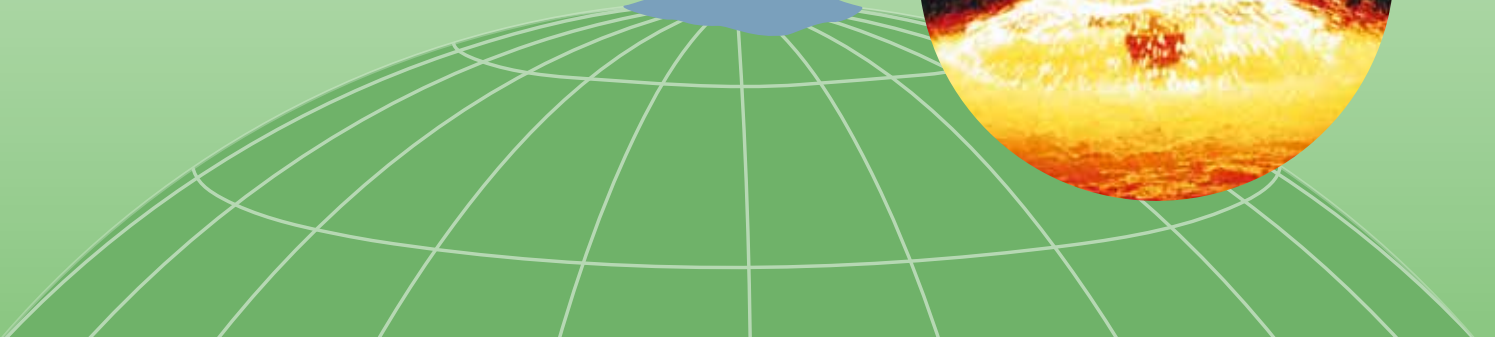
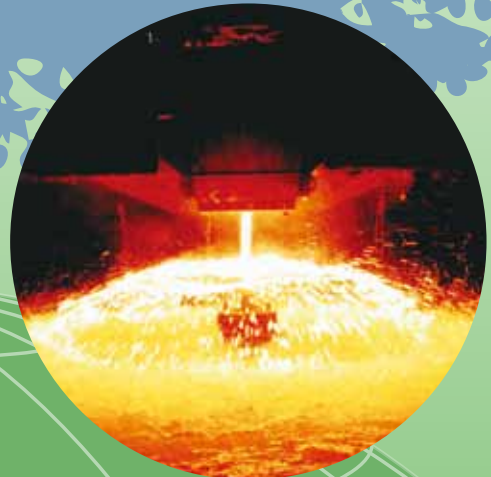




PACIFIC METALS CO., LTD.

Sustainability report 2019



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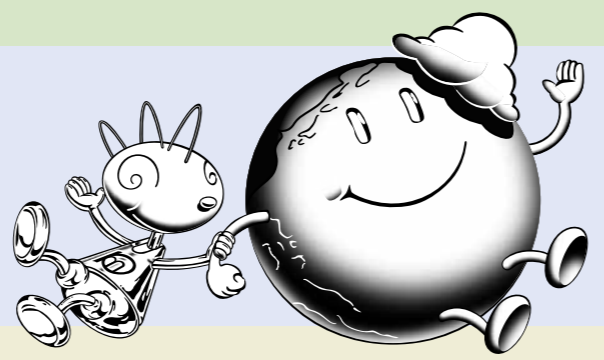
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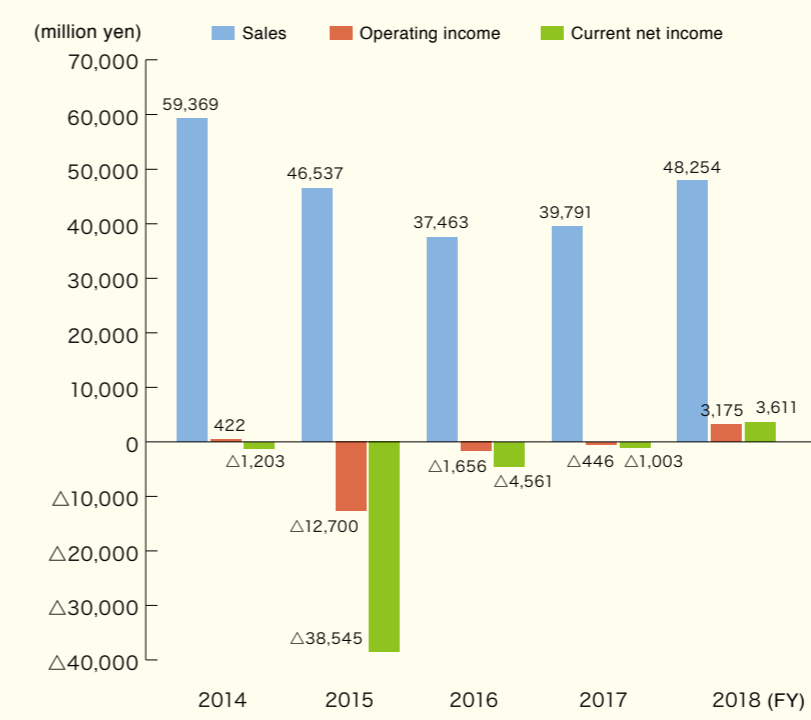
PAMCO-kun
 "PAMCO-kun" is the first original character of Pacific Metals. Pacific Metals is strongly promoting PAMCO-kun as the symbol and face of the Company.

Editing of the Sustainability Report 2019

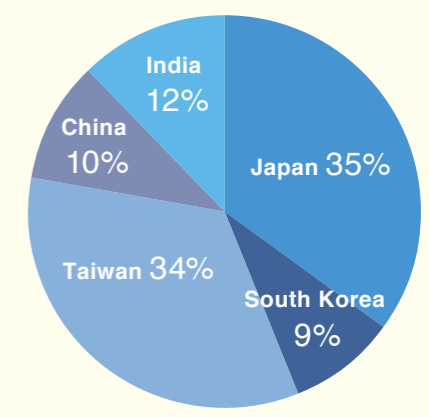
Editing policy	This report introduces the business activities and integrated management system initiatives of Pacific Metals Co., Ltd. for the fiscal year (FY) 2018. Pacific Metals are providing comprehensive articles on social aspects, such as the medium-term management plan and investor relations (IR) activities, with a focus on environmental, quality and occupational health and safety initiatives, with the purpose of disclosing further information to all stakeholders, including shareholders and investors.
Scope of report	Pacific Metals Co., Ltd. (offices in Japan) *Some group companies are included in the activity details.
Reporting period	FY2018 (April 1, 2018 to March 31, 2019) *Includes reporting of some activities outside the reporting period. Month of issue: November 2019
Reference guidelines	"Environmental Reporting Guidelines (Fiscal Year 2018 Version)" by Ministry of the Environment "Sustainability Reporting Guidelines Version 4" by the Global Reporting Initiative (GRI)
Publication medium	[Company website] https://www.pacific-metals.co.jp/environment/report.php
Disclaimer	The contents of this report refer not only to past events, but also cover future plans and forecasts at the time of publication. Please note that actual future activities and results may differ from those described herein.

Name	Pacific Metals Co., Ltd.
Representative	President Director & Representative Director Akira Sasaki
Date of establishment	December 1, 1949
Annual sales	48,254 million yen (nonconsolidated)
Number of employees	411 employees (nonconsolidated)
Paid-in capital	13.9 billion yen
Operating sites	Tokyo Head Office / Hachinohe Head Office (Manufacturing Works) / Philippines Office / Jakarta Office
Production items	Ferronickel, ferronickel slag

Financial indicators



Sales volume ratio by region (ferronickel)



Company philosophy

To utilize human power, provide more usefulness from the earth's resources, and contribute to the well-being of human society

Company policies

- To integrate the management strategies of the Group as a whole, and maximally demonstrate the synergy effect of each group company.
- To pour all our efforts into developing world-class smelting technology and improving quality, to establish a world-leading platform that is efficiently managed and competitive.
- To promote compliance.
- To secure reasonable profits through fair, transparent and free competition.
- To actively address all manner of environmental issues in order to protect our irreplaceable earth.
- To achieve a purposeful workplace that enables employees to grow as individuals and sufficiently demonstrate their creativity, as well as enable them to pursue leeway and richness in both the physical and mental aspects.
- To widely promote social interaction, and actively disclose fair company information.



Review of the previous medium-term management plan PAMCO-30

Pacific Metals is working toward achieving our long-term vision of becoming a world-leading ferronickel manufacturer, with the aim of building our strengths such as trust from customers, highly-efficient production and sales, and superior environmental management, on an even more solid management platform, in response to rapid changes in world politics and economy. We have positioned the initial three-year period, the first stage of the long-term vision, as a period for “building a solid platform for responding to rapid changes in the environment,” formulated the medium-term management plan PAMCO-30, and carried out activities until FY2018.

In the period FY2016 to FY2018, the period of the PAMCO-30 plan, there have been numerous changes to the business environment, such as sluggish nickel prices on the London Metal Exchange (LME), partial relaxation of the ore embargo in

Indonesia, lower grades of ore, pressure on the upper limit of stainless steel production due to environmental regulations by the Chinese government, and stubbornly high electricity costs. Even in the midst of such conditions, through working together as one to implement each of the policies in PAMCO-30, and particularly through improvements in earnings and production, Pacific Metals has been able to reduce costs by 2.6 billion yen over three years, which was an extremely significant result. This is a result of the combined efforts of every individual employee considering how he/she can minimize costs and doing everything possible to achieve that.

However, we do not consider the policies described in PAMCO-30 to be complete yet. Ongoing issues such as promotion of low-cost operations, dealing with low grade ores, stable procurement of ore, and environmental and safety measures, will be properly reflected in the next stage as well, and we will continue to put our efforts into addressing these.

Formulation of the new medium-term management plan PAMCO-2021

We formulated the new medium-term management plan (PAMCO-2021) with the aim of further strengthening the platform built under the previous medium-term management plan, as the second stage toward achieving the long-term vision.

The basic policy comprises of the two items, “Strengthening and redeveloping the management platform, and refining strategies toward growth” and “Creating social and economic value,” with the aim of being a robust company that can respond to rapid changes in the business environment, together with growing into a company that considers sustainability of society.

We are working on priority policies for building and strengthening a more stable ferronickel production system, together with strengthening the organization and human resources to be able to flexibly support changes in the business environment, with a focus on changes in social structures, such as resource nationalism, etc., that is feared to spread in the future. In addition to environmental measures, safety management is also a business maintenance platform, and we are pursuing education according to changes in the era or society, to prevent even one person from being injured.

Contribution toward achieving a sustainable society

Contributing toward achieving a sustainable society is one of the targets of PAMCO-2021. We are aiming to grow into a company that contributes to society by actively working on Sustainable Development Goals (SDGs) adopted by the United Nations.

Specifically, we are actively promoting environmental measures, such as making improvements toward energy-saving facilities, energy-saving measures through reusing high-temperature exhaust gases, water pollution prevention measures using wastewater treatment facilities and reuse of treated water, and contributing to a recycling-oriented society through recycling of all ferronickel slag, which we have been working on thoroughly from previously.

In addition, we aim to coexist with regional communities through providing ferronickel slag construction materials to areas affected by the Great East Japan Earthquake, carrying out cleaning activities around the plants and in the region,

sponsorship of local soccer clubs and participation in regional revitalization activities. We have an ongoing cooperation with Hachinohe Kojyo Daigaku, dispatching lecturers and holding plant field trips in FY2018.

