union, employees and the management drafted and inked the 19th Collective Labor Agreement for 2021–2023, according to Law No. 13 of 2003 on manpower. The Collective Labor Agreement was aimed at protecting all employees and workers, while the protection of foreign workers (expatriates) refers to the senior management book. The Collective Labor Agreement regulates the notification process to employees of any changes in the Company's operations. To support human rights (HAM), PT Vale also supports association and assembly activities which are held periodically. [\[2-30a\]](#)[\[2-30b\]](#)[\[407-1a\]](#) [\[407-1b\]](#)[\[402-1a\]](#)[\[402-1b\]](#)

Percentage of the Lowest Remuneration Against the Minimum Wage [\[POJK51-6.c.2.b\]](#)

PT Vale remunerates male and female employees in a ratio of 1:1. The amount of remuneration also takes allowances and placement incentives at Sorowako, Bahodopi, and Pomalaa mines into consideration. In general, the lowest remuneration PT Vale employees received in 2022 was 114% higher than the minimum wage requirement in East Luwu District. [\[POJK51-F.20\]](#) [\[202-1\]](#)[\[405-2a\]](#)[\[405-2b\]](#)

Employee Training and Development [\[POJK51-F.22\]](#)

PT Vale provides equal opportunities for every employee to participate in training. The total training hours in 2022 were 117,360 hours, attended by 2,934 employees, consisting of 2,678 men (91.28%) and 256 women (8.72%), making the average training hours to the total employees 40 hours. In addition, the Company organizes special training for employees about to retire to help them become self-employed or do other jobs after retirement. In this reporting period, 49 employees participated in special training on: [\[404-1a\]](#)[\[404-2a\]](#)

- Health
- Psychology
- Entrepreneurship
- Visits to several entrepreneurs guided by resource persons

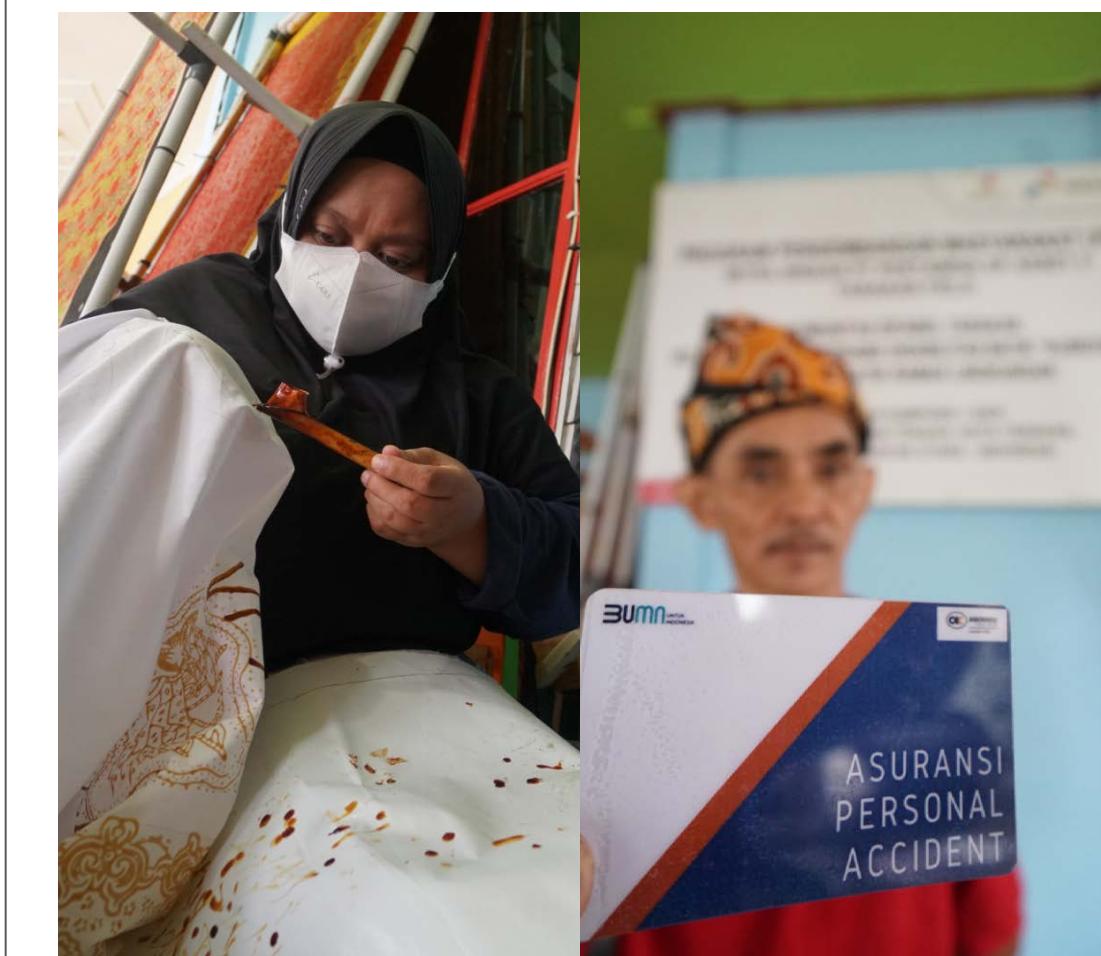
PT Vale opens up ample opportunities for every employee to build their careers by considering the evaluation results of all employees' performance. In 2022, 439 employees were promoted, consisting of 399 men (91%) and 40 women (9%). [\[404-3a\]](#)

Preventing Forced and Child Labor [\[POJK51-F.19\]](#)

There were no reports of forced labor in 2022. PT Vale applies a working-hour rule according to Law No. 13 of 2003 on Manpower and compensates employees for every extra working hour they do. We also ensure that PT Vale's and contractors'/vendors' activities do not involve child labor by setting a minimum age of 18 years old for employees or workers according to the Manpower Law and International Labour Organization (ILO). Further, no employee strike ever occurred during the reporting period. [\[408-1a\]](#)[\[408-1b\]](#)[\[408-1c\]](#)[\[409-1a\]](#)[\[409-1b\]](#)[\[MM4\]](#)[\[EM-MM-310a.1\]](#)

Managing Social Impacts on Vulnerable Groups and Local Communities

One of our priorities for social impact management is local community groups that are considered vulnerable groups. We are aware that our approach toward the local community groups is not a one-size-fits-all approach, but not to the point of creating a conflict between the Company and the local community groups. We continue to improve coordination and synergy with the government of East Luwu District to obtain their input, direction, and guidance on a shared expectation of opening up more work and business opportunities for the local communities. One program we carried on in 2022 was the Sustainable Environmental Friendly Healthy Agriculture and Fisheries Development Program (P3SRLB Program). [\[413-1\]](#)[\[EM-MM-210b.1\]](#)



P3SRLB and Other Activities Carried Out in Managing Social Impacts on Community Groups

Community Group	Social Impact Management Activities in 2022
Dongi	Carrying on organic vegetable cultivation Freshwater fishery facilities and infrastructure Facilities and infrastructure for goat and cow farming
Konde Group	Facilities and infrastructure for freshwater organic fish pond revitalization Organic rice and vegetable demonstration plots
Taipa Group	Dredging upstream irrigation channels and revitalizing agricultural land
Pekaloa Group	Facilities and infrastructure for a compost production house Developing laying hen farms
Tambe'e Group	Facilities and infrastructure for a compost production house Organic rice and vegetable demonstration plots Procuring seeds for smallholdings
Weula Group	Facilities and infrastructure for an organic vegetable demonstration plot
Kolono Village Farmers Group	Coaching on and developing organic rice using the system of rice intensification (SRI) Training on and manufacturing local microorganisms (MOL) Training on and self-producing organic compost
Ululere Village Farmers Group	Coaching on and developing organic rice using the system of rice intensification (SRI) Manufacturing local microorganisms (MOL) Self-producing organic compost Developing organic vegetable processing
Bahomoahi Village Farmers Group	Coaching on and developing organic rice using the system of rice intensification (SRI) Training on and manufacturing local microorganisms (MOL) Training on and self-producing organic compost
Bahomotefe Village Farmers Group	Coaching on and developing organic rice using the system of rice intensification (SRI) Training on and manufacturing local microorganisms (MOL) Training on and self-producing organic compost

We also pay attention to another vulnerable group, persons with disabilities. PT Vale has gradually started to develop a program to support persons with disabilities in entrepreneurship to achieve self-employment and develop a superior livestock area in Matompi Village, Towuti Sub-district, East Luwu, by donating chicken coops and organic free-range chicks to youths with disabilities, members of the 'Woliku' livestock group in Matompi Village, Towuti Sub-district, East Luwu. The Woliko Group comprises twelve youths, six of whom have disabilities.



