

Environmental Affairs Division
Nippon Steel & Sumitomo Metal Corporation
2-6-1, Marunouchi, Chiyoda-ku, Tokyo 100-8071, Japan
Phone: +81-3-6867-2566 Fax: +81-3-6867-4999
<http://www.nssmc.com/en/>

NSSMC's Logotype



The central triangle in the logo represents a blast furnace and the people who create steel. It symbolizes steel, indispensable to the advancement of civilization, brightening all corners of the world. The center point can be viewed as a summit, reflecting our strong will to become the world's leading steelmaker. It can also be viewed as depth, with the vanishing point representing the unlimited future potential of steel as a material. The cobalt blue and sky blue color palette represents innovation and reliability.

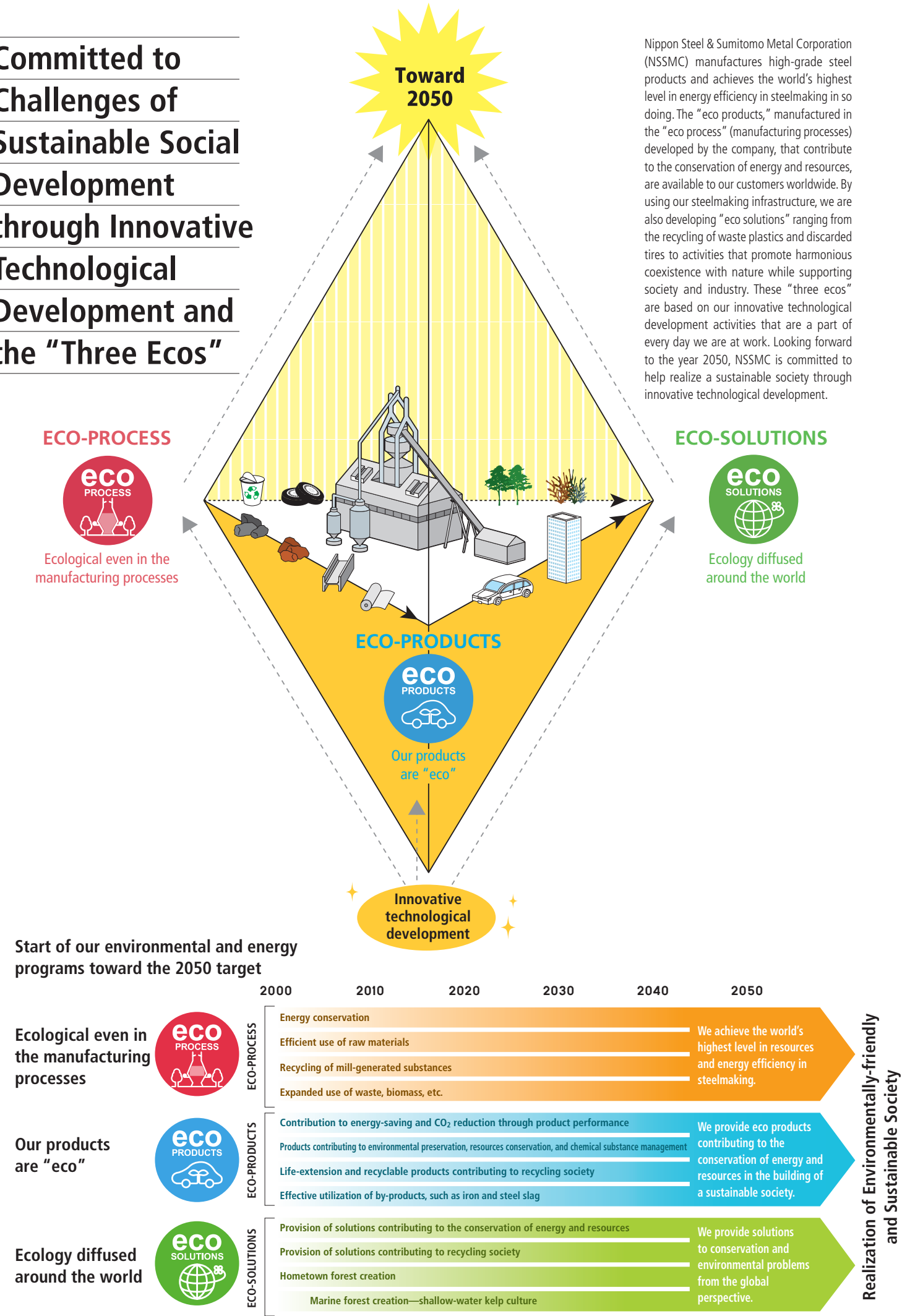


**NIPPON STEEL &
SUMITOMO METAL**

Sustainability Report **2013**



Committed to Challenges of Sustainable Social Development through Innovative Technological Development and the “Three Ecos”