Furthermore, in order to enhance or strengthen corporate governance, we are putting efforts into regulatory compliance by utilizing an integrated management system (IMS). We would like to more actively convey our activities, approaches, etc. in the future so as to expand information disclosure and so that all stakeholders understand our initiatives.

Aiming for a satisfying company

The long-term vision of the Company is “To become a ferronickel manufacturer of world-class comprehensive strength.” By increasing earnings, Pacific Metals wants to be able to continue operating in the future, protecting the jobs of the Company’s employees and their families, and create a workplace where the employees are fulfilled.

We spend many hours of our lives at work. Since we wanted all of our employees to spend their precious time at work with a sense of purpose, we developed and introduced a new HR system. This system provides for continuous development, with every single employee carrying out their work with a sense of purpose. In addition, we are implementing a system for proposing improvements. We consider that the significant results we achieved, such as cost reductions during the period of the previous medium-term management plan, came about as a result of this improvement proposal system. The number of improvement proposals has been increasing every year, and we feel the number of enthusiastic employees is increasing. We are confident that with every individual employee actively engaging in their business activities with a sense of purpose, we can overcome the challenging environment going forward as well.

Based on our management philosophy of “To utilize human power, provide more usefulness from the earth’s resources, and contribute to the well-being of human society,” we are working hard toward improving the value of the Company and achieving a sustainable society.

We look forward to your continued understanding and support in the future.

President Director & Representative Director

Akira Sasaki

Initiatives toward Achieving the Long-Term Vision

To establish a management platform that responds to changes in the business environment surrounding Pacific Metals in recent times, and to achieve continuous growth, we developed the long-term vision, "To become a ferronickel manufacturer of world-class comprehensive strength." In May 2016, PAMCO-30 was formulated as the first stage toward achieving the long-term vision, and we have worked hard

to sow the seeds for the second stage of building a strong business position in which we can generate profits no matter what business environment we are in.

The initiatives of PAMCO-30 for FY2018 have been mostly achieved. Pacific Metals will continue to work toward achieving its long-term vision, including initiatives that are yet to be completed.

FY2018 activities performance for PAMCO-30

◎ : Achieved ○ : Mostly achieved △ : Not achieved

Priority policies of PAMCO-30	Specific policies	State of completion	Activities performance for FY2018
Strengthening of ferronickel production and sales policies	To have a basic policy of producing at maximum utilization at the Hachinohe Works, and promote a production strategy with view to expanding overseas smelters, taking into account ore procurement risks and expansion of production in the future	○	We built a flexible production and sales platform during sluggish market conditions, and continued high-efficiency operations. In addition, we started specific refinement of our overseas business.
	Differentiation that makes the most of the superiority of our products, and improvements in CS activities	◎	We were highly evaluated in customer satisfaction surveys as a result of providing high quality products and responding to customer needs.
	To pursue long-term agreements and ways of expanding sales for existing customers	◎	We improved both the sales volume and sales ratio for stable customers by putting our efforts into achieving the best contracts and sales through dialog with the customer based on market conditions.
Stabilization in the procurement of nickel resources	To pursue stable procurement and optimal procurement costs for nickel ore in the long term	○	We progressed with initiatives toward stabilization of resource procurement, through dialog with resource suppliers.
	To pursue the direction toward wet smelting business in the future	○	We established the future direction of wet smelting business, and enhanced our system for investigating wet smelting technologies.
Strengthening of profitability	To pursue a low-cost production system, including development of high-efficiency smelting technology	○	Improved profitability by pursuing rationalization from all angles.
	Creation of new businesses for strengthening the future revenue base	△	We progressed with the extraction of new business ideas and examination of business feasibility.
Strengthening of technological and site capabilities	To develop human resource policies and a training program by level for human resources	◎	We improved our technological capabilities such as for reducing coal used in dry smelting. In addition, we put efforts into operating our newly introduced human resources system.
Strengthening of environmental measures and occupational health and safety measures	Further strengthening of environmental protection measures such as helping to prevent air and water contamination through thorough in-house management, and helping to prevent global warming through promoting energy conservation	○	While we have worked hard to prevent air and water contamination through thorough in-house management, in regard to energy conservation, the challenge of removing CO ₂ emissions remains.
	To enhance safety awareness by strengthening health management of both the mind and body and fostering a safety culture, and keep the workplace accident-free	△	We actively and independently strengthened safety activities on-site, but were unable to achieve an accident-free workplace.
Strengthening of compliance and the governance system	To enhance the internal control system, and strengthen compliance	○	In conjunction with amendments to laws and ordinances, we reviewed the in-house system, and shared the results of in-house training related to internal control, and internal audit.

PAMCO-30 (FY2016 to 2018) summary

(1) Production, sales, purchasing

- Through customer satisfaction (CS) activities and flexible response, built a stable production and sales platform in the midst of a rapidly changing business environment.
- Due to prioritizing our response to a rapidly changing business environment, the upgrade of some production platform facilities was postponed.
- Issues with responding to the lowering of grade/production volume of nickel ores, however, we progressed with initiatives toward stabilization of resource procurement, through dialog with resource suppliers.

(2) Profitability

- Improved profitability by pursuing rationalization from all angles and ending the production and sale of some unprofitable products. (Improved by 2.6 billion yen in three years)
- Developed a system for examining overseas business and started a detailed examination.

(3) Technological and site capabilities

- Improved technological capabilities, such as reducing the use of coal in dry smelting. In addition, strengthened the technological investigation system for wet smelting.
- Developed a platform for strengthening human resources, by introducing a new human resources system aimed at improving awareness of the employees.

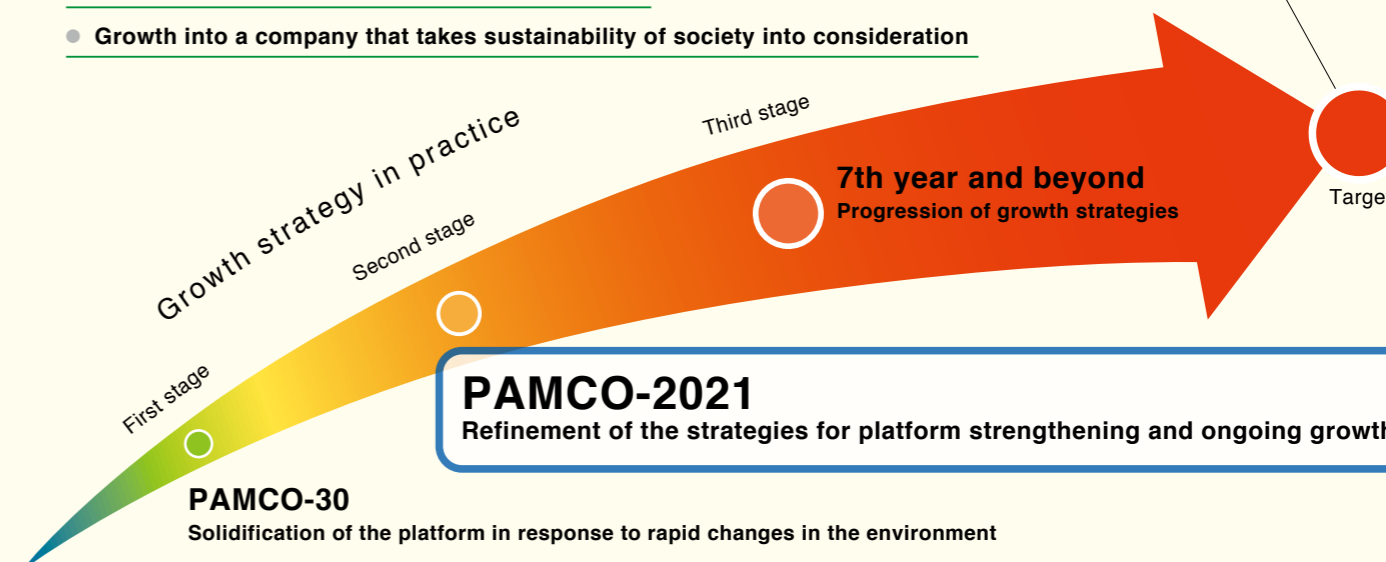
(4) Compliance and governance

- We have worked on various measures for the environment and occupational health and safety, however, the challenges of reducing CO₂ emissions and achieving zero accidents remain.
- By reviewing our compliance and governance system, we were able to strengthen our platform, however, we will continue to work on further strengthening.

There remain some ongoing issues to address, however, we have been able to solidify the platform to an extent. We are progressing with our work toward achieving the long-term vision by reliably connecting to the next stage.

Ferronickel manufacturer of world-class comprehensive strength

- Further strengthening of the platform developed in PAMCO-30
- Refinement of the strategies for ongoing growth
- Growth into a company that takes sustainability of society into consideration



Formulation of PAMCO-2021

As the second stage toward achieving the long-term vision, we formulated the new medium-term management plan PAMCO-2021, with the aim of further strengthening

the platform built in PAMCO-30, refinement of strategies for continuous growth, and furthermore, growing into a company that takes sustainability of society into consideration.

Environment surrounding the Company

When formulating PAMCO-2021, we identified the envisaged risks and opportunities for the business environment that

Pacific Metals is in for FY2019 to 2021, which is the target period of PAMCO-2021.

Envisaged risks	Envisaged opportunities
<ul style="list-style-type: none"> - Expanded impact of global risks on the commodities market - Spread of resources nationalism - Changes to the power environment 	<ul style="list-style-type: none"> - Stainless steel is expected to have bullish growth in demand - Increasing demand for nickel derived from batteries, in conjunction with expansion of the electric vehicle (EV) market - Drop in the current LME nickel inventory - Shortage in nickel supply is forecast to continue

Basic policies and priority policies of PAMCO-2021

Basic policies	Priority policies
<p>◇ Refinement of the strategies toward strengthening and redeveloping the management platform, and toward growth</p>	
<p>(1) Strengthening of facilities and stable procurement of ore to develop the optimal production system</p> <p>(2) Initiatives with view to expanding overseas business</p>	<p>◇ Optimal production of ferronickel and development of sales system</p> <ul style="list-style-type: none"> - Production system Development of an optimal production system for the Company as a whole, including expansion of international smelters, and further strengthening of the management platform - Sales system Strengthening of stable sales for existing customers, and in addition, acquisition of new customers <p>◇ Long-term stabilization in the procurement of nickel resources</p> <ul style="list-style-type: none"> - Long-term stable procurement, with view to expansion of the source based on renewal of existing agreements - Initiatives toward resource interest acquisition, overseas smelters, etc.
<p>(3) Diversification of business in Japan</p>	<ul style="list-style-type: none"> - Aim for diversification of businesses that contribute to reducing fluctuation in revenue and strengthening the future revenue base
<p>(4) Strengthening profitability</p>	<ul style="list-style-type: none"> - Press forward with cost reductions, and pursue an optimal production system with high profitability
<p>(5) Strengthening of organization and human resources in anticipation of changes in the business environment</p>	<ul style="list-style-type: none"> - Building a flexible and optimal organization toward achieving the objectives - Strengthening of human resources to raise the standard
<p>(6) Management focused on cash flow</p>	<ul style="list-style-type: none"> - Stability of management is improved by maintaining the appropriate asset status and ascertaining efficient cash flow
<p>◇ Creation of social and economic value</p>	
<p>(7) Contribution toward achieving a sustainable society</p>	<ul style="list-style-type: none"> - Pursue measures to help prevent global warming, and contribute to the development of regions and countries with resources - All employees working as one toward zero accidents - Strengthening of the compliance and governance systems

Formulation of the new medium-term management plan “PAMCO-2021”

Pacific Metals formulated a new medium-term management plan “PAMCO-2021” as the objectives for the three-year period starting from FY2019. The previous medium-term management plan, PAMCO-30, had the long-term vision, “Solidification of the platform in response to rapid changes in the environment,” while PAMCO-2021 is positioned with the vision, “Refinement of the strategies for platform strengthening and ongoing growth.”