One of the three blocks where PT Vale operates, has local people, the natives acknowledged and recorded in an agreement. During the reporting period, the Company did not have any conflicts with them, and no relocation was made as a result of mining operations. We keep improving our communication with local people to find the best solution to some differences that still become our shared concern. [\[MMS5\]](#)[\[MM6\]](#)[\[MM9\]](#)[\[411-1a\]](#)[\[411-1b\]](#)[\[EM-MM-210a.2\]](#)[\[EM-MM-210b.2\]](#) [\[EM-MM-310a.2\]](#)

Human Rights Training of Security Guards

Security guards carry the duties and responsibilities of securing the Company and its assets. During the reporting period, the Company had 407 security guards, consisting of employees and two outsourced workers from a certified security service provider registered with the Indonesian Association of Security Service Businesses. All security guards held a training certificate issued by the Indonesian Police, with Gada Pratama (basic) and Gada Madya (intermediate) qualifications, according to the Indonesian Police Chief's Decision No. 4 of 2020 on Independent Security. Topics on law and human rights were part of the training syllabus. [\[410-1a\]](#)[\[410-1b\]](#)

Maintaining a Decent and Safe Work Environment Together

[\[POJK51-F.21\]](#)

Applying one of the sustainable mining principles, which is the OHS requirement, PT Vale has introduced the Mineral and Coal Mining Safety System (SMKP Minerba), according to Minister of Energy and Mineral Resources' Decision No. 1827/K/30/MEM/2018 concerning Implementing Guidelines on Good Mining Practices. OHS Management also refers to ISO 45001 Occupational Health and Safety Management System. Applying one of the sustainable mining principles, which is the OHS requirement, PT Vale has introduced the Mineral and Coal Mining Safety System (SMKP Minerba), according to Minister of Energy

and Mineral Resources' Decision No. 1827/K/30/MEM/2018 concerning Implementing Guidelines on Good Mining Practices. We also have a Safe Work Permit (SWP) to ensure that all risks and the safety control that must be prepared are identified. PT Vale complies with the industrial hygiene requirement, including dust, noise, and ergonomics, which are listed in the KPIs and reviewed periodically. The OHS requirement includes employees, contractors, and vendors. We do not exempt them from the requirement, including other stakeholders visiting the Company's premises. [\[403-1a\]](#)[\[403-1b\]](#) [\[403-8a\]](#)[\[403-8b\]](#)[\[403-8c\]](#)

Key Hazard Identification and OHS Training

The OHS requirement is fulfilled through the identification of key hazards, which will be managed using systems and instruments inherent to the operational activities, which are the Contractor Safety Management System (CSMS), General Induction Program (GIP), Site Specific Induction Program (SSIP), Risk Assessment (RA), Job Safety Analysis (JSA), Safety Talks, Critical Activity Requirements (CAR), SWP, and audits/inspections. In addition, PT Vale has mechanisms for employees and workers to report conditions that will jeopardize their health and safety at work. In 2022, occupational safety monitoring and inspection were reported through a smartphone application and a web-based CCVV. Furthermore, occupational accidents were reported through a smartphone IRIS application. [\[403-2a\]](#)[\[403-2b\]](#)

We have the policy to remove employees and workers from situations that endanger their health and safety. Employees have the right to refuse, terminate, and report work deemed unsafe to their superiors. The Company will follow up on the reports, including by investigating any incident. PT Vale had identified hazards and assessed potential risks, allowing every potential risk to be controlled during the reporting period.

[\[403-2c\]](#)[\[403-2d\]](#)

The OHS Central Committee supports activities to ensure OHS. In committee meetings, employee representatives may report on various OHS-related issues. In 2022, the committee organized twelve meetings, the reports submitted during which have been followed up by the Company. Employees and workers are also involved in ensuring OHS by providing them with training, including certification, to improve their competence. The training provided includes the safety stand down, prevention week, contractor forum, health week, DoR, and safety share training. PT Vale organized 21 OHS training programs in 2022, attended by 2,214 employees and 18,955 workers (contractor/vendor). [\[403-4a\]](#)[\[403-4b\]](#)[\[403-5a\]](#)

OHS Certification Training and the Number of Participants in 2022 [POJK51-F.22] [403-5a]	Total Participants
First Operational Supervisor (POP)	87
Intermediate Operational Supervisor (POM)	56
Principal Operational Supervisor (POU)	4



Employee Health

Activities to ensure employees' and workers' occupational health in 2022 were still focused on addressing the COVID-19 pandemic. We organized the third dose COVID-19 vaccination program for employees and workers, with 98.8% participation. Another effort we made was operationalizing a COVID-19 PCR lab in the Enggano Clinic, which can examine 200 samples daily. The lab helps employees and workers get their swab test results on the same day, eliminating any disruption to their productivity. The clinic system is also connected to the PeduliLindungi application, providing users with easy access. PT Vale also monitors employees and contractors with comorbidities and encourages them to undergo medical check-ups regularly. [\[403-3a\]](#)



PT Vale has registered all its employees for health social security with the Social Security Administrative Body for Health (BPJS Kesehatan). As participants, they have access to health services for non-occupational diseases in first-level health facilities and referral hospitals. Further, we facilitate periodic medical check-ups for employees and workers to monitor their health. In 2022 there were 10,981 PT Vale employees and contractors, as well as 16,497 workers undergoing MCU.

[\[403-6a\]](#)

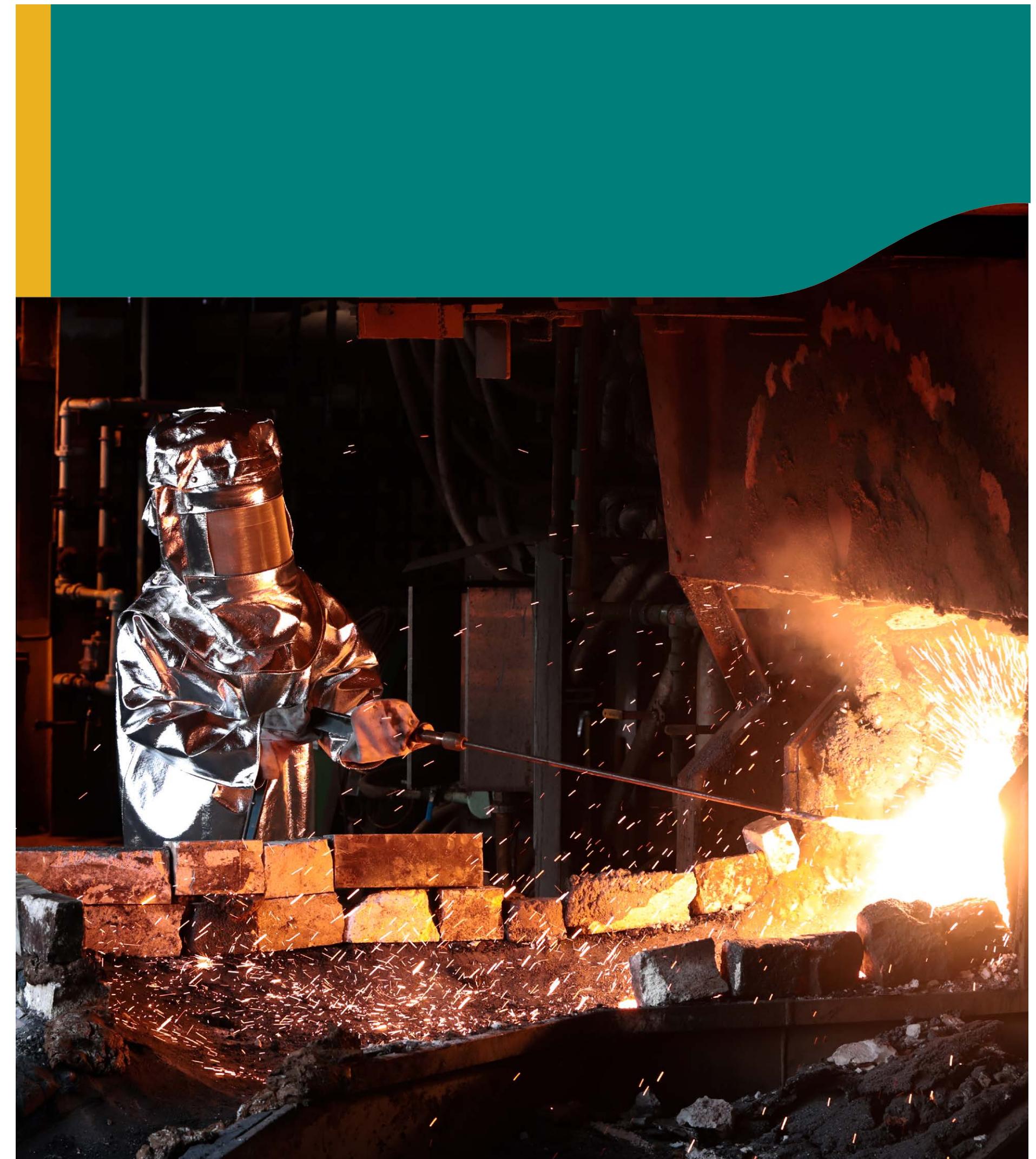
We carried on our volunteer work on HIV/AIDS in the workplace. This work has been carried out since 2008 in collaboration with the Health Office of East Luwu. The work has gained platinum-category appreciation from the Ministry of Manpower.

[\[403-6b\]](#)

Operational Safety Management

Several types of work in mining operations and nickel in matte production have high risks and can endanger employees' and workers' health and safety. Therefore, we have taken mitigation measures to minimize potential hazards. In addition, the Company has its own operational safety management standards and follows government regulations as a form of regulatory compliance. [\[403-7a\]](#)

Type of Work	Risk Faced by Employees and Workers	Mitigation Measure [403-9d][403-10c]
Operating heavy equipment.	Serious injury/death.	<ul style="list-style-type: none"> Developing CAR/MHS-03 standards. Conducting vehicle operating training and audit.
Working at heights.	Serious injury/death.	<ul style="list-style-type: none"> Implementing CAR/MHS-01 standards. Conducting training on and audit of working at heights.
Blasting.	Serious injury/death.	<ul style="list-style-type: none"> Implementing CAR/MHS-09 standards. Certifying blasting operators. Auditing blasting jobs.
Working near hazardous gases.	Hazardous gas poisoning.	<ul style="list-style-type: none"> Conducting hygiene industrial risk assessment. Offline and online monitoring. Preparing safe work procedures. Wearing personal protective equipment (PPE).
Working in heat exposure areas.	Heat stress.	<ul style="list-style-type: none"> Conducting hygiene industrial risk assessment. Offline and online monitoring. Preparing safe work procedures. Wearing personal protective equipment (PPE).
Working in noisy areas.	Loss of hearing sensitivity.	<ul style="list-style-type: none"> Conducting hygiene industrial risk assessment. Offline and online monitoring. Preparing safe work procedures. Wearing personal protective equipment (PPE).
Other types of work identified from project job demand analyses: • Working with mining equipment; • Manually handling materials.	Musculoskeletal disorder (low back pain, herniated nucleus pulposus, etc.)	<ul style="list-style-type: none"> Performing engineering control over mining equipment that has high ergonomic risk. Performing administrative control by raising the awareness of mining operators who work with equipment that has high ergonomic risk. Performing administrative control over all types of work requiring workers to handle materials manually.