NIPPON STEEL & SUMITOMO METAL CORPORATION Sustainability Report 2013

CONTENTS

■ A Message from Top Management	2
■ Management System	
Corporate Governance	4
Internal Controls and Compliance	5
■ Environmental Report	
Basic Environmental Policy	6
Targets and Achievements in FY2012	7
Energy and Material Balance	8
Promotion of Global Warming Countermeasures	10
Contribution to Create a Recycling-oriented Society	14
Promotion of Environmental Risk Management	16
Promotion of Environmental Management	18
Offering of Environmental and Energy Solutions	21
■ Social Report	
Nippon Steel & Sumitomo Metal Group and its Stakeholders	22
Partnerships with Local Communities	23
Partnerships with Customers and Suppliers	23
Partnerships with Shareholders and Investors	24
Partnerships with Young People	25
Partnerships with Employees	26
Partnerships with External Organizations and NGOs	27
Various Communication Activities	28
Awards and Commendations from External Organizations	29
■ Third-party Opinion	30
■ Corporate Profile & Financial Indicators	31

Editorial policy

While this is the first sustainability report issued by Nippon Steel & Sumitomo Metal Corporation (NSSMC), it is the 16th report since the former Nippon Steel Corporation issued the first sustainability report by a Japanese steel manufacturer, in 1998. This report mainly presents contents of NSSMC's “Environmental Report” and “Social Report,” with some reference made to activities conducted by NSSMC's group companies in Japan and overseas.

Period covered

The period covered in the report is fiscal year 2012 (from April 2012 to March 2013). For some activities, the period from April 2013 to June 2013 is included.

Scope of report

- Environmental and social aspects: Activities of NSSMC and its group companies in Japan and overseas.
- Economic aspects: The Annual Report for 2013 (issued in July 2013) also covers the contents of the economic report.

Reference for guideline

- GRI (Global Reporting Initiative)
“Sustainability Reporting Guidelines Version 3.0”
- “Environmental Reporting Guidelines,” by the Ministry of the Environment

Scope of the Annual Report and the Sustainability Report

Annual Report

This report focuses mainly on “overall management,” which includes messages from the Chairman and the President on the corporate philosophy of “contributing to social development” and sustainable growth, performance highlights, the Medium-term Management Plan, an outline of each business segment, the basis that supports growth, and financial information.



Sustainability Report

The sustainability report consists of a message from the Chairman and the President concerning the environment and society, an environmental report which covers global warming countermeasures, the building of a recycling-oriented society, environmental risk management, and so on, and a social report concerning stakeholders including the local community, customers, suppliers, shareholders, investors, young people, teachers, employees, external organizations, and NGOs.



Developing Environmental and Energy Solutions, and Creating World-leading Technologies and Manufacturing Capabilities

With the integration of Nippon Steel Corporation and Sumitomo Metal Industries Ltd. in October 2012, we have made a fresh start as Nippon Steel & Sumitomo Metal Corporation. After adopting the Medium-Term Management Plan in March 2013, we are proceeding with company-wide efforts with the aim of becoming the “Best Steelmaker with World-Leading Capabilities” by enhancing advantages of scale, cost, technology, customer service, and making other accomplishments.