Director & Senior Managing Executive Officer
Tamaki Fujiyama

In PAMCO-30, we experienced an extremely severe business environment from the first fiscal year of the plan, with all employees sharing the sense of crisis, and we drew on that know-how to extract ideas and were able to overcome the crisis as one. I feel that being able to establish that kind of culture/system is the biggest benefit.

For PAMCO-2021, we want to further strengthen and accelerate the platform that we developed in PAMCO-30. In addition to the stable procurement of nickel ore in particular, we consider it important to have a second business that is not dependent on nickel alone, in other words, it is important to examine business diversification. Also, as a measure to improve the skills of all employees, we are considering redeveloping our human resources system and rotating employees in order to strengthen our human resources.

Pacific Metals is making a company-wide effort to develop a solid management platform and boost the value of the Company, toward achieving our long-term vision.

Initiative toward environmental, social and governance (ESG)

In order to achieve “Contribution toward achieving a sustainable society,” one of the basic policies of PAMCO-2021, we will strengthen and promote the following initiatives relating to ESG.

Environment	<ul style="list-style-type: none"> - Contribute to a recycling-oriented society by recycling all ferronickel slag - Contribute to the prevention of global warming by reducing greenhouse gas (CO₂) emissions - Prevent air pollution and water contamination in our business activities
Social	<ul style="list-style-type: none"> - Promote symbiosis by contributing to the development of regions and countries with resources - Carry out cleaning activities around the plant or in the region - Strengthen health management for both the mind and body of employees, toward achieving zero accidents
Governance	<ul style="list-style-type: none"> - Strengthen compliance - Strengthen a system that conforms with the corporate governance code

Sustainable Development Goals (SDGs) are 17 goals adopted by the United Nations in 2015 to achieve a society where no one is left behind - sustainable, diverse and inclusive - by 2030.
The Company’s medium-term management plan itself is related to the concept of SDGs, which are the global standard, and through our day-to-day business activities we are actively promoting SDGs and contributing to the development of a sustainable society.



The Pacific Metals group companies and affiliated companies utilize proprietary, sophisticated technology and experience to contribute to the development of society. In addition, in our business activities, we put our efforts into considering the environment and securing occupational health and safety.

As a world-class ferronickel manufacturer, we are actively expanding overseas, cooperating with local companies in countries like the Philippines and Indonesia to develop resources. In order to comply with international laws and local laws and ordinances, and to contribute to the development of each country, we give sufficient consideration to the traditions, cultures, business customs, labor and management practices of each area, with a focus on international goals related to human rights, such as the SDGs.

Pacific Gas Center Co., Ltd.

Produces and sells oxygen gas, nitrogen gas, and argon gas

20-2 Aza Kaigan, Oaza Kwaragi, Hachinohe City, Aomori 039-1161

TEL: 0178-47-1500

- Paid-in capital: 100 million yen
- Established: November 1989
- Location: Aomori (Head Office, Plant)



Taiheiyo Kosan K.K.

Sells Pacific Metal ferronickel slag, transport contracting and real estate businesses

3-7-22 Numadate, Hachinohe City, Aomori 031-0071 TEL: 0178-47-0555

- Paid-in capital: 50 million yen
- Established: December 1980
- Location: Aomori (Head Office)



Pacific Sowa Corporation

Sells cast and forged steel products, various industrial machinery, hydraulic equipment, metal powders, metal injection molding (MIM) products, and other various materials

Marunouchi Eiraku Building, 1-4-1 Marunouchi, Chiyoda-ku, Tokyo 100-0005 TEL: 03-4243-1234 <http://www.pacificsowa.co.jp/>

- Paid-in capital: 432 million yen
- Established: October 1956
- Location: Tokyo (Head Office)

Pacific Steel Mfg. Co., Ltd.

Produces and sells ordinary forged steel products, special forged steel products, stainless forged steel products, NT rolls, and other large-scale forged steel products

1-93 Shimoshinnisso-machi, Toyama City, Toyama 930-0808 TEL: 076-432-4175

<http://www.pacificsteelmfg.co.jp/>

- Paid-in capital: 700 million yen
- Established: April 1938
- Location: Toyama (Head Office, Plant)



Pacific Rundum Co., Ltd.

Produces and sells optical communication components, silicon carbide abrasive materials and semiconductor components

1 Iwaseakada-machi, Toyama City, Toyama 931-8555 TEL: 076-438-1211 <http://www.rundum.co.jp/>

- Paid-in capital: 400 million yen
- Established: October 1936
- Location: Toyama (Head Office, Plant)



Pacific Special Alloy Castings Co., Ltd.

Produces and sells heat-resistant cast steel products, wear-resistant cast steel products, stainless cast steel products, precision cast steel products, stainless steel couplers for underground water pipes, and Electron Beam Perforation (EPB) products

Marunouchi Eiraku Building, 1-4-1 Marunouchi, Chiyoda-ku, Tokyo 100-0005

TEL: 03-4243-1257

<http://www.psc-cast.com/>

- Paid-in capital: 490 million yen
- Established: January 1932
- Location: Tokyo (Head Office), Niigata (Plant)



Pacific Machinery & Engineering Co., Ltd.

A comprehensive manufacturer that boasts a history of more than 30 years mainly producing slurry pumps and various mixers

7-5-2 Higashinarashino, Narashino City, Chiba 275-0001 TEL: 047-473-6181 <http://www.taiheiyo-kikou.com/>

- Paid-in capital: 490 million yen
- Established: July 1984
- Location: Chiba (Head Office, Plant)



Yonago Steel Co., Ltd.

Produces and sells cast steel products, etc.

88-1 Tomimasu-cho, Yonago City, Tottori 683-0103

TEL: 0859-28-8111

<http://www.yonago.co.jp/>

- Paid-in capital: 100 million yen
- Established: March 1904
- Location: Tottori (Head Office, Plant)



Affiliated companies overseas

Rio Tuba Nickel Mining Corporation

Mines and sells nickel ores

28/F, NAC Tower, 32nd. St., Bonifacio Global City, Taguig City, Philippines

- Paid-in capital: 2.55 billion pesos
- Established: July 1969
- Location: Philippines



Taganito Mining Corporation

Mines and sells nickel ores

28/F, NAC Tower, 32nd. St., Bonifacio Global City, Taguig City, Philippines

- Paid-in capital: 4 billion pesos
- Established: March 1987
- Location: Philippines





Three management systems - Quality Management, Environmental Management, and Occupational Health and Safety Management - are operated as an Integrated Management System (IMS). This system is maximally utilized, with management policies positioned with IMS policies as goal attainment tools in PAMCO-2021.

ISO certification registration

Pacific Metals is ISO 9001, ISO 14001 and OHSAS 18001 certified. Since FY2015, the three systems have been inspected at the same time as an integrated inspection.

In FY2018, the organizational structure underwent changes, however, no major defects were found in the management system, and so the certification registration was maintained.

■ Certification registration information

Certification standard	Registration scope	Registration No.	Expiry date	Initial registration
ISO9001:2015	Tokyo Head Office / Hachinohe Head Office (Manufacturing Works)	0314	February 15, 2021	April 9, 1998
ISO14001:2015		E1998		March 19, 2009
OHSAS18001:2007		H063		February 16, 2012



customers who are the main stakeholders, and capture the biggest mission, which is stability of ferronickel prices and stable supply, for our business activities.

In ISO 9001, as a policy for strengthening internal control for PAMCO-2021, the development of a new human resource system and activities to enhance awareness toward preventing suspicious activity such as data tampering, etc., were highly regarded as important activities for supporting business continuity.

In ISO 14001, we were evaluated on our energy and resource conservation, reduction of CO₂ emissions, no deviation from the standards and fulfillment of the compliance obligations as we do each year, our efforts to prevent environmental accidents, and so on.

In OHSAS 18001, we were evaluated on strengthening our efforts toward preventing accidents, for which there were six cases last year, although accidents had been declining since operations started in 2012; improvements to our processes based on the work environment measurement results; and significant improvements in the dust management category.

In the integrated inspection, the examiner judged that the system is being maintained appropriately under the strong leadership of management. In particular, the formulation format of the "Goal activity themes of the medium-term management plan" was revised in conjunction with the migration to the 2015 version, and the system was evaluated on the development and operation of a mechanism that checks the validity of activities, and the fact that we anticipate the needs of the

Initiatives to comply with regulations

Pacific Metals positions regulatory compliance as one of the most important business activities, regularly monitoring and inspecting sites and documents based on the compliance-related procedure. In FY2018, there were no significant violations of regulations or standards.

Moreover, regarding work accidents in FY2018, there were two cases each at Pacific Metals and the affiliated companies. It has been six years since we introduced our occupational health and safety management system, and we rotate the management cycle and carry out safety activities on an ongoing basis, however, unfortunately, in FY2018, we were

unable to achieve our target of zero accidents.

To prevent work accidents, we established a "Plan - Do - Check - Act" process that forms the basis on the management system, and together with promoting a new level of independent health and safety management in the workplace, there are calls to form an even safer work environment.

We are aiming for each and every employee to be aware of their responsibilities and improve their safety awareness through acting independently, and to work as one with the Company and affiliated companies to achieve zero accidents.

Environmental accounting and safety accounting

The aggregated results for environmental accounting and safety accounting for FY2018 are shown below.

■ Environment accounting aggregated results (environmental preservation costs)

Classification	Main content	Cost (10,000 yen)
(1) Business area costs	Pollution prevention costs	17,799
	Global environment preservation costs	4
	Resource recycling costs	16,807
(2) Management activity costs	International Organization for Standardization (ISO) inspection costs	2,948
	On-site tree planting and management costs	
	Sustainability report publishing costs	
	Various monitoring equipment maintenance and management costs	
(3) Social activities costs	General road cleaning costs for the vicinity	20
(4) Costs of dealing with any environmental damage	Pollution load levy	13,115
Total		50,693

We spent approximately 500 million yen for environmental accounting. Most of them are pollution prevention costs and resource recycling costs, followed by the pollution load levy*1.

We spent approximately 40 million yen for safety accounting. They were mainly the costs for safety and health protective equipment and health checkups.

*1: We installed a smoke generator as of April 1, 1987, and it is a levy required to be paid by businesses that emit sulfur oxides and have a certain level of exhaust gas. The Company has fulfilled its obligations since the start of the system.

■ Safety accounting aggregated results

Classification	Amount (10,000 yen)
(1) Capital investment (constructions for safety measures, etc.)	475
(2) Safety, health, and disaster prevention education costs	453
(3) Legal inspection costs (boilers, cranes, firefighting related)	736
(4) Health checkup fees	1,000
(5) Safety and health protective equipment costs	1,297
Total	3,961

Supply chain management

Pacific Metals carries out various activities that take into consideration harmony with the environment, not only at production sites, but at each step in the supply chain.