Occupational Health and Safety Performance

PT Vale conducts an OHS compliance audit annually, referring to SMKP Minerba and the IMS—Environment Health and Safety Management System. In 2022, a certified auditor carried out the internal SMKP Minerba audit. The results indicate 70% compliance, lower than in 2021, which was 75.18%. Safety performance is also monitored using statistical calculations, the Severity Rate (SR) and Frequency Rate (FR), calculated per 1,000,000 working hours. The calculation does not exempt certain employees and workers and includes mining operations and production activities. [403-9a][403-9b][403-9c][403-9e][403-9f][EM-MM-320a.1]



OHS Performance Statistics [403-9]

Indicator	2022			2021			2020		
	Sorowako	Bahodopi	Pomalaa	Sorowako	Bahodopi	Pomalaa	Sorowako	Bahodopi	Pomalaa
Number of Fatalities	1	0	0	0	0	0	0	0	0
Lost Time Injuries	2	0	0	4	0	0	3	0	0
First Aid Injuries	13	0	0	15	0	0	24	0	0
Near Miss Unsafe Action, Unsafe Condition	70	0	0	77	0	0	86	0	0
Days Lost due to Accident (Severity Rate)	254.14	0	0	0.20	0	0	0.19	0	0
Total Accident Rate (Frequency Rate)	0.68	0	0	0.70	0	0	0.51	0	0

Total Occupational Accidents and the Rates in 2022 [403-9a][403-9b]

Occupational Accident Level	Sorowako		Bahodopi		Pomalaa	
	Total	Rate	Total	Rate	Total	Rate
Medical Aid	0	0.00	0	0.00	0	0.00
Lost Time Injury & Disabling Injury	6	0.25	0	0.00	0	0.00
Fatality	1	0.5	0	0.00	0	0.00
Total	7	0.30	0	0.00	0	0.00

Total Occupational Accidents and the Rates in 2021 [403-9a][403-9b]

Occupational Accident Level	Sorowako		Bahodopi		Pomalaa	
	Total	Rate	Total	Rate	Total	Rate
Medical Aid	10	0.50	0	0.00	0	0.00
Lost Time Injury & Disabling Injury	4	0.20	0	0.00	0	0.00
Fatality	0	0.00	0	0.00	0	0.00
Total	14	0.70	0	0.00	0	0.00

Total Occupational Accidents and the Rates in 2020 [403-9a][403-9b]

Occupational Accident Level	Sorowako		Bahodopi		Pomalaa	
	Total	Rate	Total	Rate	Total	Rate
Medical Aid	5	0.32	0	0.00	0	0.00
Lost Time Injury & Disabling Injury	3	0.19	0	0.00	0	0.00
Fatality	0	0.00	0	0.00	0	0.00
Total	8	0.51	0	0.00	0	0.00

The results of OHS performance statistical calculation in 2022 were affected by a fatal work accident involving a worker at PT Multitama Indonesia, a contractor or work partner of PT Vale, on October 21, 2022, at the Delaney Tire Shop, while repairing tires for heavy equipment. As a follow-up, we temporarily terminated activities in all workshops and tire reparation activities, reviewed all equipment with a potential pressure risk, and coordinated and fully cooperated with the authorities in the investigation and on the resulting recommendations to prevent future recurrences.

To improve occupational health and safety, the Company made the following efforts in 2022: [403-9d]

- Organizing monthly contractor forums, which must be attended by operational PICs and company owners

- Organizing the safety stand down, prevention week, health week, and DoR training

No occupational diseases suffered by employees and workers were reported in 2022. We have taken mitigation measures for diseases often diagnosed through the health share program. [403-3a][403-10a][403-10b][403-10d]



Dam Safety and Security Management

PT Vale continued to improve dam safety and security through the following effort:

The Capital & Project Management Department continued the Shotcrete Project, reinforcing inclined planes to prevent landslides, particularly hydro utilization areas around the dam and logistic roads. The project was per the Indonesian Dam Safety Commission's recommendation and used as a requirement to extend PT Vale's power plant operating license and certificate. The project has entered Phase 2, covering the areas of Karebbe, Balambano, Tawaki, and logistic roads. Phase 2 is expected to be completed in 2023.

Empowering the Community Together [POJK51-F.25]

Social Impact Assessment [POJK51-F.23]

We assessed the social impacts of the Company's operations by involving stakeholders in Sorowako, Bahodopi, and Pomalaa. The assessment reveals the communities' needs, the mapping of vulnerable stakeholders, opportunities to work with the local governments, and the provision of a grievance channel. The social impacts are managed through the Integrated Community Empowerment and Development Program and the Self-Reliance Rural Development Program. Both programs cover Ring-1, 2, and 3 areas, according to the stakeholder mapping and the development plan of the district government of East Luwu. [413-1a][413-2a][EM-MM-210b.2]



Negative Impact Management in 2022 [413-2]

Number of Villages Affected	Percentage of Villages in Operational Areas	Type of Impact	Impact Management and Type of Social Investment
Sorowako Block			
Nuha Sub-district	5		
Wasuponda Sub-district	6	100%	
Towuti Sub-district	18		
Malili Sub-district	9	100% Five villages are not included in the Ring 1 area	<ul style="list-style-type: none"> An increase in Lake Matano, Towuti, and Malili Sub-district water levels. Mining activities in Lembo South, Ferary, Tanamalia, Balonti, and Timor GAP areas (CoW Areas) have resulted in a number of farmers discontinuing their activities. Oil pipelines in people's smallholdings and community settlements have disrupted people's activities. Tower lines in people's smallholdings have disrupted their activities.
Pomalaa Block			
Pomalaa Sub-district	12	100%	An increase in dust particles due to operational vehicle activities.
Baula Sub-district	10		
Bahodopi Block			
East Bungku Sub-district	10		No impacts yet because the mining license is still under process
Bahodopi Sub-district	7	100%	<ul style="list-style-type: none"> Infrastructure provision to support the Integrated Community Empowerment and Development Program. Capacity building for the community and stakeholders through strategic partnership and contribution programs.



In 2022, PT Vale's social programs contributed to the achievement of Green PROPER, particularly in its community empowerment program, and obtained recognition from six relevant agencies in eight categories, such as the most innovative Integrated Community Empowerment and Development Program in the health sector from the Ministry of Energy and Mineral Resources, the Indonesian Sustainable Development Goals Award from the Ministry of National Development Planning, and the Sustainable Village Development Award from the Ministry of Villages, Underdeveloped Area Development, and Transmigration.

As a continuous improvement effort, PT Vale has evaluated the management of the Integrated Community Empowerment and Development Program during the review of the 2018–2022 Indonesian Integrated Community Empowerment and Development Program document. Together with related parties, PT Vale is preparing to roll out the 2023 Integrated Community Empowerment and Development



Program scheme, in line with support to achieve SDGs and the self-reliant rural development goal. All stakeholders are expected to play a role in the community development program through a Creating Share Value (CSV) scheme to allow the local community around the mines and the Company to benefit from the added value. It is also an advanced milestone in preparing post-mining, local-potential-based community self-sufficiency.

In addition to developing leading local commodities, the Company also implements educational programs, including capacity building, vocational training, preventive effort reinforcement, community-resourced health promotion, and a sustainable eco-tourism supporting initiative. Therefore, the development can be a social innovation to improve the Human Development Index and the extractive, non-industrial, creative economic sector, particularly in East Luwu District.

Building Synergy with the Government

We continuously build synergy with local governments and contribute to regional economic development. PT Vale transferred the Sorowako Airport to the provincial government in the reporting period, marked by the signing of a deed of release during a special parliamentarian plenary of East Luwu on May 12, 2022. South Sulawesi Governor Andi Sudirman Sulaiman and PT Vale President Director Febriany Eddy signed the deed of release.

Three objects that PT Vale released to the provincial government of South Sulawesi were:

- Land of 25.4 Ha;
- Movable assets functioning as facilities and infrastructure to support the operation of Sorowako Airport;
- Sorowako Airport service management.

The purpose of the transfer was to support tourism in South Sulawesi, particularly East Luwu. After being managed by the provincial government, Sorowako Airport has been serving as a public airport, thereby increasing the number of tourists visiting the province. Moreover, the airport supports the traffic of goods, including exports.

Vale Sorowako Airport Handover Journey

30 APRIL 2021

Signing of the MoU on the Submission of Grants for Sorowako Airport between Acting Governor of South Sulawesi Andi Sudirman Sulaiman and President Director of PT Vale Indonesia Tbk.

29 DECEMBER 2021

Signing of Sorowako Airport Grant Agreement between Acting Governor of South Sulawesi Andi Sudirman Sulaiman and President Director of PT Vale Indonesia Tbk.