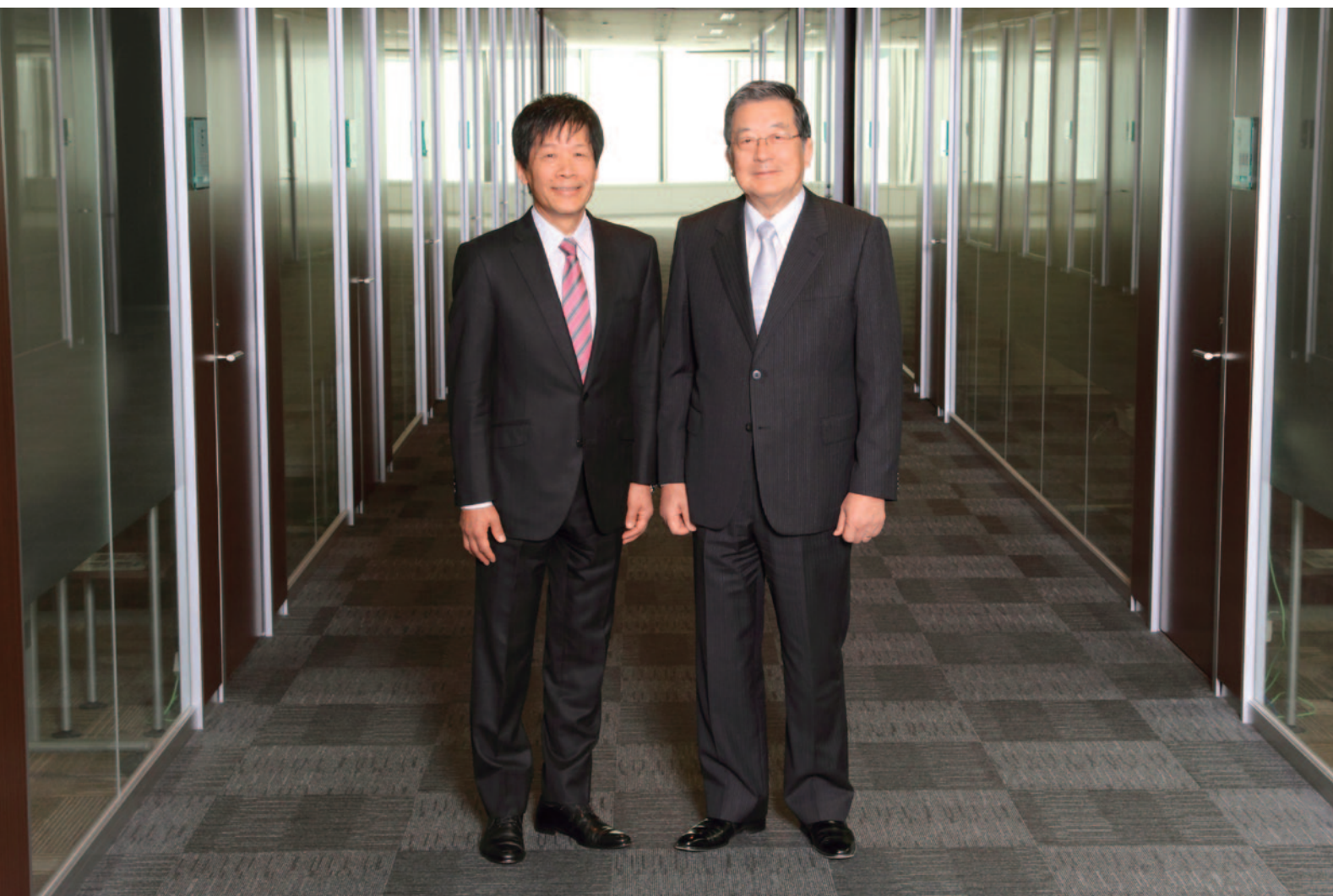
Progress was made on the issue of global warming at COP18 (the 18th Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change) held in Qatar in December 2012. All of the major emitting countries agreed that discussions should be commenced on creating a new framework for 2020 onward. Aiming at world CO₂ emissions reduction, the first commitment period of the Kyoto Protocol that began during our fiscal year 2008 ended in our fiscal year 2012. During this period, we set for ourselves the formidable challenge of a 10% reduction in energy

consumption (9% reduction of CO₂ emissions) on average in five years starting with fiscal year 1990 as the base year, and we have worked to reduce CO₂ emission. As a result, we have achieved an 11.2% reduction, which exceeds our initial target, by such means as investing in energy-saving equipment and facilities, and improving operations. We pledge to remain vigilant and strengthen our efforts at CO₂ reduction.

Meanwhile, power supply concerns based on most of Japan’s nuclear power plants being idle, combined with recent increases in electric power rates, have caused profound impact on industrial competitiveness and the general lifestyle of the people. Therefore, the national economy at present considerably depends upon achieving the best energy mix, by means such as the resumption of nuclear power plant operation and augmented use of renewable energy resources. Against this backdrop, we have recognized the idea that our social mission lies in contributing to solutions to environmental and energy

Hiroshi Tomono Representative Director, President and COO (Left)

Shoji Muneoka Representative Director, Chairman and CEO (Right)



issues through the maximum utilization of our world-leading technology and capability, as a manufacturer based in Japan, in order to balance economic growth and environmental preservation. To all our stakeholders, we promise that we will make full efforts in the interests of the environment, by achieving the following goals, with the aid of our integrated synergy effects.

We will contribute to solutions to global warming and energy issues with three “eco solutions.”

The first eco solution involves CO₂ emission reduction in production processes (eco process). While we already have at our production sites the world’s highest energy efficiency in steel production, we will work to further reduce CO₂ emissions by investing in energy-saving equipment and facilities, and by continuing to improve operations. The second eco solution is overall CO₂ emissions reduction, achievable in the stage of end-users through their use of our highly functional steel products for automobiles, home appliances, vessels, wheel sets for railroads, and high-efficiency power generation, etc. (eco products). We plan to further increase the ratio of eco products by stronger marketing of our high-strength high-tensile-strength steel (HI-TEN) and electrical sheet steel which have high energy-saving potential, our boiler tubes for high-efficiency thermal power generation, and our steel products for wind power generation and use of other renewable energy resources. The third eco solution is contribution to global CO₂ reduction by transferring and disseminating overseas our energy-saving technology and environmental management systems that we have accumulated over the years (eco solutions). In particular, our active efforts to promote energy-saving equipment will be directed at China, India, and Southeast Asian countries, where economies are booming and where CO₂ emissions are rapidly increasing.

We will further sophisticate our competitive edge and actively work on the development of innovative technologies.