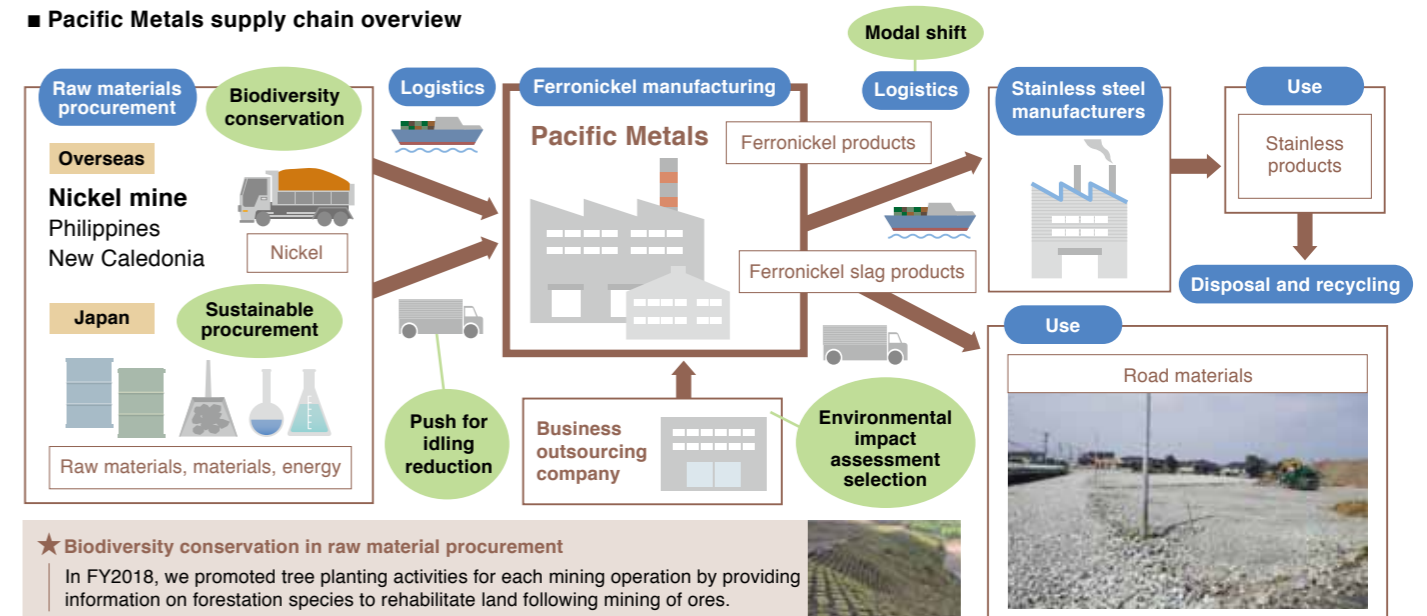
The nickel ore that is the raw material for ferronickel is imported from the Philippines and New Caledonia. In the local mines, we have an obligation to plant trees for rehabilitation purposes where possible after mining ore.

In FY2018, we collected information about those trees,

and provided that information to each mine after obtaining permission to be able to disclose the information.

In addition, internationally standardized safety regulations are in place for sea shipping of solid cargo such as ores. We actively comply with the international regulations, and we consider the environment and have safety measures in place to prevent shipping accidents.

■ Pacific Metals supply chain overview



★ Biodiversity conservation in raw material procurement

In FY2018, we promoted tree planting activities for each mining operation by providing information on forestation species to rehabilitate land following mining of ores.

Grasses and trees planted for slope stability and greening

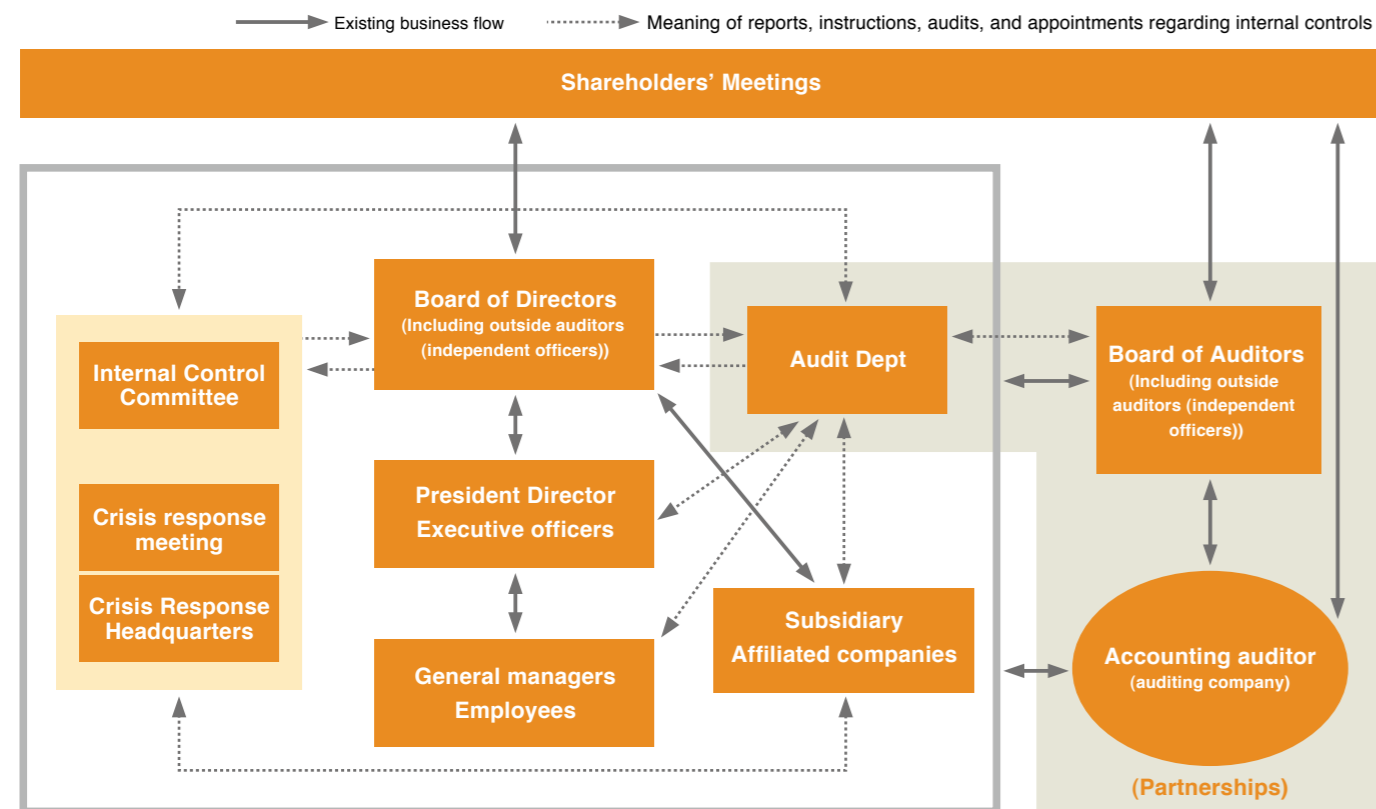
Aiming to improve corporate value, the Company strives to strengthen and enhance corporate governance through rapid decision making and management efficiency, and through ensuring transparency and soundness of management by strengthening supervisory functions. In doing so, we are also taking appropriate measures related to risk management and compliance.

Corporate governance system

The basic principle of the Company is to enhance corporate governance centered on the director/auditor system and to build a fair and transparent management structure.

Since June 2019, the Company's management structure has been composed of nine directors, including two outside directors, and four auditors, including three outside auditors.

■ Corporate governance system



● Board of Directors

In order to respond quickly and appropriately to changes in the management environment, the Board of Directors meets as needed in addition to holding monthly meetings to ensure prompt response, efficient business execution, and monitoring of business execution among directors.

● Management Planning Committee

The Management Planning Committee is made up of directors, Directors and general managers who formulate company business management policies and management plans (original proposals) and report back to the president. The president proposes the plans to the Board of Directors based on the reports.

● Board of Auditors

The Board of Auditors conducts audits to ensure the

impartial execution of duties by directors. In order to maintain independence, all auditors, including those on contract, can attend all Board of Directors meetings.

The Company has announced a "Basic Policy on Corporate Governance." This basic policy is intended to demonstrate the concept and framework of our corporate governance and to help all stakeholders, beginning with our shareholders, understand that the management of the Company is fair and highly transparent.

In addition, we conduct video training for all employees to learn basic knowledge of internal controls, to raise awareness as employees of what constitutes appropriate activity.

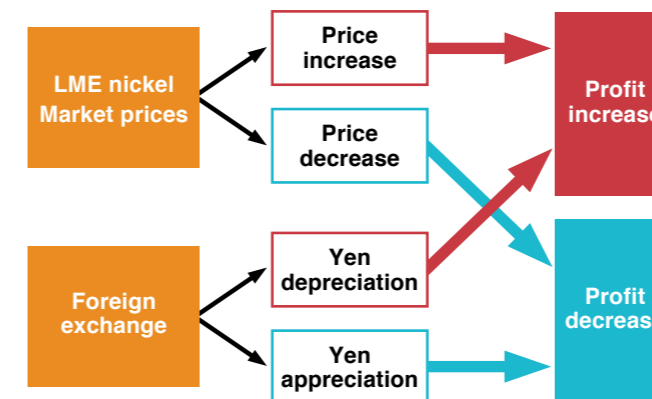
Risk management

The environment surrounding companies is complex, fast changing with the presence of risks. In such a business environment, we take various measures to protect our business from risk.

Risks that may affect the Group's business results are limited to ferronickel products, which account for the majority of the business.

Factors affecting sales prices include LME nickel prices and foreign exchange rates, which have a major impact on our product prices. For this reason, a portion of our sales volume is hedged to take into account fluctuations in the price of LME nickel. The Company also has a policy to implement hedging against foreign exchange fluctuation risk for a portion of the value of our sales. The Company pays the utmost attention to changes in both factors in order to stabilize and secure earnings.

■ Main business risks



In response to large-scale accidents, disasters, and scandals, "Crisis Management Rules" have been established, aimed at building a system to prevent crises that would have a major impact on the Company, affiliates, and employees. During normal times, we hold crisis response meetings to conduct preventive activities for accidents and disasters, as well as regular equipment inspections. In order to take emergency measures, we have established a "Crisis Response Headquarters" and designated that the president be the head of this headquarters.

With regard to business management risks, the Board of Directors takes action and decides how to respond. In addition, we manage risk in daily business by developing management rules and business manuals.

Compliance

The Board of Directors of the Company has established the "Management Policy," "Corporate Code of Ethics," and "Corporate Code of Conduct" to ensure compliance with laws and regulations. In addition, in order to ensure the execution of operations based on these policies and norms, we have established an Internal Control Committee as an advisory body to the Board of Directors to manage compliance.

The Company has set forth the following regarding compliance with and adherence to social norms, and all officers and employees, including directors, are aware of this in the performance of their duties.

1. Conduct corporate activities based on compliance, social norms and common sense.
2. Insulate us from anti-social forces that threaten the social order and safety, and conduct sound corporate activities.
3. In international business activities, comply with international rules and local laws, respect local cultures and customs, and conduct corporate activities that contribute to the development of that country.

In order to ensure compliance with laws and regulations in our operations, we regularly check the status of our compliance with relevant laws and regulations, identify problems, and conduct inspections every quarter in each department. The results are reported to the Board of Directors.

For education in compliance, we provide video training for new employees and managers to deepen awareness of the importance of compliance.

Efforts to eliminate anti-social forces

The Company stipulates that it has no relationship with anti-social forces and organizations, and that it firmly rejects requests from anti-social forces and organizations.