12 MAY 2022

Signing of the Deed of Release for Sorowako Airport between the Governor of South Sulawesi Andi Sudirman Sulaiman and the President Director of PT Vale Indonesia Tbk. and Handover of Sorowako Airport



- Sorowako Malili Airport was built in 1980
- Located in Sorowako Village, Nuha, East Luwu, South Sulawesi
- South of Lake Matano
- Altitude 423 m / 1388 ft
- Runway Strip 1250x80 m
- Flight schedule (Sunday, Monday, Wednesday, Friday)

PT Vale also inked a memorandum of understanding (MoU) with the district government of Kolaka to implement integrated community empowerment and development programs in the district. A number of programs have been initiated to implement the MoU, including sustainable, eco-friendly, healthy farming (PSLRB) through organic rice planting using the system of rice intensification (SRI) and local capacity building to improve community members' skills in the Pomalaa Block. The Company also gives donations and actively promotes improved facilities and infrastructure in the empowerment areas.



In this block, PT Vale has also built synergy with the district government of Morowali through a program to improve service facilities and infrastructure in the Bahomotefe health center, East Bungku Sub-district. This program is PT Vale's contribution to improving healthcare for the surrounding communities. Renovation reached 70% as of December 2022.



The Bahodopi Block, in collaboration with the provincial government of Central Sulawesi, is building a water treatment installation in Watutela, Tondo, to help meet the clean water needs of the survivors of the natural disaster that struck Palu in 2018. The Rp4 billion installation will provide 10 liters of water per second and will be equipped with a reservoir with a capacity of 100,000 liters. As of December 2022, the water treatment installation has been 79% built.



The health-sector capacity-building program was also implemented, in collaboration with the district Health Office of Morowali, through training of food handlers, such as food business owners/actors, health personnel at health centers, and family welfare program participants, in hygiene and sanitation.



Furthermore, PT Vale donated two ambulances to the district government of Morowali at the end of 2022 to support optimized healthcare provision in the Bahomotefe health center, East Bungku sub-district, and the Bahodopi health center, Bahodopi Sub-district, Morowali District.



To optimize the absorption of the local workforce in the empowerment areas, PT Vale, in collaboration with the Sorowako Academy of Engineering (ATS), held basic certification training in electricity and welding for eight weeks, attended by 52 participants living in 13 villages in the empowerment areas in East Bungku and Bahodopi Sub-districts.



52

training participants

13

villages empowerment areas



Synergy Between PT Vale and the Communities

PT Vale synergizes with the communities, in this case village governments, youth organizations, and family welfare program participants, to implement several empowerment programs, including:

- A cultural preservation program, including the Morowali cultural festival
 - A religious program, such as a Tabligh Akbar (a large-scale Qur'anic recitation event)
 - A program to internalize healthy living in people's lifestyles, such as leisure walks
- We hope this synergy can be maintained and even increased to the extent that the involvement of everyone is needed to maintain harmony in the district, particularly in PT Vale's empowerment areas in East Bungku and Bahodopi Sub-districts.

We continue implementing the integrated community empowerment and development program and the Self-Reliance Rural Development Program, aligned with local government programs. Consistent with the Integrated Community Empowerment and Development Program Master Plan 2018-2022, the activities are carried out in four sub-district in East Luwu District: Nuha, Malili, Wasuponda, and Towuti Sub-districts. PT Vale's support in 2022 included program financing in a total amount of US\$ 5,343,585 for Sorowako, Bahodopi, and Pomalaa Blocks.

Funding Support for the Integrated Community Empowerment and Development Program in 2022 (US\$)

Program and Activity	Sorowako	Bahodopi	Pomalaa	Total
Education	116,670	0	4,038	15,705
Health	943,347	179,242	4,058	1,126,647
Real Income	1,069,078	97,000	7,159	1,076,334
Economic Self-Reliance	522,478	0	0	522,478
Socio-Cultural	156,075	62,546	143,430	232,964
Socio-Environmental	18,445	4,581	13,687	36,713
Community Institution	252,885	0	0	252,885
Infrastructure construction to support the Integrated Community Empowerment and Development Program	2,264,607	389,234	132,609	2,786,450
Total	5,343,585	732,603	304,977	6,381,165

Activities carried out in 2022 under the Integrated Community Empowerment and Development Program and the Self-Reliance Rural Development Program were:



In order to improve the community's economy, PT Vale conducted PSRLB through the Organic SRI method in several empowerment areas, including Mahalona Raya, Towuti District, East Luwu, with a total land area of 20 hectares. At the beginning of 2022 PSRLB managed by the Harapan Mulya Farmers Group in the Libuk Mandiri Village. It carried out a grand harvest of the Mentik Susu variety of rice. This is the 12th harvest since the implementation of PSRLB, with an average production of 7.8 tons of grain per hectare and has the potential to increase farmers' income. PSRLB has received INOFICE certification which is accepted by assisted farmers, and is able to save costs on fertilizer consumption as well as pesticides. PT Vale also provided facilities and infrastructure to support agricultural management efficiency. To optimize absorption, we intensified cooperation in marketing Organic SRI rice, including through employee catering..

PT Vale helped build classrooms for Islamic Elementary School Al-Khairaat in Kolono Village, East Bungku Sub-district, Morowali District, Central Sulawesi, scheduled to be completed before the 2023 school year begins. It was PT Vale's support to build educational human resources capacity in Morowali District.



PT Vale symbolically donated a garbage collection vehicle to Bahomakmur villagers in Bahodopi Sub-district, Morowali District. It was the Company's support to address environmental problems in residential areas.



PT Vale facilitated the construction of the first pole for tourist boat mooring at the Laa Waa River Park in Matano Village, East Luwu. The river park is a tourist destination expected to be a new economic source for the local people. In addition, Matano Village is in the top 50 villages to receive the Indonesian Tourism Village Award (ADWI) from the Ministry of Tourism and Creative Economy. Lake Matano is also the world's 8th deepest lake, attracting tourists.

Building Infrastructure to Support the Integrated Community Empowerment and Development Program

The Integrated Community Empowerment and Development Program implementation includes the construction of supporting infrastructure. The actual cost for integrated community empowerment and development program supporting infrastructure in 2022 was US\$ 2,264,607 for Sorowako, Bahodopi, and Pomalaa Blocks, spent on:

- Building a new clean water pipeline in Towuti Sub-district;
- Operating and maintaining the clean water pipeline in Towuti Sub-district;
- Developing infrastructure in the Dongi Ledu-Ledu settlement, including renovating houses, repairing the settlement access road, and conducting an assessment for clean water pipeline construction;
- Maintaining and repairing public facilities and infrastructure in PT Vale's empowerment areas covering four sub-districts: Nuha, Towuti, Wasuponda, and Malili Sub-districts; and
- Building and developing facilities and infrastructure in Bahodopi Sub-district, including building school fences, village government offices, drainage, developing aquaculture and agriculture, and empowering the community.

Other Social Activities

Throughout 2022, PT Vale carried out many social concern and support activities for the surrounding communities and in other regions in Indonesia.

Grievance Response and Handling [POJK51-F.24] [413-1a][MM7]

PT Vale provides access for the public to voice their complaints and grievances, including monthly sub-district coordination meetings. In addition, we devise a Stakeholder, Demands and Issues (SDI) application to handle complaints and allegations. All information received is recorded and reviewed through the application used to support the management of information from the public and other institutions and consolidated in the Company's social performance in 2022.

Each complaint or allegation will be followed up by the External Relations Department using different approaches based on the type of communications (i.e., allegations, complaints, information, requests, and compliments) and involving relevant parties. Throughout 2022, 697 communication pieces were received in the Sorowako Block, 120 of which were considered allegations and complaints in five categories: job opportunities, land acquisition conflicts, compensation, access roads, and social project support. In the Bahodopi Block, three complaints and allegations were received during the reporting period. We responded to them using different approaches to find the best solutions.

Complaints and Grievances Voiced by the Public in 2022 and the Follow-Ups [POJK51-F.24]

Complaints and Grievances	Location	Follow-up
Sorowako Block		
Community demand represented by several youth organizations for priority recruitments of local workers at PT Vale and its contractors	Nuha, Towuti, Wasuponda, and Malili Sub-districts	PT Vale provides jobs equally without discrimination to everyone according to the applicable laws and regulations. Recruitments are done based on the needs and predetermined qualifications fairly and transparently. The priority order for worker selection and recruitment is internal, local, regional, and national workforce, and the local workforce is prioritized for non-staff worker recruitment. The local workforce is identified based on domicile and ID per the existing regulations. To build the local workforce's capacity and competitiveness, PT Vale is ready to provide support through the Integrated Community Empowerment and Development Program.
Community demands for livelihood substitution support to compensate their smallholdings affected by mining activities	Lembo South Block, Balonti, Tanamalia, Timor GAP, Ferary Towuti Sub-district	Identification and verification have been done, and validation is currently being carried out.
Community demands regarding the acquisition of land in oil pipeline and tower line areas.	Wasuponda and Towuti Sub-districts	The stages are in progress. PT Vale will immediately proceed with the acquisition of land plots that have been declared clean and clear by the team.
Village governments' demands to return the Integrated Community Empowerment and Development Program financing to block grants.	East Luwu	An independent team assessed the impacts of the program in 2022, evaluated the governance, management, output, and outcome of the program, and measured program achievements based on the indicators.
Complaints from the local people and government of Nuha Sub-district about unmaintained public facilities and that the area is still in PT Vale CoW (Market F, the bus terminal, and the cooperative)	Nuha Sub-district	An internal meeting was held at PT Vale, and the future status of the area is awaiting PT Vale's standpoint.
Complaints from the people and local government of Magani Village in Nuha Sub-district about the clean water pipeline	Magani Village	Identification and assessment are in progress to find the root cause
Bahodopi Block		
Transparency in recruitments at PT Vale	Siumbatu Village	The Company has communicated and explained the issue to the village government, youths, and activity management team.
Complaints about the release of four villages in Bahodopi Sub-district from PT Vale's empowerment area coverage	Bahodopi Sub-district	The reasons behind the release have been communicated to the stakeholders.
Complaints about the compensation rate for crops affected by the Company's activities	Bahomotefe, Onepute Jaya, Lele, and Dampala Villages	The Company's response has been communicated to the relevant stakeholders through the Land Management team.