To thoroughly develop the three “ecos” (eco process, eco products, and eco solutions), we must maintain and enhance our competitive edge, while accurately recognizing diverse social needs in the fields of the environment and energy. To date, our efforts have produced many environmentally efficient technological innovations. One such effort involves next-generation coke-oven plants capable of expanding the use of low-grade coking coal, significantly saving energy, and reducing the burden on the environment. Such coke plants were built for the first time in Japan at our Oita Works and Nagoya Works. Our strength lies in the possession of a wholly integrated R&D system, from basic research to applied development and engineering. Based on one of

the largest-scale, most-comprehensive R&D organizations in the global steel industry, we are intent on leading technological development for environmental conservation and energy saving by accelerating the development of new, highly functional steel products and innovative production processes.

We will further promote environment management to better coexist with local communities and nature through environmentally conscious production and by creating both homeland forests and marine forests.

It is our belief that, as part of the pursuit of corporate growth, we must make environmental efforts at every business activity stage. All of our steelworking facilities, therefore, maintain an environmentally friendly manufacturing site that can foster diverse plant and animal life through employees’ activities to carefully protect local or regional “homeland” forests, which have been created by employee forestation activities. We also intend to promote creation of marine forests—an activity designed to revive seaweed beds through the use of slag, which is a by-product generated in the process of iron and steel manufacturing—in cooperation with local fisheries, government organizations, and environmental NGOs. Iron and steel slag is effective in the reforming of sediment, deposited by the tsunami in the Great East Japan Earthquake, into good hard soil, as well as in the desalinization of farmland damaged by the tsunami. In this manner, we will participate in support for the restoration and rehabilitation of the stricken areas with full consideration regarding environmental implications.

Conclusion

By developing bilateral communication with all stakeholders, i.e., shareholders, investors, customers, local communities, government organizations, researchers, and environmental NGOs, we intend to refine the environmental endeavors that are an integral part of our business administration. In keeping with the corporate philosophy of contributing to social development through the pursuit of world-leading technologies and manufacturing capabilities, and through the provision of excellent products and services, we will engage in environmental conservation activities and fulfill our corporate social responsibility (CSR) while observing laws and regulations, so that we can maintain the trust of all stakeholders.

Sustainability Report 2013 is our first publication as Nippon Steel & Sumitomo Metal Corporation. Please take a look at it; we are ready to learn from your candid opinions regarding our environmental and CSR activities.

Shoji Muneoka
Representative Director, Chairman and CEO

Hiroshi Tomono
Representative Director, President and COO

1 Management System

In accordance with its corporate philosophy, Nippon Steel & Sumitomo Metal (NSSMC) aims at building a dynamic NSSMC Group. To achieve that, we have a corporate governance structure and internal control system, and mechanisms for cooperation for auditing. Through this, we seek to ensure the efficiency, soundness, and transparency of management, and enhance our corporate governance with the ultimate aim of achieving sustainable improvement in corporate value and earning the trust of society.

1 Management System

1 Corporate Governance

Corporate Governance System

NSSMC's Articles of Incorporation stipulate that, as a statutory institution, the Company shall have not more than 20 directors, a Board of Directors, not more than seven Audit & Supervisory Board Members, an Audit & Supervisory Board, and accounting auditors.

The Board of Directors makes decisions on and supervises the execution of business in a proper and prompt manner and seeks to improve the quality of management. The Auditors hold strong auditing authority and maintain integrity, objectivity, and independence when monitoring and overseeing the execution of duties by directors. NSSMC believes that these two boards are effective and appropriate for ensuring sound corporate governance, which ultimately helps raise corporate values of the company.

In addition, to make clear the responsibilities for the results of each business segment, we have adopted an Executive Management System to support directors in their efforts to ensure the proper execution of business activities.

1 Directors & Corporate Auditors

Currently, NSSMC has 12 directors (with a term of office of one year) and seven corporate auditors including four outside corporate auditors (with a term of office of four years).

2 Board of Directors

Important matters related to NSSMC and its group management are deliberated at the Corporate Policy Committee, which consists of the Chairman, President, vice presidents and other officers, and which in principle meets weekly. Subsequent decisions are made by the Board of Directors that meets once or twice a month. In addition, 16 company-wide committees, each established to achieve a particular purpose, serve as consultative bodies to the Corporate Policy Committee and the Board of Directors.

3 Audit and Supervisory Board

The Audit & Supervisory Board has four outside members who have vast experience and deep insight in fields such as legal and financial matters, accounting, and corporate management. It also has three members who are experienced in the company's business. The board members work together to perform auditing in a systematic manner, and provide their opinions to the Board of Directors' and at other important meetings, while endeavoring to maintain and enhance proper corporate management.

4 Prompt and appropriate execution of business strategies

The execution of business strategies mandated by the Board of Directors and other executive structures is done by the directors responsible for these businesses, other directors, and the general managers of relevant divisions, under the direction of the Chairman and CEO and the President and COO. These actions are accomplished by stipulating in writing the ordering authority, oversight responsibility, and procedures required to implement strategies.