We have had in place a system with established contact point to centrally manage information and for cooperating with related organizations such as the police and the Association of Special Violence Prevention Measures. In addition, we conduct video training such as "Tackling Unfair Requests and Responses" to raise awareness among employees.

[Click here for links to corporate governance](https://www.pacific-metals.co.jp/ir/governance.php) URL: <https://www.pacific-metals.co.jp/ir/governance.php>

Our company manufactures ferronickel, the main raw material of stainless steel, as our main product, and has established ourselves as Number 1 in Japan for ferronickel manufacturing. Utilizing the world's top-level smelting technology, we carry out efficient production using the world's largest electric-fired furnaces.

Efforts are underway to reduce the environmental impact, such as reducing the amount of energy used by using high temperature exhaust gas from electric furnaces in the ore drying process and recycling by smelting waste together with nickel ore.

Ferronickel manufacturing process

INPUT	Main raw materials		Total energy	
	Nickel ore (wet)	259 10k tons	1,858	10k GJ
	Secondary ingredients	33 10k tons	669	10k m ³
			Industrial water	
			669	10k m ³



Smelting process

Efficiently smelting ferronickel with the world's 3 largest electric furnaces. The high temperature exhaust gas from the electric furnace is used as a heat source in the drying process to reduce energy consumption.



Ferronickel smelting electric furnace: The world's largest class of electric furnace, which smelts ferronickel by melting ore at a temperature of about 1,500 degrees Celsius.

Ore transportation and drying process

Raw ore is transported by ship and held in stockpile. Ore and other materials are transported from the storage site to the Works by conveyor and dried in a drying furnace.



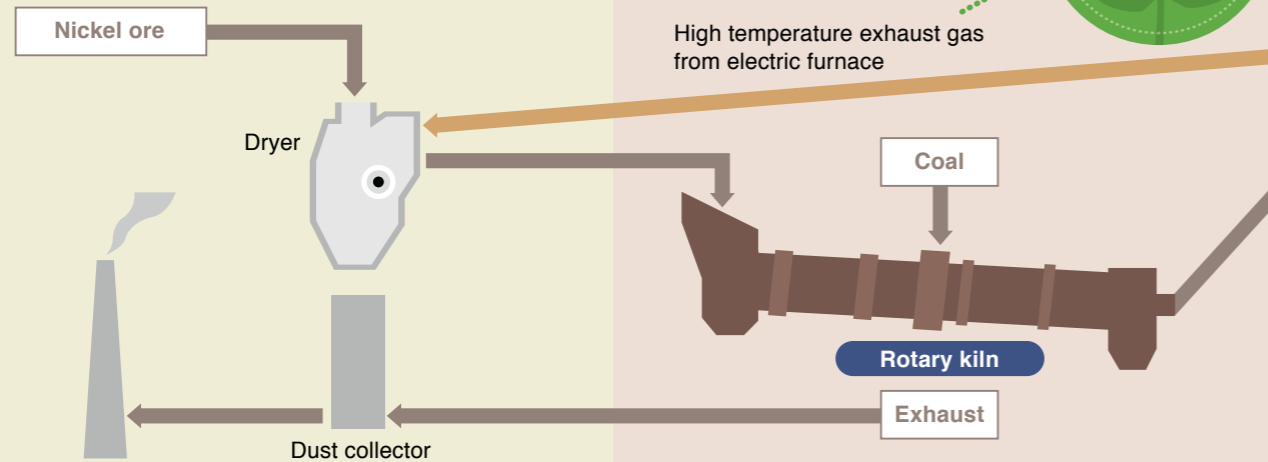
Ore Conveyor: The ore that has been unloaded is transported via 2.4 km long conveyor to the plant.

Calcination process

Dried ore is heated in a roasting kiln (rotary kiln) to remove moisture (adherent water, water of crystallization).



Rotary kiln: A calcining furnace machine, over 100 m in total length that thermally processes dried ore by heating it to approximately 1,000 degrees Celsius.



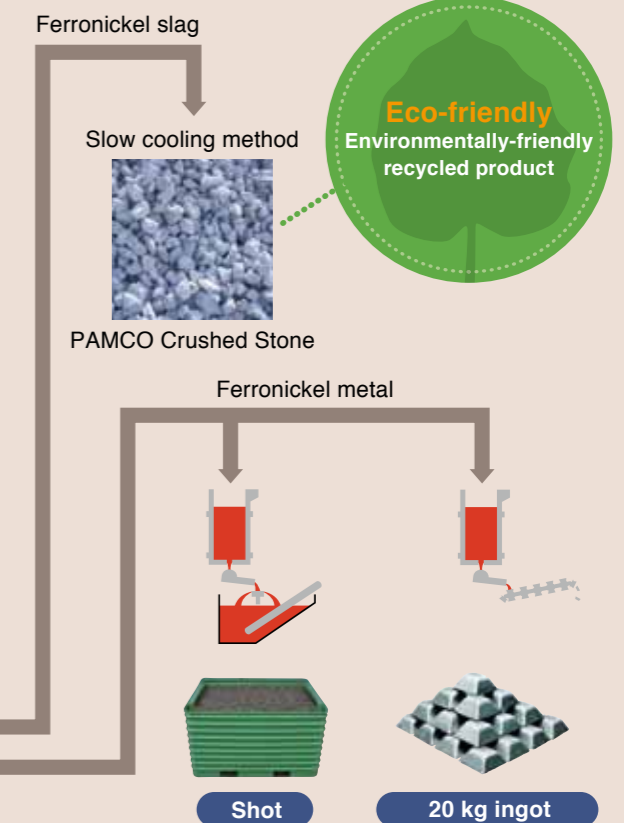
Casting process

Smelted ferronickel (molten metal) is molded into 20 kg ingots and granular shots.



Shot casting: Molten metal is rapidly cooled with water in a water tank and finished into small particles.

Ingot casting: Molten metal is poured into molds and finished into 20 kg ingots.



Product			Atmospheric release		
Ferronickel (gross)	23.5	10k tons	CO ₂	137	10k tons
Resource recycling	Ferronickel slag	136 10k tons	SOx	1,753	t
Drain water	Discharged water	453 10k m ³	NOx	2,513	t
			Dust	37	t

OUTPUT

Eco Products That Contribute to Reduced Environmental Impact

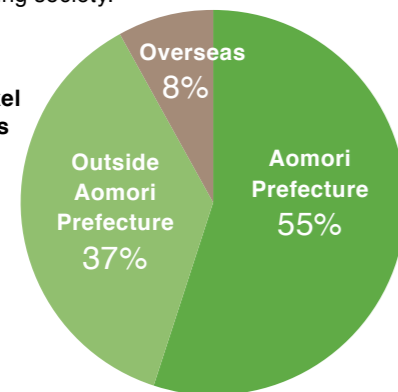


Effective use of by-products

Ferronickel slag obtained in large quantities as a by-product of the ferronickel manufacturing process is cooled by the slow cooling method, and then the entire product is recycled according to the intended use and sold as an attractive product that can be used in a wide range of applications. Our recycling technology has attracted attention as it is environmentally friendly and contributes to energy conservation.

Our ferronickel slag products are stable and have the same or better quality than natural resources. Therefore, they not only save natural resources but also contribute to the formation of a recycling society.

FY2018 ferronickel slag products sales performance (by region)



PAMCO Crushed Stone-5



PAMCO Crushed Stone 0-40



Road using PAMCO Crushed Stone roadbed material

PAMCO Crushed Stone for civil engineering materials

PAMCO Crushed Stone is a product obtained by crushing ferronickel slag cooled by the slow cooling method and regulating the particle size. Its benefits include no harmful substances and high degree of safety, and it is often used for civil engineering materials as a substitute for mountain sand and crushed stone.

Easily incorporate into roadbeds, with a high bearing capacity after compaction and excellent frost-heaves suppression, it is suitable for road materials in cold regions.

LCA for ferronickel slag products

Our ferronickel slag products are environmentally friendly and safe because they do not contain harmful substances and have attracted attention as contributing to reducing environmental impact.

The LCA^{*1} evaluation also showed that, compared to quarried products^{*2}, ferronickel slag products manufactured by our company can reduce CO₂ emissions and contribute to the environment^{*3}.

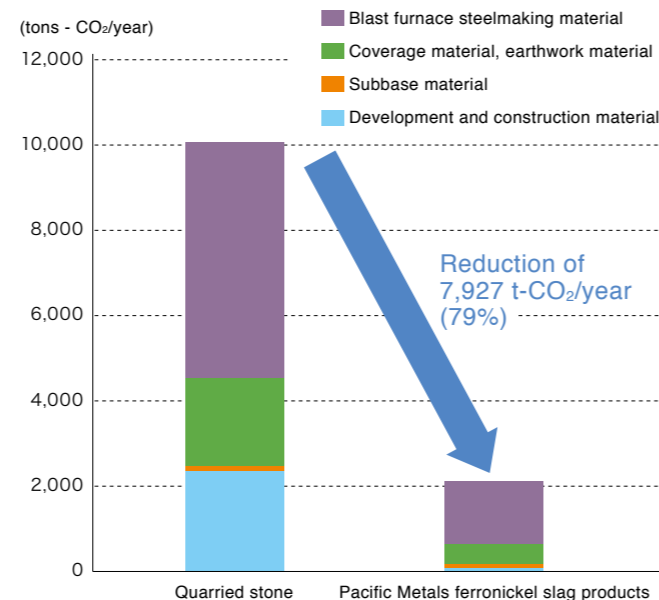
*1: Abbreviation for Life Cycle Assessment. A method for quantifying the environmental impact of a product over its life cycle (resource extraction, production, use, disposal).

*2: Products produced by extracting and mining naturally occurring stone

*3: Evaluation results for ferronickel slag products manufactured in FY2018

Environmental contribution of ferronickel slag products

Applications of ferronickel slag products	CO ₂ emissions(t-CO ₂ /year)		CO ₂ reduction rate
	Quarried stone	Pacific Metals ferronickel slag products	
Slow cooling - development and construction materials	2,360	44	98%
Slow cooling - subbase materials	115	32	72%
Slow cooling - coverage materials, earthwork materials	2,059	571	72%
Slow cooling - blast furnace steelmaking materials	5,518	1,477	73%
Total	10,052	2,124	79%