PT Vale also periodically evaluates suppliers' and work partners' performance with potential social impacts on the local communities when evaluating environmental management performance. Throughout 2022 we evaluate all (100%) new suppliers/partners. Based on the evaluation conducted, there was no termination of the work contract with the supplier/work partner because they did not manage socially according to PT Vale's regulations and standards. [414-1a][414-2a][414-2b][414-2c][414-2d][414-2e]

Non-Company Land Use

No community mining activities were found in PT Vale's operational areas. However, we found the use of land within the contract area for other activities by the communities. It was followed up by: [MM8]

- Make verbal and non-verbal warnings (reprimand letter)
- Reporting to the police if you ignore the warning
- Always carry out routine supervision

Sustainability Governance



PT Vale's sustainable operations are supported by sustainability governance, earning the support and trust of all stakeholders. We require the Board of Commissioners, Directors, company officials, employees, and related parties to prioritize legal compliance based on business ethics, ensuring that all actions are taken with full responsibility, honesty, confidence, respect, loyalty, and integrity. The Company has never been fined or sanctioned by the authorities for legal offenses.

[2-27a][2-27b][2-27c] [2-27d]

Based on the gap assessment on the ESG roadmap prepared in 2022, PT Vale will develop a program to close the gap. There are around eight programs proposed, they are related to GHG, Employee and Board Diversity, Grievance Mechanism for Indigenous Peoples, Antitrust Policy, Board performance audit, and membership in international organizations (UNGC and EITI).



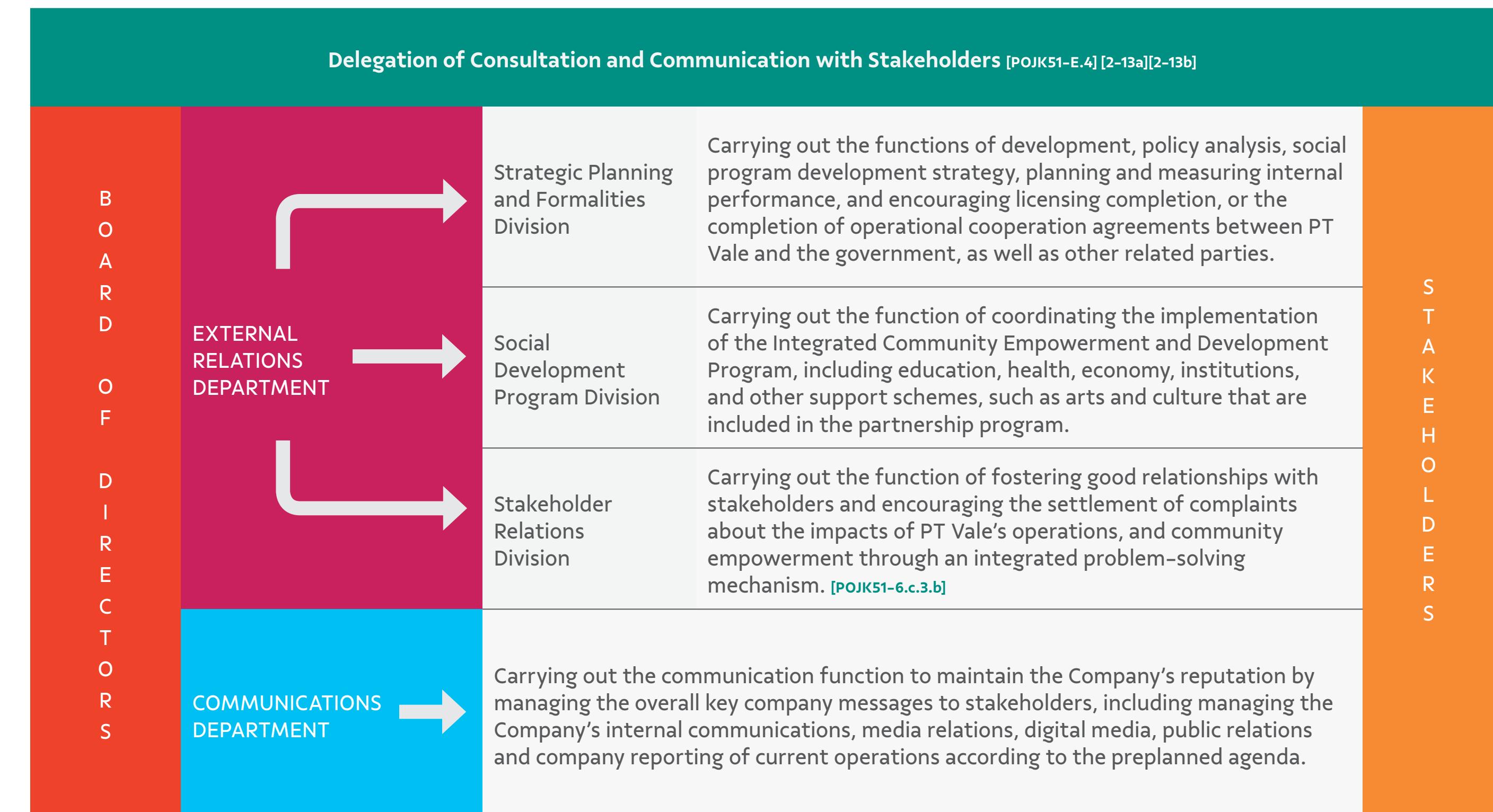
Sustainability Governance Structure

Our sustainability governance refers to good corporate governance (GCG). The governance organization structure follows Law No. 40 of 2007 on Limited Liability Companies, consisting of the General Meeting of Shareholders as the highest governance unit, the Board of Directors as the unit that manages the Company, and the Board of Commissioners as a supervisor assisted by committees. The nomination and appointment of directors and commissioners are the shareholders' authority, ratified in the General Meeting of Shareholders. We guarantee no conflicts of interest between the Board of Directors, the Board of Commissioners, and the shareholders that can affect the decisions made. This information has been disclosed in the 2022 Annual Report of PT Vale Indonesia Tbk. [2-9a][2-9b][2-9c][2-10a][2-10b][2-15a][2-15b]

Sustainability governance implementation is the collective responsibility of the directors, under the coordination of the President Director, who is also the Chief Executive Officer (CEO) as the highest-ranking officer of sustainability governance. The directors implement sustainability governance based on Vale's 2030 Commitment, structured as key performance indicators covering the economic, environmental, social, and governance aspects. KPI achievement is evaluated regularly and reported to shareholders. [POJK51-E.1] [2-11a][2-11b][2-12a][2-12b] [2-12c]

The directors may delegate authority to implement sustainability governance to a company official according to his/her scope of responsibilities. To fulfill corporate social responsibility (CSR), the directors may delegate authority to the External Relation and

Corporate Affairs Department to consult and communicate with stakeholders. The appointed officials will regularly report to the directors. [2-13a][2-13b]



Remuneration for sustainability governance officials is regulated in Company Regulations, comprising permanent and temporary components according to KPI achievement. Remuneration for commissioners and directors is specifically decided by shareholders through the General Meeting of Shareholders, taking into account the Company's performance, including its sustainability management. Shareholders are the only stakeholders involved in the commissioner and director remuneration decision-making. Information on remuneration for directors and commissioners, including the annual remuneration ratio, has been disclosed in the 2022 Annual Report of PT Vale Indonesia Tbk. [2-19a][2-19b][2-20a][2-20b][2-21a][2-21b][2-21c]

The highest-ranking sustainability governance official's performance is evaluated by evaluating the Company's performance in the current period and KPI achievement. The evaluation is carried out in commissioners' and directors' meetings. The final results are reported to shareholders in the General Meeting of Shareholders. Shareholders accepted the resignation of Mr. Dani Widjaja from his post as a director in the 2021 General Meeting of Shareholders, which was held on June 21, 2022. PT Vale also conducts assessments of sustainability governance performance by an independent parties, one of which is Sustainalytics with a rating as of 23 June 2022 of 31.5. [2-18a][2-18b][2-18c]

Evaluating Sustainability Risk Management [POJK51-E.3]

Sustainability performance risks are managed using a risk management system that takes into account ISO 31000:2018, ISO 55001:2014, and COSO-ERM on Risk Management and Asset Management. Risk management is carried out by the Board of Directors, assisted by implementing functions in the management, including Risk Management, Line Management, and the Internal Audit, and supervised by the Board of Commissioners, assisted by the Risk Mitigation Committee. Risk management is evaluated in directors' and commissioners' meetings. Risk management evaluation in 2022 found that the sustainability performance risk management was effective.

To mitigate risks, PT Vale always involves the communities in the early stages of all activities. No work was postponed for community rejection or other non-technical reasons in 2022. It confirms that PT Vale carries out all operational activities responsibly by considering the communities. [EM-MM-210b.2]

Public Consultation on Environmental Impact Assessment

During the reporting period, PT Vale carried out several activities involving stakeholders, including a public consultation on environmental impact assessment for an Operational Plan to Produce Nickel Ore in Bahodopi Blocks 2 and 3. This activity was carried out in compliance with Government Regulation No. 22 of 2021 on Environmental Protection and Management. The public consultation was attended by stakeholders from the district government of Morowali, Central Sulawesi, representatives from the Ministry of Environment and Forestry, and representatives from the Ministry of Energy and Mineral Resources. [2-26a]



Improving Knowledge of Sustainability

[POJK51-E.2]

PT Vale requires the directors to participate in activities that will improve their knowledge of sustainability governance. The directors sent to the knowledge-increasing activity must share the knowledge with others. Activities the director participated in 2022 were:

[2-17a]

- International Women's Day Forum: Be Bold, Make Change
- B20/G20 Dialogue Panel Discussion on Energy, Sustainability & Climate Task Force
- Vale Senior Leadership Development Program
- NICKEL SUMMIT 2022
- G20 Side Event: Scaling Up the Utilization of Sustainable Financial Instruments

The results of the assessment of the ASEAN Corporate Governance Scorecard (ACGS) for the 2021 financial year assessment, the results of which are reported in 2022, PT Vale received a score of 87.68%, an increase of 5% from the 2019 financial year assessment results.