Fig. A Corporate Governance Structure and Internal Control System

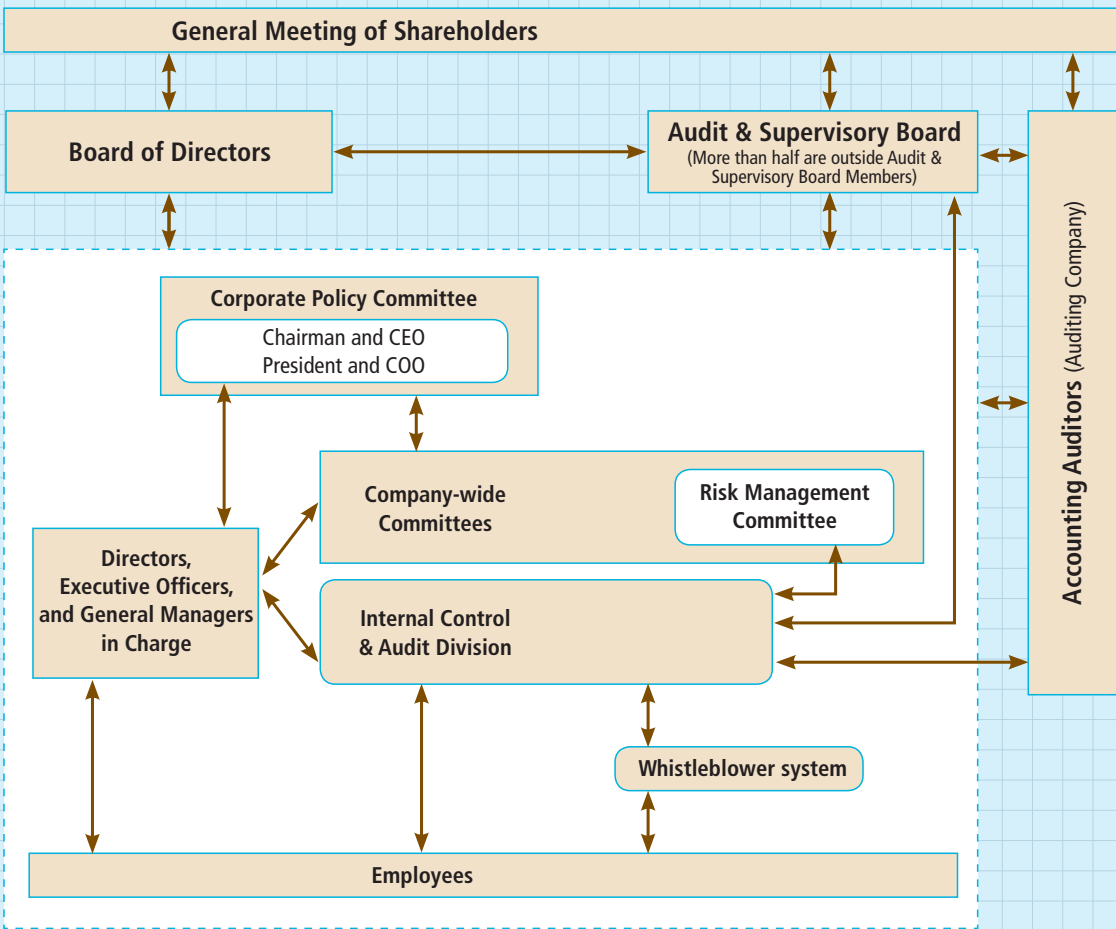
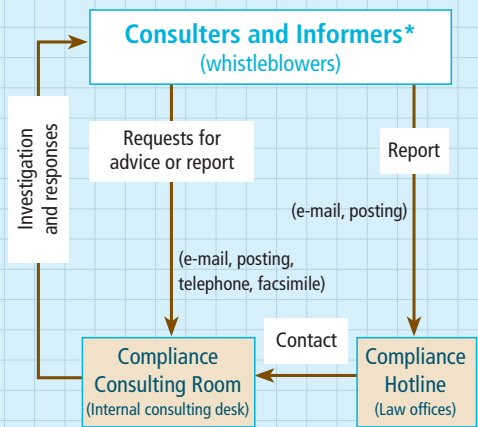


Fig. B Structure of internal consulting and internal report systems



*Consulters and informers (whistleblowers)
Employees of group companies, temporary workers, employees of contractors, suppliers, and their families

Left: Poster, "Feel free to visit us when you are in trouble."
Middle: Booklet, "Compliance Guidelines"
Right: Booklet, "Toward Prevention of Sexual and Power Harassment in the Office"



1 Management System

2 Internal Controls and Compliance

Internal Controls & Risk Management System

NSSMC has adopted the Basic Policy Concerning Internal Control Systems at its Board of Directors' meeting and Basic Rules for Internal Control, as the basis of a system for internal controls and risk management. Fig. A