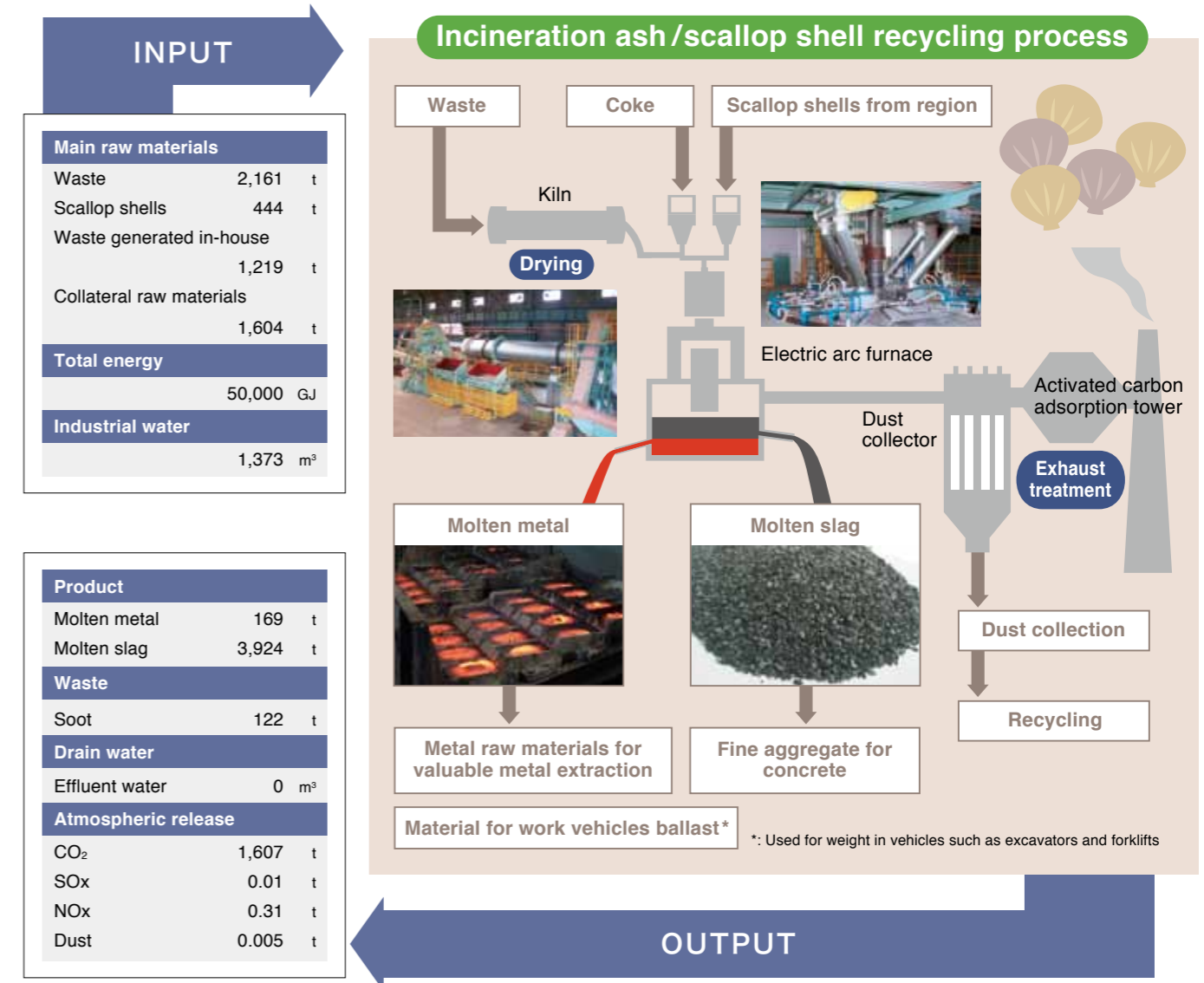
[Click here for product information](https://www.pacific-metals.co.jp/products/kras.html) https://www.pacific-metals.co.jp/products/kras.html

Services That Contribute to the Environment –Waste Recycling Business–

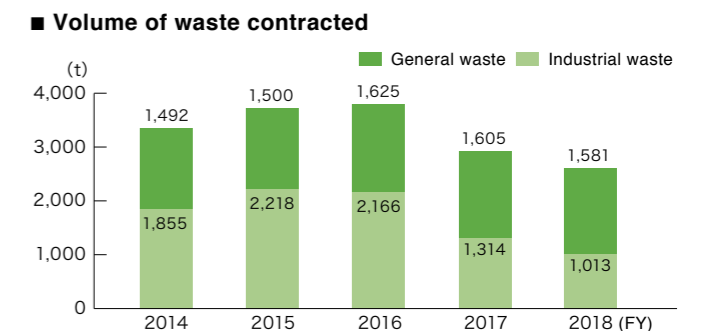


We use advanced technology developed in ferronickel smelting to conduct a waste recycling business. At the Incineration Ash and Scallop Shell Recycling Facility, incineration ash and industrial waste generated in municipalities in the prefecture, and scallop shells whose

processing is a challenge in Aomori Prefecture, are melted in a direct current electric furnace for use in metal raw materials and concrete and recycled into fine aggregate (artificial gravel).



The Company makes effective use of industrial waste as a secondary raw material and fuel at ferronickel manufacturing facilities and as a main raw material at the Incineration Ash and Scallop Shell Recycling Facility. In FY2018, the contracted amount of general waste and industrial waste was 2,594 tons. The treatable industrial wastes, the volume of disposal, the status of maintenance, and other information are posted under "Public Disclosure Related to Industrial Waste Treatment" on our website.



[Click here for information on industrial waste disposal](https://www.pacific-metals.co.jp/environment/waste.html) https://www.pacific-metals.co.jp/environment/waste.html

We use significant amounts of electricity and fossil fuels in the manufacturing process and emit soot and smoke. For this reason, we are actively working on energy-saving measures and to reduce the environmental impact on the atmosphere and water.

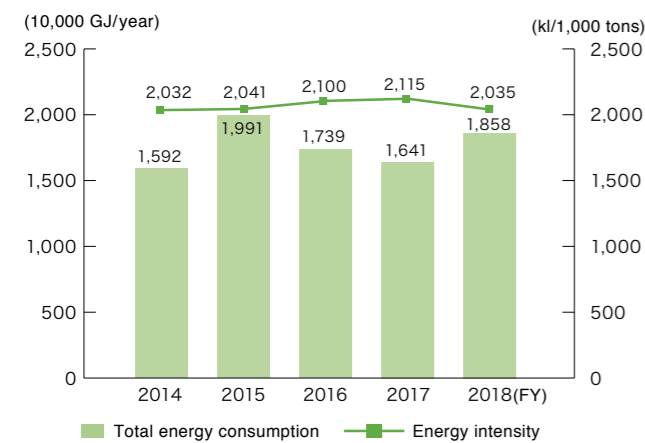
Curbing global warming and energy conservation measures

In the manufacturing process, we are working on the efficient use of energy, such as using high temperature exhaust gas from the electric furnace for the drying process of nickel ore, reducing the amount of fuel oil and liquefied natural gas (LNG) used.

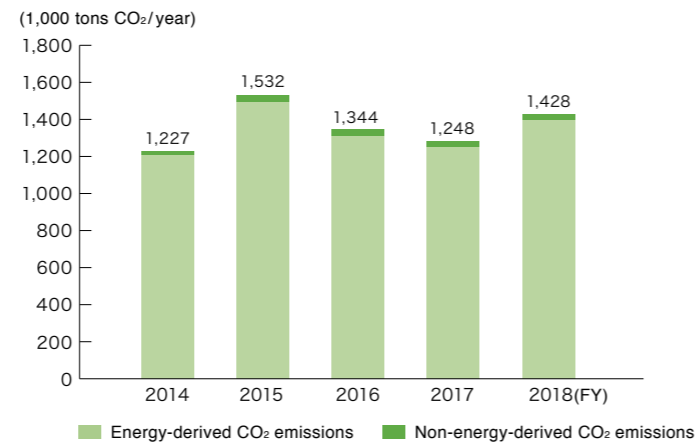
Total energy consumption and CO₂ emissions in FY2018 both

increased compared to FY2017 due to increased production, but energy consumption per unit of production (energy intensity) decreased by 3.8%. This is thought to be due to the improvement in processes to improve energy efficiency in addition to the improvement in thermal efficiency as production volume increased.

Total energy consumption



CO₂ emissions



Air pollution control measures

In order to control the smoke generated from the manufacturing process and our own power generation facilities, we have implemented measures such as continuous monitoring with telemeters and upgrading of gas emission measuring devices, as well as raising employee awareness through communication of management conditions for the value of voluntary controls and education on regulatory compliance. In addition, we combat the dispersion of dust through 24-hour water spraying of the storage yards and on-

site road surfaces and continuous surveillance with dust monitors. In FY2018, air pollutant emissions increased with increased production. We will continue to work on smoke control.

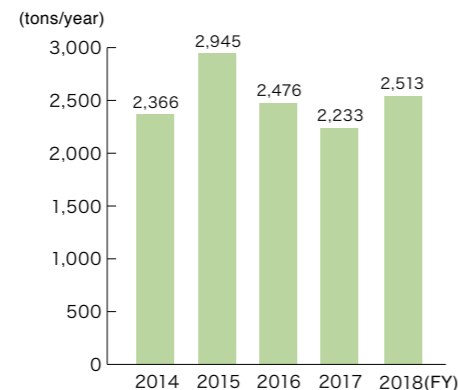


Exhaust gas measurement education

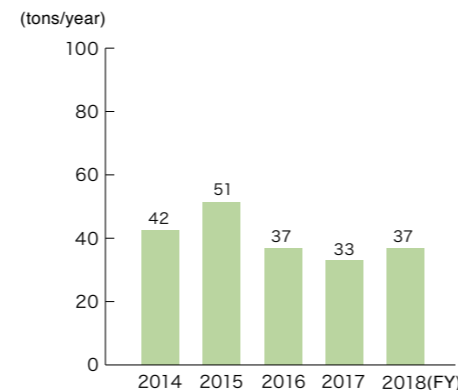
SO_x emissions



NO_x emissions



Dust emission

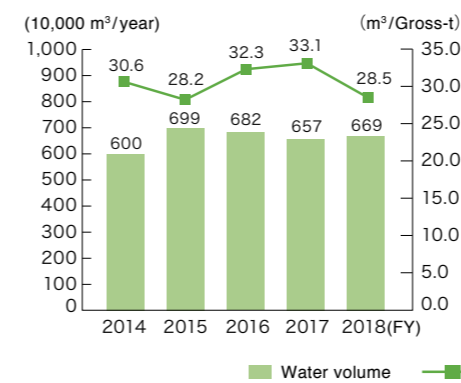


Water pollution control measures

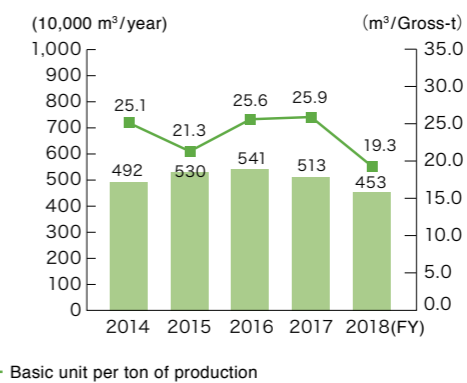
We are working to reduce water consumption by using re-circulating water to cool electric furnaces and ferronickel slag. Regarding drainage, in addition to periodic inspections, we carry out thorough day-to-day management via real-time monitoring, using continuous monitoring systems, and

employee patrols. In addition, wastewater treatment facilities are appropriately managed, such as by adjusting the amount of treated water when the turbidity concentration rises during rainfalls. In FY2018, drainage did not exceed agreed levels.

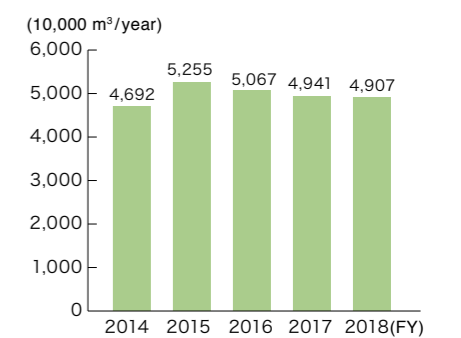
Water supply amount



Total drain water volume



Recycled water volume



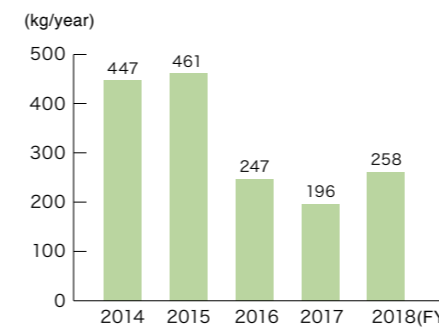
Proper management of chemical substances

In accordance with the Pollutant Release and Transfer Register (PRTR) system, emissions and transfers of substances subject to notification are recorded and reports sent to the government every year. In FY2018, there were four substances subject to PRTR notification as shown in the table. For chemical substances, we manage the purchase, use, and storage volume, and are working to reduce the use of hazardous substances. In FY2019, we plan to introduce

a chemical management system and implement even more thorough management.