Compliance with the Code of Ethics and Whistleblowing Channels

PT Vale has and follows a Code of Conduct (CoC) to support its sustainability governance. We continuously and annually refreshed familiarize PT Vale's internal and external parties with our Code of Conduct.

In August 2022, PT Vale conducted face-to-face and online discussion on Ethics with Employees and Contractors as a form of ongoing socialization of the Company's Code of Conduct.

We have a whistleblower channel called Vale Whistleblower Channel (VWC), connected to the Vale S.A. Code of Ethics and Conduct Section. VWC is managed by an independent whistleblowing service provider company in Indonesia. Several channels are available for reporting corruption, conflicts of interest, discrimination, and other matters considered to have violated regulations or conflicted with the Company's Code of Conduct. [2-16a]

We guarantee confidentiality, independence, neutrality, and immunity in handling, investigating, and storing the information received through VWC. In 2022, VWC received 27 allegations. All allegations would be sorted out whether they would be followed up with an investigation or not. The most reports that have been investigated are violations related to interpersonal relations and fraud.

In addition to reports received by VWC, there are several cases of employee violations which were followed up by the company as a whole by imposing sanctions for proven violations, they are: [2-16b]

- The lightest sanction is in the form of written directions to 16 employees;
- Written warnings to 42 employees;
- Termination of employment for 2 employees.



Violation Reporting Handled Through VWC [2-16b]

Description	2022	2021	2020
Number of Allegations Received	27	33	74
Percentage of Valid Allegations	74	85	99

Percentage of Valid Allegations Confirmed After Investigation [2-16b]

Description	2022	2021	2020
No confirmed	81	18	19
Cannot be ascertained	5	7	16
Confirmed	14	75	65

Anti-Corruption Support [EM-MM-510a.1]

We have zero tolerance for corruption and power abuse for personal gains, as indicated in the signing of the anti-corruption policy by the President Director in 2015.

Together with the Hadiputran Hadianto & Partners Law Firm, the Company identified its corruption risks. We put e-procurement into practice to minimize the risk of corruption and ensure transparency in contract management. We also include anti-bribery and anti-corruption clauses in agreements and contracts with third parties. Other measures we have taken are to make the Global Vale Anti-corruption Guidelines available intranet and provide different channels for stakeholders to give information or report on any violation or indication of corruption. [205-1a][205-1b]

PT Vale regularly organizes refresher training for directors and other company officials on compliance with the Code of Conduct. Throughout 2022, we communicated and campaigned for anti-corruption to employees though

email blasts and banners. We also communicated PT Vale's Code of Conduct for Suppliers to 24,494 suppliers and organized the following anti-corruption training programs: [205-2a][205-2b][205-2c][205-2d][205-2e]

- Anti-Corruption 2022 training online;
- 2022 Priority Area Anti-Corruption Training online;
- 2022 New Employee Anti-Corruption Training online;
- Anti-Corruption Training for Employees of PT Vale and Contractors for Bahodopi Project;
- Anti-Corruption Training for Employees of PT Vale and Contractor for Pomalaa Project.

PT Vale never received allegations of corruption against employees or work partners during the reporting period. We never had any criminal case of alleged corruption involving the Company either. [205-3a] [205-3b][205-3c]

Constraints and Challenges in Implementing Sustainability [POJK51-E.5]

Stakeholders' different perceptions and interests can become constraints and challenges in delivering sustainability performance, particularly in the environmental and social aspects. Another constraint is negative impact management, which requires a lot of measurement and documentation, while PT Vale has limitations in applying all the calculation methods. Two continuously pursued solutions are intensifying communications and training and monitoring the recording of calculation data as a basis for performance evaluation. In addition, for the decarbonization aspect, the main challenges are the available technology, the availability of low-carbon fuel and its supporting infrastructure, as well as investment costs and time for construction.

Building the Nation Together

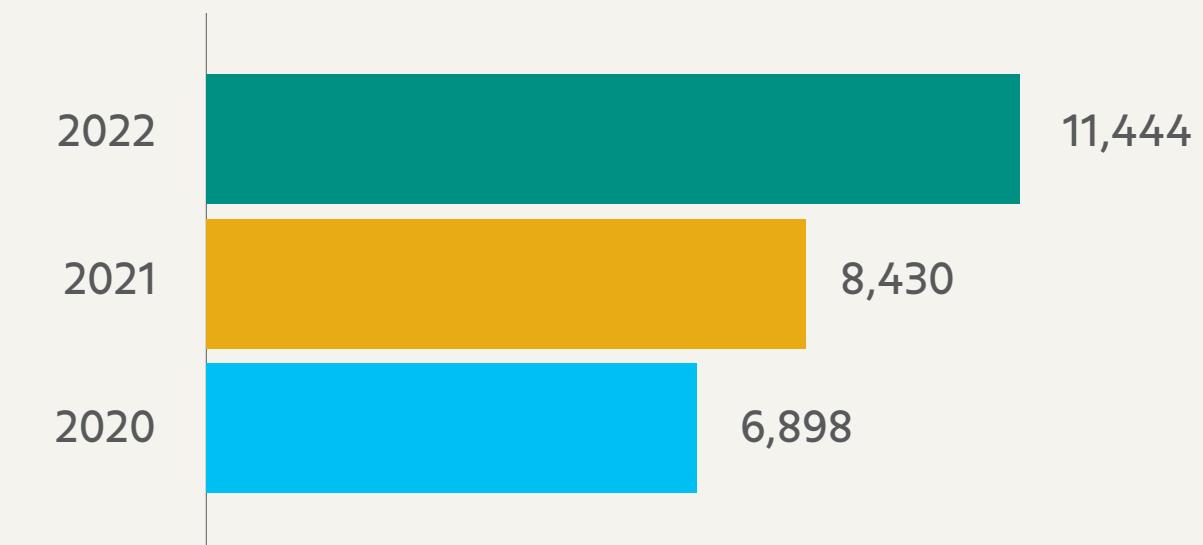
PT Vale recorded a positive performance in 2022, despite facing the COVID-19 pandemic and unrecovered national and global economies. This achievement can be attributed to its various efforts, including implementing the Vale Production System (VPS) and developing sustainable innovations.

Economic Value Generated and Distributed

Information on economic value generated and distributed is presented on a cash basis based on audited financial statements. Information disclosed is as recommended by the GRI Standards. Therefore, the figures presented may differ from the audited financial statements. During 2022 we were able to optimize the generated economic value of US\$1.2 billion, an increase of 24.5% from 2021 which reached US\$955.9 million. A portion of the generated economic value has been distributed to stakeholders. [201-1a]

One of the factors affecting economic performance in 2022 was controlling production costs to US\$11,444 per ton of nickel in matte, an increase from US\$8,430 per ton in 2021. The Company did not receive financial aid from the Government of Indonesia. However, looking at the share ownership structure, the Government indirectly owns the Company's shares through the ownership of MIND.ID, which has been one of PT Vale's shareholders since 2020. [201-1b][201-4a][201-4b] [201-4c]

Nickel Production Cost (US\$ per Ton)



Economic Value Generated and Distributed (Thousand US\$) [201-1a]

Description	2022	2021	2020
Economic Value Generated			
Operating Revenue	1,179,452	953,174	764,744
Other Income	10,691	2,714	4,472
Total Revenue	1,190,143	955,888	769,216
Economic Value Distributed			
Operating Costs	772,065	639,352	573,475
Employee Salaries and Allowances	91,819	84,881	79,447
Payments to Providers of Capital	0	0	0
Payments to Government	178,676	113,080	72,995
Investments in the Communities	4,929	4,892	4,493
Total Economic Value Distributed	1,047,489	842,205	730,410
Economic Value Retained (Total Economic Value Generated – Total Economic Value Distributed)			
Total Economic Value Retained	142,654	113,683	38,806

Production and Sale Target and Realization [POJK51-F.2]

During the reporting period, we faced the phenomenon of climate change such as weather anomalies, the irregular weather conditions, which affected nickel ore mining operations, as well as delivery of matte nickel to buyers. This has an impact on PT Vale's finances, there was an increase in the of operational expenses. Nonetheless, the Company was able to meet its nickel ore and nickel in matte production targets and sales to customers. [201-2a]

Nickel in Matte Production and Sale Targets and Realization in 2022 [POJK51-F.2]

Description	Target	Realization	Percentage
Production	65,241	60,090	-7.90
Sales*	66,028	60,960	-7.68

*include Cobalt

Actual Production and Sales of Nickel in Matte in 2022

Description	2022	2021	2020	$\Delta\%$	
	1	2	3	1:2	2:3
Production	60,090	65,388	72,237	-8.10	-9.00
Sales	60,960	66,615	72,846	-8.49	-9.00

Realization of Nickel in Matte Sales to Buyers (Cobalt)

Buyers	2022		2021		2020	
	Ton	%	Ton	%	Ton	%
Vale Canada Limited (VCL)	49,670	81	53,265	80	58,297	80
Sumitomo Metal Mining Co.Ltd	11,290	19	13,350	20	14,548	20
Total	60,960	100	66,615	100	72,846	100