- Annual plans for internal control and risk management are formulated and carried out.
- The state of progress in implementing annual plans, and matters concerning internal controls and risk management, are regularly reported at the Risk Management Committee, chaired by an executive vice president.
- One person in charge of risk management and one person responsible for risk management are appointed in each NSSMC division and group company. Information on internal controls and risk management is shared by all the organizations through meetings held on a regular basis.
- An inspection and audit system for internal controls and risk management is used to confirm the state of internal controls of the entire NSSMC Group on a regular basis.
- As a part of the internal report systems, there are a Compliance Consulting Room and a Compliance Hotline as well as the corporate legal counsel to provide guidance to and accept reports from Group employees and business counterparts with the aim of assisting the prevention of accidents and violation of laws and regulations as well as the improvement of business activities. Fig. B

Compliance Education

As an important part of its management philosophy, the NSSMC Group is determined to remain a corporation that values credibility and trust. Through education sessions on legal subjects for employees, and other means, the top executives deliver messages to that effect personally and urge all the employees to comply with laws and regulations.

In particular regard to the Anti-Monopoly Act, of which we were found in violation in the past, we make every December "Anti-Monopoly Act Compliance Month" and hold seminars for all sales personnel while the President personally issues a clear and strong message requiring all persons to prevent the recurrence of similar violations. At the same time, efforts are made to have Guidelines on Prohibition of Contact with Competitors, our internal rules on compliance with the Anti-Monopoly Act, thoroughly understood by the employees. The state of compliance with the guidelines is audited every year to confirm proper application. Fig. C

Further, we have prepared textbooks to help ensure fair conduct of business by employees, and efforts are being made to have them completely understood the importance of this, through educational sessions designed for various levels of employees and e-learning programs. The textbooks include Unacceptable Acts: 30 No's, Compliance Guidelines Regarding Illegal Corporate Activities, Toward Prevention of Sexual and Power Harassment in the Office, Guidelines for Prevention of Harassment and Maintenance of A Good Working Environments, and Handbook of Fair Transactions, guidelines for proper operation concerning financial reporting and tax matters.

Fig. C Violations of laws and regulations in the past five years

Year	Company name	Contents
2008	Nittai	Revocation of JIS certification
	Former Nippon Steel Corporation and former Sumitomo Metal Industries	Steel pipe piles and steel sheet piles products A levy due to offences based on the Anti-Monopoly Act
2009	Nippon Steel & Sumikin Coated Sheet Corporation	Steel sheet products A levy due to offences based on the Anti-Monopoly Act
	Hokkai Kokai	Temporary suspension of use of the JIS certification mark
	Former Nippon Steel Corporation and former Sumitomo Metal Industries	Bidding for construction work on steel bridge A levy due to offences based on the Anti-Monopoly Act

2 Environmental Report

Nippon Steel & Sumitomo Metal (NSSMC) is a corporation whose business activities exert a large influence on the environment. This is borne out by the fact that we consume approximately 5% of the total energy used throughout Japan. For this reason, we see comprehensive “environmental management” throughout the group companies as an integral part of our mission. We are dedicated to managing the company so as to reduce and minimize impact on the environment at all stages, from technological development work to the purchase of raw materials and equipment, manufacturing processes, transportation of products, and onward to their use, recycling and disposal.

2 Environmental Report

1 Basic Environmental Policy

Basic Environmental Policy (Established in October 2012)

Basic Policy

Under the principle of “Ecological Management,” NSSMC is committed to contributing to the creation of an environmental-preservation oriented society with lower environmental impact. For this purpose, the company will conduct business activities based on the viewpoint of environmental preservation in local communities, which includes the maintenance and improvement of good living environments and the promotion of reduction and recycling of waste. The company will also address challenges on a global scale including response to issues of global warming as well as the maintenance and improvement of biological diversity.

1 Reducing environmental impacts at every stage of operations (eco process)

At every stage of business activities including production processes and transportation of products, NSSMC will, besides complying with environmental laws and regulations, promote activities to reduce environmental impacts primarily through voluntary efforts, in cooperation with customers and other industries, with the aim of further improving environmental preservation and the efficiency of resources and energy, and of promoting reduction and recycling of waste inside and outside the company.

2 Offering of environment-oriented products (eco products)

With the aim of reducing environmental impacts at every stage of the life cycle of our products offered to domestic and overseas markets, NSSMC will make efforts, making good use of its innovative technologies, to develop and offer products that contribute to environmental preservation, resource conservation and energy conservation.

3 Proposing environmental preservation solutions from a global perspective (eco solution)

NSSMC will further improve its long-accumulated technologies and environmental management system that are related to environmental preservation, resource conservation, and energy conservation technologies. We offer them in Japan and abroad to contribute to, in addition to the reduction of environmental impacts, the development of infrastructure for disaster prevention with due consideration given to nature and scenery as well as to solving environmental issues outside Japan through technology transfer.

Medium-Term Environmental Management Plan for FY2014 *Please refer to NSSMC’s website for details.