Nickel compounds discharged from the ferronickel manufacturing process are one of our most important management items, and we have put in place measures such as the installation of dust monitors, 24-hour watering, and use of a motorized sweeper for cleaning.

Nickel compound emissions



Substances subject to PRTR notification in FY2018

		Nickel compounds (kg/year)	Chromium and trivalent chromium compounds (kg/year)	Manganese and other compounds (kg/year)	Dioxins class compounds (mg/year)
Emission volumes	Atmospheric	209	71	46	0.00015
	Waterways	49	0	0	0
	Soil	0	0	0	0
	Landfill	0	0	0	0
Transfer volumes	External waste	0	0	0	18

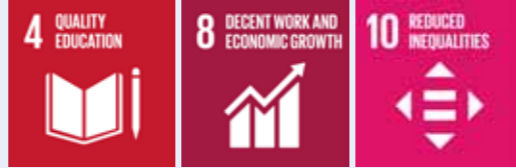
Observance of environmental laws and regulations

Based on the Act on Rational Use and Appropriate Management of Fluorocarbons, we regularly inspect industrial air conditioners and refrigeration equipment, etc. owned by our company. No leaks that required reporting were found in the inspections.

For waste incinerators, which are classified as mercury discharge facilities under the Air Pollution Control Act, we measure the total mercury content in exhaust gases in

accordance with the Act.

We also contract out for appropriate disposal of mercury-containing product waste (fluorescent lamps, etc.) designated by the Waste Management and Public Cleansing Act. In addition, for machines that contain polychlorinated biphenyls (PCBs), we are working to eliminate treatment with oil containing trace amounts of PCB for large transformers.




Based on our Quality Management System (QMS) and the Industrial Standardization Act, the entire company is working together to promote quality control activities in order to reliably provide products trusted by all stakeholders.

Quality control

We have established a quality management system in accordance with the “Guidelines for Enhancing Quality Assurance Systems” of the Japan Iron and Steel Federation and the “Guidelines for Manufacture and Sales of Non-ferrous Slag Products” of the Japan Mining Industry Association. In

addition to meeting product quality standards, we conduct quality control activities to meet customer demands and always provide safe and high-quality products that are free from environmental pollution.

Main initiatives	Specific results
Measures to improve customer satisfaction	Ferro-nickel products are highly evaluated by customers by providing products with shapes that are easy to handle with little variation in the product quality requested by customers, and by ensuring that the desired delivery date is met. Through customer satisfaction surveys and daily communication with customers, we find problems and improvements and respond to them as completely as possible. Slag products (ferronickel slag products, molten slag products) have been confirmed to be innocuous through periodic elution tests and content tests based on the Soil Contamination Countermeasures Act to ensure product safety. We also receive high marks via customer communications for the meeting required quality (particle size and chemical composition). Furthermore, ferronickel slag products are strictly managed from production to post-sales on-site verification in accordance with the Japan Mining Industry Association’s “Guidelines for Manufacturing and Sales of Nonferrous Slag Products” is strictly monitored so as not to interfere with the preservation of the living environment at the point of sale.
Support of improvement of in-house quality control capabilities	In FY2018, we conducted in-house training twice for “improper cases related to quality” and “QC method training” that was initiated in FY2017. For inappropriate cases, we reported on the causes, results, and responses, and provided training on the risk that trust built over many years can be lost in an instant. In FY2019, we will continue to improve the curriculum of education and aim for easy-to-understand training.
Brush up of our analytical techniques to improve product quality reliability	Communicating the knowledge base from veteran employees about analysis and testing is a focus for ensuring the reliability of product quality. We listen to the intuitive sense and know-how of veteran employees, which cannot be documented in a procedure manual, and carried out activities to document skills charts with figures and photographs. By conducting on-the-job training (OJT) based on the skills charts, we have been able to reliably achieve technical success. 
Laboratory accreditation of certification standards for testing and calibration laboratories (ISO/IEC 17025)	Because the price of ferronickel products and nickel ore is determined by nickel quality, it is important to ensure the reliability of nickel analysis values. For this reason, we have obtained ISO/IEC 17025 certification for “chemical analysis of components in ferronickel,” “fluorescence X-ray analysis of components in ferronickel,” and “chemical analysis of nickel in nickel ore.” As a result, our products serve to help ensure international and objective reliability of inspection and acceptance of inspection results for raw materials. In FY2019, we plan to review the transition to ISO/IEC 17025 (2017 edition).

The Company received ISO 9001 certification in 1998 and has maintained it since then. Since FY2015, we have run the Environmental Management System (EMS) and the Occupational Health and Safety Assessment Series (OHSAS) together as an integrated management system.

The periodic screening for FY2018 was in October. As a result, it was confirmed that there were no major problems and the quality management system based on ISO 9001 was properly maintained. In our QMS activities, stabilization of raw

material procurement and cost reduction are urgent issues, so we are promoting relevant targets in each department. The Procurement Department is working to set goals for the development of five new suppliers such as the Philippines and New Caledonia, in accordance with the “IMS Target Management Progress and Implementation Report” and, amidst external factors that have increased in complexity, has been recognized for implementing various measures.



We strive to disclose appropriate and easy-to-understand information for our shareholders and investors. Briefing sessions are held mainly in conjunction with the publication of various IR information on the website.

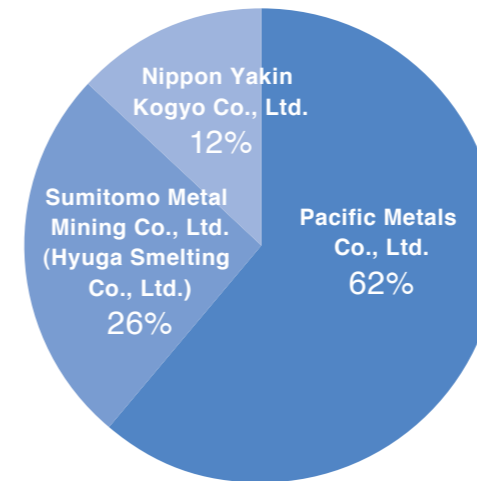
IR activities

The Company has an IR Committee centered on directors responsible for investor relations and has established a system to promote constructive dialogue with all shareholders and investors.

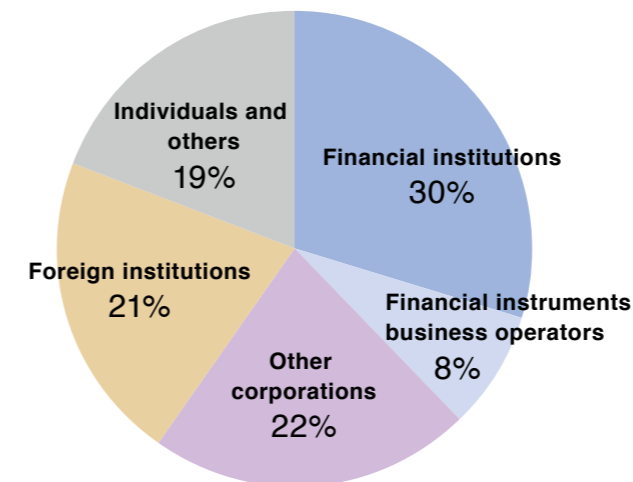
An annual general meeting of shareholders is held in June every year, and a financial results briefing is held during the second quarter earnings release to explain business results, plans and strategies of our business.

In addition, we work to return profits to shareholders through dividends while enhancing and strengthening our corporate structure.

Our company’s performance (the share of our company in ferronickel production in Japan)



Shareholder composition



Communications with shareholders and investors

Briefing sessions for IR analysts and institutional investors are held twice a year.

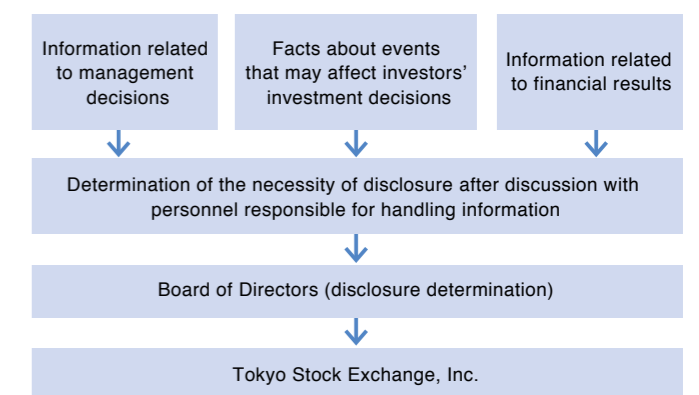
We endeavor to ensure that the opinions of shareholders are shared among the Board of Directors, centered on the Chairperson of the Board of Directors. In addition, when conducting dialogue with shareholders, we carefully manage insider information and take great care not to create information gaps among shareholders.

Information disclosure

Based on our information disclosure policy stipulated in the “Basic Policy on Corporate Governance,” information is disclosed in a timely and appropriate manner, primarily through our website.

The Company has established a disclosure system for information related to management decisions, facts about events that may affect investors’ investment decisions, and information related to financial results. When important facts arise, the relevant departments in the Company consider whether disclosure is necessary, the Board of Directors makes determination as to disclosure, and if disclosure is to occur, it is made to the Tokyo Stock Exchange.

Information disclosure system



We send out the notice of the general meeting of shareholders at an early date so that shareholders can carefully examine the contents of the proposals and exercise their rights appropriately. In addition, disclosure is made to the Stock Exchange and on the Company’s website prior to the date on which the convocation notice is sent.

[Click here for IR materials](https://www.pacific-metals.co.jp/ir/index.html) URL: <https://www.pacific-metals.co.jp/ir/index.html>



We value the connection with the local community, carry out clean-up activities, and endeavor to revitalize the community by sponsoring local organizations and participating in local events. We strive to communicate with all of our stakeholders through local initiatives.

Factory tours

We conduct factory tours to help members of the community better understand our business activities. On March 9, 2019, Pacific Metals Hachinohe Works conducted a factory tour held for students of Hachinohe Kojyo Daigaku (meaning Hachinohe Factory University).

Hachinohe Kojyo Daigaku is sponsored by Hachinohe City and is a civic activity for rediscovering and communicating the appeal and value of local factories. Since FY2015, we have been cooperating through dispatch of lecturers and implementation of art events using factory landscapes.

Twenty-eight local residents participated in this factory tour, and it was an opportunity to deepen their understanding of the Company by actually seeing the rotary kiln, electric furnace, and ferronickel slag discharge.

Participants were interested in ferronickel manufacturing processes and wastewater treatment facilities. In particular,



Group photo with factory tour participants

Cleanup activities around the plant and in the surrounding area

We are continuously conducting cleanup activities along the coastal roads around the plant with the aim of beautifying the local environment and contributing to society. In a cleanup activity conducted in July 2018, we cleaned the parking lot in front of our main gate. In October 2018, approximately 40 employees, including employees of affiliated companies and partners, performed cleaning activities across a four-block area.

we received feedback on the water after the pollutants were removed, such as “I learned for the first time that water used in the plant is first cleaned and then released” and “I was surprised that the wastewater that was poured into the beaker was transparent.”