Employee Pension Funds

We register employees with a Defined Contribution Pension Program (PPIP) managed by the Financial Institution Pension Fund (DPLK), the Old Age Security Program and the Pension Security Program managed by BPJS Ketenagakerjaan. The PPIP is mandatory for employees who have worked for more than three years. This program requires the Company and the individual employees to pay 10% and 2% of the monthly dues, respectively. In 2022, the total pension funds reached US\$51,625,227, an increase from US\$51,979,557.01 in 2021. This amount is enough to meet the Company's obligations to 2,802 employees retiring in 2022. [\[201-3a\]](#) [\[201-3b\]](#) [\[201-3c\]](#) [\[201-3d\]](#) [\[201-3e\]](#)

Contribution to State Revenue and Tax-Related Policies

The value of the distribution of economic value obtained from the payment of taxes and Non-Tax State Revenue (PNBP) to the Government, which is paid based on the applicable tax regulations in Indonesia. The policy, management, and supervision of the Company's taxes and PNBP are the responsibility of the Tax Section in the Finance Department and are directly supervised by the Director of Finance and then reported to Vale Canada to the Vice President of Tax Base Metal and Vale Brazil. Reporting is carried out every month and every quarter. We coordinated and consulted with the local Tax Service Office, to ensure the level of compliance with obligations and taxpayers, both entities and individuals. PT Vale also supports transparency and contributes to Indonesia's EITI reporting. [\[207-1\]](#) [\[207-2\]](#) [\[207-3\]](#)

This report discloses taxes and non-tax state revenue levies paid only to the Government of Indonesia, which comprises the national and local governments, given that PT Vale operates only in Indonesia. Overall in 2022, we paid US\$179,000 thousand in taxes and non-tax state revenue levies to the Government of Indonesia. This amount is an increase of 58% from US\$113,080 thousand in 2021. This amount is an increase of 58% from US\$113,080 thousand in 2021. [\[207-4\]](#)

PT Vale's Obligatory Payments to the National, Provincial, and District Governments (Thousand US\$) [\[207-4\]](#)

Description	2022	2021	2020
National Government	151,641	120,126	80,239
Provincial Government of South Sulawesi	14,331	9,968	7,982
District Government of East Luwu	13,031	13,623	14,816
District Government of SouthEast Luwu	10	6	4
National Government	0	-	-
Provincial Government of South Sulawesi	6	7	10
District Government of East Luwu	0	-	3
Total	179,020	143,730	103,053

PT Vale's Taxes and Non-Tax State Revenue Payments (Thousand US\$)

Description	2022	2021	2020
Taxes and Levies	132,251	118,544	81,930
Non-Tax State Revenue	46,768	25,185	21,124
Total Taxes and Non-Tax State Revenue Paid	179,020	143,730	103,053

Components of Taxes and Levies PT Vale Paid (Thousand US\$)

Component	2022	2021*	2020
Value Added Tax	1,452	1,242	1,300
Land and Building Tax	2,401	2,340	2,367
Employee Income Tax	12,229	10,859	8,184
Corporate Income Tax	79,588	67,720	39,491
Regional Taxes, Levies, and Grants	27,421	23,604	22,815
Third Party Withholding Tax	5,362	8,086	3,338
Duties	3,756	4,695	4,462
Total	132,251	118,544	81,930

*Restatement of 2021 data from the previous year's report

Components of Non-Tax State Revenue Paid to the Government (Thousand US\$)

Component	2022	2021	2020
Production Royalties	35,614	19,187	15,505
Land Rent for Contract of Work Areas	496	504	528
Other Non-Tax State Revenue	10,658	5,494	5,091
Total	46,768	25,183	21,124

Affirming our commitment to implementing sustainability governance, we have the policy to prohibit all forms of contributions to political activities, either directly or indirectly. We also do not allow using the Company's facilities and assets for political activities. [\[415-1a\]](#) [\[415-1b\]](#)

Customer Equality [POJK51-F.17]

Based on the agreed long-term contracts, 80% and 20% of PT Vale's nickel in matte products must be sold to Vale Canada Limited (VCL) and Sumitomo Metal Mining Co.Ltd (SMM), respectively. We do not face market competition with similar businesses. We serve our buyers equally, including in setting selling prices that refer to the London Metal Exchange. [206-1a][206-1b]

Influence on the Communities

PT Vale indirectly benefits the local communities through the utilization of the Company's operational infrastructure by the local communities: [203-1a][203-1b][203-1c]

- A 64-kilometer road from Sorowako to Malili built for PT Vale's logistic unit can freely be used by the local community as the main access for land transportation to support people's and commodities' mobilities.
- Dam construction and hydropower operation. PT Vale supplies 10.7 MW of electricity to PT PLN (Persero) locally to meet the local community's need for electricity in exchange for payments at the government price. The electricity supply supports the local community's productive activities.

Another indirect benefit is employment opportunities at local contractors and suppliers in the Company's supply chain. We define local companies as businesses located and/or operating in East Luwu District. The workers will receive employment benefits that they will be able to spend on their subsistence needs, thereby having a butterfly effect on the local economy. As of December 31, 2022, 301 local companies, or 11% of the total vendors/suppliers, became part of PT Vale's supply chain. Some are vendors/suppliers for the development projects in Bahodopi and Pomalaa. We are also currently conducting an SII study related to how PT Vale's business encourages the growth of other economic sectors, with the results of the study to be presented in 2023. [203-2a][203-2b][204-1a][204-1b][204-1c]

Supplier Engagement Proportion [204-1a]

Description	2022		2021		2020	
	Total	%	Total	%	Total	%
Local Suppliers	301	11	295	28	295	29
National Suppliers	2,051*	74	560	54	516	51
International Suppliers	432	64	183	18	200	20
Total	2,784	100	1,038	100	1,011	100

* The significant increase occurred because the vendor data is integrated with Vale Global and because of the Bahodopi and Pomalaa project development

Contract Value by Supplier (US\$) [204-1a]

Description	2022		2021		2020	
	Total	%	Total	%	Total	%
Local Suppliers	59.461.222	16	39.185.111	10	65.795.288	13
National Suppliers	241.641.501	64	265.305.103	69	346.633.150	68
International Suppliers	78.339.538	21	77.377.305	20	99.439.738	19
Total	379.442.262	100	381.867.519	100	511.898.176	100

We evaluated 414 suppliers in 2022. Of that number, 301 suppliers, or 72.71% of the total evaluated suppliers, passed. They were all local suppliers. The evaluation aimed to ensure they met the standards and ESG criteria PT Vale had determined.



Stakeholder Involvement

Stakeholder involvement is based on the fulfillment of each stakeholder's needs through forums and mechanisms.



Stakeholder Involvement [POJK51-E.4] [2-29a]

Stakeholders	Bases for Identification	Topics of Discussions	Approaches and Responses	Frequency
Internal				
1. Employees 2. Company Leaders 3. Contractors	Communication policy and social management system.	<ul style="list-style-type: none"> Economic performance and business development. Occupational health and safety (OHS) management, and COVID-19 pandemic handling. Environmental management. Strengthening local suppliers' capacity and increasing the share of local components. 	<ul style="list-style-type: none"> Drafting the Company's long-term plan. Streamlining and optimizing production and sales. Putting health protocols in place. Implementing the Vale Production System (VPS), the Contractor Safety Management System (CSMS), and getting certified in occupational health and safety and environmental management. Adopting the Promote National Interest (PNI) and the Local Business Initiative (LBI). 	<ul style="list-style-type: none"> Periodic (quarterly, semester, annual) performance reports Periodic evaluation as needed.
External				
4. Communities 5. Formal Leaders 6. Informal Leaders	Communication policy and social management system.	<ul style="list-style-type: none"> Recruitment of local workers. Community empowerment (local communities). 	<ul style="list-style-type: none"> Recruitment by PT Vale or through a contractor. Inter-Village Cooperation Forum (BKAD) to discuss, plan, and evaluate integrated community empowerment and development programs. 	<ul style="list-style-type: none"> Recruitment as needed. The forum convenes at the beginning, in the middle, and at the end of the year, and as needed.
7. Governments and the Private Sector • National and Local Governments. • Military and the Police • Investors • Customers • Suppliers and Partners • The Public Sector	Communication policy and social management system.	<ul style="list-style-type: none"> Regulatory compliance and licensing. Contributions to the state and regions. Asset protection. Corporate Performance. 	<ul style="list-style-type: none"> The Company plans to change its Work Contract, which will end on December 28, 2025, to a Mining Business Permit or Special Mining Business Permit. Fulfilling the obligation of paying taxes and non-tax state revenue in a total amount of \$178,676 thousand in 2022. Security coordination and cooperation with the Military and Police. Financial, environmental, social, and governance performance reporting. 	<ul style="list-style-type: none"> Communication on and discussion of the Mining Business Permit or Special Mining Business Permit are done all the time with the authorities. Timely tax and non-tax state revenue payment. PT Vale regularly coordinates with the provincial police of South Sulawesi, the provincial police of Southeast Sulawesi, and the Military Command XIV Hasanuddin in security cooperation. Quarterly, semester, and annual performance reporting.
8. Observers • The Media • Academicians • NGOs • Other Entities	Communication policy and social management system.	<ul style="list-style-type: none"> Transparency and easy access to information. Consultations, research, and cooperation. 	<ul style="list-style-type: none"> Publication and delivery of public information through press conferences, news release, and public exposés. Research cooperation and Corporate Social Responsibility (CSR) 	As needed
9. Local Communities	Communication policy and social management system.	Respect for and fulfilment of customary rights, and local wisdom.	The Company organized dialogues and communicated with local communities through meetings and forums.	As needed.