1 Further enhancement and promotion of environmental management	4 Promotion of adequate actions to prevent environmental accidents
2 Promotion of countermeasures to global warming	5 Development of business related to environment and energy solutions
3 Contribution to create a recycling-oriented society	6 Promotion of environmental relations activities

2 Environmental Report

2 Targets and Achievements in FY2012

Regarding countermeasures against global warming, FY2012 was the final year of the first commitment period of the Kyoto Protocol. As a result of our efforts to attain an average of 9% reduction of CO₂ emissions from the level of FY1990 during the five year period, NSSMC achieved an 11.2% reduction (on a provisional basis), which was above the target, through reduction in production volume in addition to the energy conservation activities, despite increased use of energy due to environmental measures and the production of high-end steel.

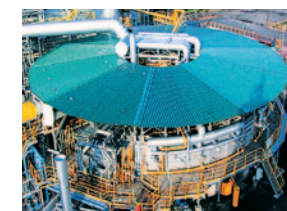
With the aim of creating a recycling-oriented society, we made efforts to reduce the volume of final disposal through increased recycling of by-products. In regard to environmental risk management, we endeavored to raise its importance in the entire group by sharing knowledge and experience accumulated and owned by the former companies before the merger. As one result, eco products and eco solutions were successfully developed and offered to the market in an active manner.

Medium-Term Environmental Management Plan (from FY2009)		Priority target	Achievements in FY2012	Evaluation	Page
Promotion of global warming countermeasures	Promotion of a voluntary action plan based on the development of energy conservation technology, and so forth	Energy-originated CO ₂ emissions were reduced by 9% during the period from 2008 to 2012, in comparison with the 1990 level.	● 11.2% reduction on average in FY2008-2012 period (on a provisional basis including 10.3% improvement in CO ₂ original units), above the target value.	◎	10
	International contribution through a CO ₂ reduction project	Contribution to the reduction of CO ₂ emissions on a global scale through technology transfer	● Participated in a national research project for transfer of energy conservation technologies to India and contributed to the development of a master plan for feasible technology transfer.	○	12,13
Contribution to create a recycling-oriented society	Promotion of zero emissions within the workplace	● Reduce the final disposal volume of by-products by 330,000 tons by 2015 ● Reduce generation of by-products, effectively use steel slag and dust.	● Recycled 99% of the 25.11 million tons of the by-products generated. ● Volume of final disposal lowered to 310,000 tons/y in FY2012 maintaining a decreasing trend and exceeded the target value ahead of schedule.	◎	9,14
	Recycling by-products generated by society or other industries	● Promotion of the effective use of waste plastics and the enhancement of discarded tire recycling business from the viewpoints of recycling and CO ₂ emission reduction.	● Approximately 200,000 tons of waste plastics were recycled (this corresponded to approximately 30% of the nationwide recycling level). ● Approximately 80,000 tons of waste tires were recycled (this corresponded to approximately 10% of the nationwide recycling level).	○ ○	9,15 9,15
Promotion of environmental risk management	● Further promotion of the measures for environmental load reduction ● Cope with global standard new environmental regulations	Reduction of environmental risks concerning air, water, soil, etc.	● Improved management level by diffusing across the company the knowledge, examples and responses accumulated by the former companies before the merger.	○	16,17
		Benzene: Voluntary reduction based on national voluntary management plan. (168 tons/y)	● Achieved the self-management target in emissions (143 tons/y) and promoted further enhanced control in view of an increase in benzene emissions seen in recent years.	△	16,17
		Dioxins: Voluntary reduction based on Japan Iron and Steel Federation guidelines (40.9 g-TEQ/y)	● Already achieved the self-self-management target in emissions set by the Japan Iron and Steel Federation and maintained a low emissions level (4.0g-TEQ/y).	○	17
		Promote control of specified chemical substances in accordance with the PRTR Act.	● The amount of specified chemical substances in PRTR discharged to the atmosphere was 490 tons/y, while 38 tons/y were discharged to public waters. The amount transferred outside the plant was 7,265 tons/y.	○	17
Promotion of environmental management	Promotion of the environmental management structure for realizing environmental management	VOC: Voluntary reduction. (1,098 tons/y)	● Continuously achieved the self-management target in emissions (734 tons/y).	○	17
		Continuously maintaining the environmental management system	● Developed and diffused across the company new regulations and standards following the merger.	○	18
Offering of environmental and energy solutions	Environmental contribution through business in each sector	Development of eco products based on the LCA viewpoint	● Reviewed, following the merger, the risk management system of group companies and improved coordination among them by having risk management thoroughly implemented and sharing information on revision of laws and regulations, measures against extraordinary drainage and waste management. ● Newly commenced, following the merger, on-site hearings at locations including overseas group companies. ● Kimitsu, Wakayama, Hikari and Kokura Works had respective certifications renewed.	○ ○ ○	19 18 18
		Engineering and construction business	● Anticorrosive galvanized steel plate, Superdyma®, was registered as a JIS standard compliant product. ● NSSMC's new pressing technique was adopted by a major auto manufacturer to enable the application of high tensile strength steel (980 Mpa in strength) to hard-molding components.	○ ○	Web Web
		Chemicals business	● Successfully developed a CO ₂ -recovering technique using the best energy conservation process in the world and commenced its sale under the brand name of ESCAP®.	○	Web
		System solutions business	● The company's shaft-furnace direct melting technique was adopted abroad (in Italy). ● NS Ecospiral®, the rotary press-fit piled steel pipe, was adopted at a major solar power plant (26.5MW).	○ ○	Web Web
		New materials business	● Industrialized for the first time in the world the polarized emission materials with high light-conversion efficiency in red and green for use in organic electroluminescent devices.	○	Web
Promotion of environmental relations	Proactively communicate on environmental issues in international and local society	Offer solutions that reduce environmental burden within society.	● Contributed to Kitakyushu Smart City Development Project. Realized, through the use of information technology, assistance in estimating energy consumption in houses, offices and plant as well as in energy conservation efforts.	○	Web
		Offer raw materials that help to use natural energy.	● Newly commercialized a high-strength ultra-thin rolled stainless foil as a cladding material for secondary batteries.	○	Web
Promotion of environmental relations	Proactively communicate on environmental issues in international and local society	Proactively communicate with various stakeholders on environmental issues for harmonious coexistence.	● Sponsored at respective works environmental education rooted in local communities. ● In the “Creation of Sea Forest,” efforts to restore seaweed beds were made in 35 locations across the country (28 locations in FY2011). ● Participated in Eco Products 2012 with the theme of “NSSMC Group supporting lives and lifestyles with environment and energy solutions and taking a new step forward.”	○ ○ ○	25 15 28