In addition, in FY2018, we cooperated with local organizations and held tours for local residents. Those tours include a “Student Manufacturing Company Visit Tour” hosted by the Hachinohe Regional Advance Technology Promotion Center Foundation on July 30 and an “Eco Tour” hosted by the Environmental Policy Section of the Hachinohe City Environmental Policy Administration Section, Environmental Management Department, City of Hachinohe for Hachinohe citizens on October 18.

We will continue to create opportunities for local residents to learn about our company.

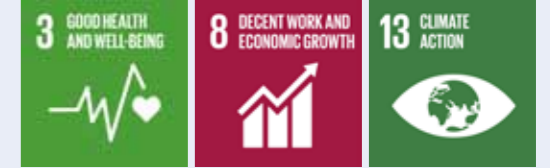


Sample water for discharge into the sea

Environmental and safety exchange events held by four nickel companies

In 2009, we established an “Environment / Safety Exchange Meeting” with three other domestic nickel companies to share information on environmental and safety issues.

In FY2018, discussions were held at the Hyuga Smelting Co., Ltd., focusing on the three themes of “Measures against nickel dust,” “Safety measures for heavy machinery,” and “Management system of partner companies.” This exchange meeting is a very meaningful place for communication because it allows information sharing about each company’s efforts.



We have been promoting voluntary work accident prevention activities under the slogan “Safety!” and working to prevent workplace accidents by raising safety awareness. We are also promoting health management activities so that employees can maintain a safe and healthy work environment.

Occupational safety activities

In FY2018, we set the company-wide goal of “No accidents and no disasters” to focus on strengthening occupational safety and health measures and managed to review risk awareness education and OJT, re-examine safety rules, establish a communication system and hold safety skills competitions.

For risk awareness education, we carry out OJT at each worksite to be prepared for any troubles. For example, we built equipment to give training participants the simulated experience of being caught in the belt conveyor and other dangerous situations. At the safety skills competition, competitions were held for “forklifts” and “crane/slings” categories, to heighten consciousness of the dangers of work vehicles and the importance of safety awareness. We will continue to strive to prevent accidents and disasters by raising awareness so that accidents and disasters do not occur at our workplaces.



Experiencing “getting caught” in the belt conveyor for risk awareness education

Hygiene activities

In July, an exercise class on locomotive syndrome prevention was conducted with the aim of improving employee health. As we did last fiscal year as well, we held an in-house relay-race tournament in September. Before the competition, instructors were invited from a fitness club to hold a course on how to run in a relay race; not only relay-race tournament participants, but also those who run on regular basis took part and learned about the proper form for running and how to do stretching before and after practice.

Our Hachinohe Works also has a gym and bath open to all employees. We take care to promote the health of employees so that they can refresh themselves by working out and working up a sweat after work.



Gym and bath in Hachinohe Works

Disaster prevention activities

In FY2018, we conducted comprehensive disaster prevention drills, night/holiday drills, and tsunami evacuation drills throughout the Company. In the comprehensive disaster prevention drill, with the cooperation of the Hachinohe Regional Joint Disaster Prevention Center, firefighting drills and rescue and relief training for injured persons were conducted with our self-defense fire brigade, premised on fire occurring on the premises due to a large-scale earthquake.

We also revised the disaster prevention map in the plant and distributed it to all employees. The disaster prevention map contains information on initial response in case of an emergency and provision of information to the fire department and police so we can take immediate action by looking at the map.



Water discharge training by the self-defense fire brigade

Creating a rewarding workplace environment

In FY2018, we introduced a new personnel system that promotes every employee feeling rewarded in their work. We place importance on promoting motivation and working by encouraging dialogue with evaluators, conducting transparent and fair evaluations, and feeding back the results of evaluations. In addition, we are working to improve productivity by systematic management of attendance information and based on leaving work on time. We aim to create a rewarding work environment by maximizing the capabilities of all employees.



Third-Party Opinion

Professor,
Faculty of Science and
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**Dr.
Chiharu Tokoro**

A wide variety of initiatives for the Sustainable Development Goals (SDGs)

Not only efforts to reduce CO₂ and other greenhouse gas emissions, but also recycling slag generated as a by-product, reusing waste such as incinerated ash and scallop shells, and facilitating air and water pollution control in the manufacturing process -- these initiatives all receive high marks for contributing on multiple fronts to the strong support they provide to SDGs. In this report, each initiative and the 17 goals of the SDGs are clearly linked, and the report is very easy to read. I look forward to the continued work on the construction of high-level resource recycling processes through the active use of waste in the manufacturing process and the expansion of slag applications.

Efforts to create an employee-friendly workplace environment

The efforts aimed at becoming a rewarding company can be highly appreciated through the introduction of a new personnel system that makes each employee feel rewarded in their work and emphasizes the importance of occupational safety activities. I think that the diversification of human resources that is also listed in the SDGs is an important initiative to be actively pursued.

Closing remarks

The concept of environmental, social and governance will likely gain more and more attention in the future. This report mentions these efforts, and in the future, we would like to see efforts to further enhance the initiative of each component and the appeal in communicating such initiative.

The management philosophy of "utilizing human power, providing more usefulness from the earth's resources, and contributing to the well-being of human society" is exactly the same idea as the SDGs. We look forward to your contribution to the realization of a sustainable society with innovative technologies and systems.

As a leading ferronickel manufacturer in Japan, Pacific Metals Co., Ltd. has a clear long-term vision to become the world's top ferronickel manufacturer and is deeply engaged in corporate activities. The following are the activities that are particularly appreciated from this Sustainability Report 2019 and the areas that we expect for further development.

Initiatives for sustainable development of ferronickel production

Considering the nickel supply chain, it is expected that demand will continue to expand not only for stainless steel, but also as a raw material component of lithium-ion battery cathodes, currently in the news from work on them garnering a Nobel Prize. Therefore, efforts to promote variety and diversification in ferronickel production from various perspectives are highly evaluated.

In Japan, efforts have been made to develop technologies and human resources under an all-Japan system in collaboration with industry, government, and academia, with the aim of securing stable supplies of resources. As Pacific Metals is a leading ferronickel manufacturer in Japan, we look forward to collaboration in these efforts to accelerate the development of new technologies and diverse human resources, as well as overseas expansion.

Feedback

We would like to express our sincere gratitude to Dr. Chiharu Tokoro for taking her time out of her busy schedule and contributing the third-party opinion to our Sustainability Report 2019. We would also like to express our deep appreciation for Dr. Tokoro's understanding of our business and the business environment in which we have been evaluated, and for evaluating the Sustainability Report.

As Dr. Tokoro has noted, we are promoting variety and diversification of businesses for effective utilization of limited resources based on ferronickel production. In the new medium-term management plan PAMCO-2021, we will further develop and strengthen our efforts. Going forward, we will continue to actively promote the SDGs through our business

Director and Senior Executive
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activities and contribute to the sustainable development of society. To that end, the Sustainability Report 2019 issued this time contains SDGs targets for each item.

In addition, we believe that aiming to be a valued company, including the proposed diversification of human resources, is an issue common to all companies, not just our company. We will also promote initiatives to that end.

1949	Separated from Nippon Soda Co., Ltd.'s steel department and established as Nisso Steel Co., Ltd.
1952	Listed on the Tokyo Stock Exchange and Osaka Stock Exchange.
1954	Converted the iron sand and pig iron facility at the Shibata Plant to a ferronickel smelting facility.
1957	Completed Hachinohe Plant and started production of iron sand and pig iron.
1959	Divested the Shibata Plant with the establishment of Pacific Nickel Co., Ltd., which specializes in ferronickel smelting.
1965	Converted part of the Hachinohe Plant's pig iron production facility to alloy iron and ferronickel smelting. Following production start ferromanganese, production of ferronickel began in 1966 and stainless steel in 1968. Installed two large electric furnaces, one 25,000 KVA in 1969 and one 40,000 KVA in 1970 to increase production of ferronickel.
1970	Absorbed Pacific Nickel Co., Ltd. and changed company name to Pacific Metals Co., Ltd. Established the foundation as a top ferronickel manufacturer.
1972	Signed technical assistance contract for construction of ferronickel smelting plant of Aneka Tambang, Indonesia (Antam Project). Acquired first-grade qualification as a water pollution control manager for the first time for a Pacific Metals employee.
1973	Invested in the Rio Tuba Nickel Mining Corporation in the Philippines and developed nickel mine.
1974	Concluded a telemeter system agreement. Acquired first-grade qualification as an air pollution control manager for the first time for a Pacific Metals employee.
1978	Concluded a pollution control agreement.
1980	Acquired industrial waste disposal business permit.
1983	Divested the Iwase Plant, and transferred the grinding material department to Pacific Rundum Co., Ltd.
1984	Spun off the Naoetsu, Toyama, and Narashino Plants, and the cast steel, forged steel, and machinery departments were transferred to Pacific Special Alloy Castings Co., Ltd., Pacific Steel Mfg. Co., Ltd., and Pacific Machinery & Engineering Co., Ltd., respectively.
1985	Renamed Hachinohe Plant to Hachinohe Works.
1992	Established a general and industrial waste final disposal site.
1993	Acquired industrial waste technical manager qualification for the first time for a Pacific Metals employee.
1995	Installed 60,000 KVA ferronickel smelting electric furnace at Hachinohe Works and established 3 furnaces.
1996	Completed Hachinohe Port Kawaragi No. 2 Pier (public).
1997	Established Pacific Energy Center Co., Ltd. Completed raw material transport conveyor line equipment (Kawaragi).
1998	Acquired ISO 9002 certification.

1999	Moved the head office organization to Hachinohe to become a specialized manufacturer of ferronickel.
2000	Registered environmental measurement certification business. Kitanuma Thermal Power Station of Pacific Energy Center Co., Ltd. started supplying electricity.
2003	Completed the "Incineration Ash and Scallop Shell Recycling Facility" for the recycling business. Transited to ISO 9001:2000.
2005	Achieved 1 million tons of ferronickel production. Conducted environmental assessment in accordance with the Aomori Prefecture Environmental Impact Assessment Ordinance. Acquired special management industrial waste disposal business permit.
2006	Completed ferronickel production line expansion work. Completed the "Melting Furnace Fly Ash Recycling Facility" for the recycling business. Eliminated the Shimamori Final Disposal Site for Municipal Solid Waste and Final Disposal Site for Industrial Waste. Installed the second power plant denitration equipment.
2007	Installed drainage monitors in all drains. Installed a small-scale wastewater treatment device at a part of the drainage port.
2008	Opened Philippines Office. Opened Jakarta Office.
2009	Acquired ISO 14001:2004. Completed wet pilot plant equipment. Completed ferronickel production line expansion work.
2010	Installed a dust monitor in the ore yard.
2011	Launched webpage for waste disposal status. Installed drainage port and chimney monitoring cameras.
2012	Acquired OHSAS 18001:2007. Acquired ISO 17025:2005.
2013	Started operations of wastewater treatment facility.
2014	Started integrated management system operation.
2015	Established basic policy on corporate governance code.
2016	Formulated new "Long-term Vision."
2017	Awarded "Excellent Workplace" from the Aomori Industrial Waste Association.
2018	Received the "Mottainai Aomori Award" from the Mottainai Aomori Prefectural Movement Promotion Council (Chairman: Governor of Aomori Prefecture).



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