Responsibility for Product/ Service Development

Innovation and Product/Service Development [\[POJK51-F.26\]](#)

During the reporting period, PT Vale did not innovate and diversify nickel in matte products. However, for business development, we will develop products that will support the energy transition in the coming years. Those products are:

- Mixed Hydroxide Precipitate (MHP), which will be produced by limonite nickel purification and processing plants in the Sorowako Limonite and Pomalaa projects. MHP production is scheduled to begin in 2026 with a projected total capacity of 60 kilotons per year in Sorowako and 120 thousand tons in Pomalaa;
- Nickel in ferronickel, which will be produced by a nickel ore processing plant in the Bahodopi project starting in 2025. The total production capacity will be between 73 and 80 kilotons of ferronickel per year.



Product Safety and Impact Management

[\[POJK51-F.27\]](#) [\[POJK51-F.28\]](#)

PT Vale's nickel in matte production and the products comply with the Restriction of Hazardous Substances (RoHS) standards and ISO 17025:2008 certification. Nickel in matte is an intermediate product used as a raw material in further processing by buyers without directly impacting the buyers or the environment. The Company never received any complaints about the impacts of the products on employees', workers' and buyers' health and safety during the reporting period. [\[416-1a\]](#) [\[416-2a\]](#) [\[416-2b\]](#)

Product Withdrawals and Customer Satisfaction [\[POJK51-F.29\]](#) [\[POJK51-F.30\]](#)

No products were withdrawn at buyers' request in 2022. Nickel in matte is transported to buyers in a 3.3-ton special package. Information labels on origin, product specifications, and handling instructions are affixed outside the package. PT Vale evaluated all its products to see their compliance with labelling procedures. There were never any complaints from buyers about information discrepancies on the labels. We were never fined or legally sanctioned for alleged non-compliance with marketing communication regulations. [\[417-1a\]](#) [\[417-1b\]](#) [\[417-2a\]](#) [\[417-2b\]](#) [\[417-3a\]](#) [\[417-3c\]](#)

We always maintain the quality of products and services to buyers. PT Vale's customers have a long-term contracts, therefore there is no customer satisfaction survey. However, PT Vale and customers routinely hold monthly meetings regarding the performance and if problems found they will be followed up at these meetings.

We ensure that the data of buyers is stored safely. We use a security system to protect data from corruption, modification, and unauthorized dissemination. With that security system, the data can only be accessed by those authorized by the management. No buyers made allegations about data corruption, data modification, or data leakages in 2022. [\[418-1a\]](#) [\[418-1b\]](#) [\[418-1c\]](#)

Support for SDGs and Sustainable Mine Management

Through membership in the Indonesia Business Council for Sustainable Development (IBCS), PT Vale participated in designing business contribution documents in support of SDGs. We focused on ten goals, adjusted to the metadata of the SDG indicators from the Ministry of National Development Planning.



SDGs	Metadata from the Ministry of National Development Planning/Bappenas		Support Provided by PT Vale		
	Target	Indicator	Target	Strategy	Achievement
2 SDM MUSIMAN	Ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.	Proportion of agricultural area under productive and sustainable agriculture.	Eco-friendly sustainable agriculture, which promotes good agricultural practices, maintains ecological balance, and avoids the use of pesticides or chemical fertilizers that can damage soil structure and fertility as well as the food chain.	Establishing an integrated farming zone in Towuti Sub-district.	PT Vale is gradually participating in supporting organic farming on 54 Ha of land in 2022.
3 KEPERLUSETUAN	Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.	Coverage of essential health services.	Workers' participation in BPJS Kesehatan.	Making participation in BPJS Kesehatan compulsory for PT Vale's employees, and encouraging contractors, work partners, and vendors to register their workers with BPJS Kesehatan.	<ul style="list-style-type: none"> The participation rate of PT Vale's employees in BPJS Kesehatan reached 100%. The participation rate of contractors', work partners', and vendors' workers in BPJS Kesehatan reached 100%
4 PENGEMBANGAN	Provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use the full provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect health, and, in particular, provide access to medicines for all.	Proportion of the target population covered by all vaccines included in their national programme.	Broken chain of the COVID-19 pandemic.	Vaccinating employees, workers, and the public to control the COVID-19 pandemic at the regional level, and providing supporting health facilities.	<ul style="list-style-type: none"> The proportion of vaccinated employees reached 94.8% The total number of contractors', work partners', and vendors' workers who had been vaccinated was 10,613 people. A PCR laboratory was built at the Enggano Clinic for workers rebuilding Furnace 4.
5 PERDEMONI	End all forms of discrimination against all women and girls everywhere.	Whether or not legal frameworks are in place to promote, enforce and monitor equality and non-discrimination on the basis of sex.	An increase in the number of female employees and employees with diffability.	<ul style="list-style-type: none"> Implementing the Diversity, Inclusion, and Inclusion (DIE) Charter. Recruiting more female employees and employees with diffability, taking into account the type of work to be undertaken. 	<ul style="list-style-type: none"> Workers and other stakeholders are familiar with the DIE Charter. The share of female employees in 2022 was 8,7% The share of employees with diffability in 2022 was 0,1%
7 SUMBER TERAKHIR	Expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support.	Installed renewable energy-generating capacity in developing countries (in watts per capita).	Renewable energy for PT Vale's operations with 100% clean energy generation to achieve self-generated energy by 2030.	Optimizing clean energy, power stabilization, waste heat utilization, solar power utilization, and fuel conversion.	The use of renewable energy generated by three hydropower plants could meet 36% of electricity needed for operations.
10 PERDEMONI	Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard.	Proportion of human rights allegations handled.	Raised awareness of human rights, including gender diversity and inclusiveness among leaders (supervisors and above) and employees.	<ul style="list-style-type: none"> Conducting awareness-raising campaigns and training on human rights for employees. Empowering indigenous people through the integrated community empowerment and development program. 	Local culture is preserved through the construction of a pavilion for customary activities in the area of the Mekongga King's tomb, in collaboration with the indigenous people of Mekongga.

SDGs	Metadata from the Ministry of National Development Planning/Bappenas		Support Provided by PT Vale		
	Target	Indicator	Target	Strategy	Achievement
11. Sustainable Cities and Communities	Significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations.	Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population.	To be part of an effort to accelerate the recovery of disaster-affected areas.	Sending an emergency response team to disaster areas, and distributing aid to disaster-affected areas.	<ul style="list-style-type: none"> • Giving donations to the survivors of the earthquake in Cianjur • The FES team regularly helps with traffic accidents and fire suppression in four empowerment areas in East Luwu • Emergency drills in Mangkasa Point and Boiler • A flood warning system test is carried out bi-annually at the hydropower plants
12. Responsible Consumption and Production	Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle.	<ul style="list-style-type: none"> • Number of companies publishing sustainability reports • Number of companies having ISO 14001 certification. 	<ul style="list-style-type: none"> • Sustainability reports are published regularly. • ISO 14001:2015 certification on the Environmental Management System 	<ul style="list-style-type: none"> • Standardizing reporting according to GRI and POJK No.51/POJK.03/2017. • Assessing ISO 14001:2015 periodically 	<ul style="list-style-type: none"> • PT Vale has been publishing a sustainability report ever year since 2011. • The last ISO 14001:2015 assessment was carried out on 2021 valid until 2024.
13. Climate Action	Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production.	Installed renewable energy-generating capacity in developing countries (in watts per capita)	Renewable energy for PT Vale's operations with 100% clean energy generation to achieve self-generated energy by 2030.	Optimizing clean energy, power stabilization, waste heat utilization, solar power utilization, and fuel conversion.	PT Vale has been in coordination with the Special Task Force for Upstream Oil and Gas Business Activities (SKK Migas) of Indonesia in liquefied natural gas (LNG) supply for a smelter that will be built in Bahodopi, Central Sulawesi.
14. Life Below Water	Integrate climate change measures into national policies, strategies and planning.	<ul style="list-style-type: none"> • Inventoried greenhouse gas (GHG), and GHG emission monitoring, reporting and verification are reported in the Biennial Update Report (BUR) and National Communications. • Total GHG emission per year, potential GHG emission reductions, and potentially reduced GHG emission intensity. 	<ul style="list-style-type: none"> • Toward low-carbon and carbon-neutral operations by 2050. • 33% GHG emission reductions by 2030. • 100% clean energy production to achieve self-generated energy by 2030. 	<ul style="list-style-type: none"> • Optimizing energy consumption in the supply chain, replacing fuel with lower carbon fuel, electrifying heavy mining and supporting equipment. • Converting fossil fuels into renewable energy sources, rehabilitating pre-mined areas, and conducting trans-boundary reforestation. 	<ul style="list-style-type: none"> • 1,621,458 GJ energy efficiency in 2022, or 5.68% lower than in the previous year • GHG emission reductions by 224,474 tons of CO₂e in 2022
16. Peace, Justice and Strong Institutions	Substantially reduce corruption and bribery in all their forms.	Anti-corruption Behavior Index	Raised ethical awareness and continuous improvement	<ul style="list-style-type: none"> • Campaigning for and conducting training on anti-corruption and ethics & conduct. • Providing the Vale Whistleblowing Channel for voicing allegations and complaints on bribery, blackmail, and nepotism. 	The results of the assessment of the ASEAN Corporate Governance Scorecard (ACGS) for the 2021 financial year assessment, the results of which are reported in 2022, PT Vale received a score of 87.68%, an increase of 5% from the 2019 financial year assessment results.
17. Partnerships for the Goals	Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection.	Proportion of domestic budget funded by domestic taxes.	Direct and indirect contributions to local governments.	Taxes and non-state tax revenues paid to the district government if East Luwu include locally-generated revenues, transfer revenues, and other legitimate regional revenues.	The total amount that PT Vale paid to the district government of East Luwu in 2022 was US\$ 13,031 thousand.