Evaluation Legend: ◎: Overachieved, ○: Largely achieved, △: Not achieved



***1 Coke Dry Quenching (CDQ)**
NSSMC recovers high-temperature waste heat and by-product gases generated in blast furnaces, coke ovens, converters, and so forth, and efficiently uses them as a source of self-generated electric power. The company uses CDQ and other facilities located in the steelworking facilities to generate 85% of the total electric power that it needs, and purchases the remaining 15% from outside. A total of 93% of the total electric power generated in the steelworking facilities is obtained from recovered waste heat and by-product gas.



***2 Rotary Hearth Furnace (RHF)**
This is a facility to recover iron and zinc, etc., and recycle them into resources. In these facilities, dust, sludge and other ferric oxide-rich by-products produced during the steelmaking process are mixed with coal or other reducing materials, and then continuously processed at a high-temperature.

Energy and Material in the Business Activity: Their Interrelationship Based on Recycling and Its Impact on the Environment

NSSMC uses iron ore mined overseas, coal as an iron ore reductant, and scrap generated by society as its main raw materials for steel production. By-product gases, such as coke oven gas generated by dry distillation of coal in the coke manufacturing process and blast furnace gas generated from blast furnaces, are fully utilized as fuel gas for steel heating furnaces or energy sources for power generation plants on the premises of steelworks.

Electricity generation by recovering waste heat helps raise the heat efficiency of the whole steelworks to around 70%. In addition, more than 90% of water for cooling or washing products and production facilities is recycled and reused. When one ton of iron is produced, the amount of by-products generated exceeds 600 kg, but the steel slag, dust, and sludge are reused in-house as raw materials, or are

used by society or other corporations as raw materials for cement, construction materials, and so forth.

These efforts have resulted in the achievement of a very high recycling rate of approximately 99%.

We are also engaged in the recycling of various types of by-products generated by society or other industries by utilizing our steelmaking processes that are carried out at

high temperature and high pressure. In recent years, we have been actively recycling waste plastics, waste tires, and other waste materials.

4 Promotion of Global Warming Countermeasures

NSSMC promotes energy conservation and CO₂ emissions reduction throughout the entire supply chain: manufacturing, transportation, and final use of products. We also actively work on innovative technology development and transfer of established technology to our overseas operations, helping them to contribute to CO₂ reduction over the medium- and long-term.

Manufacturing sector

Activities for reducing CO₂ and conserving energy during production

From the time of the first oil crisis until around 1990, Nippon Steel intensively promoted continuous processing, exhaust heat recovery, and other measures, that enabled significant energy conservation. The Japan Iron and Steel Federation (JISF) members including former Nippon Steel and former Sumitomo Metals adopted voluntary action plans with a goal of 10% reduction in energy consumption (CO₂ emissions reduction of 9%) for FY2008–2012 over FY1990 and made efforts to achieve this goal. The average energy consumption of the former Nippon Steel Group from FY2008 up to September 2012 and subsequently of the NSSMC Group through FY2012 was less than that of FY1990 by 11.2% (CO₂ emissions reduction of 11.2%¹), exceeding the JISF goal. From FY2013 on, NSSMC will continue energy conservation efforts to achieve the FY2020 goal of JISF's action plans for a low carbon society (CO₂ reduction of 5 million tons from expected CO₂ emissions under certain production assumptions, through the maximum use of cutting-edge technologies).

1: A provisional value based on the assumption that the CO₂ level in a unit of purchased electricity in FY2012 is the same as in FY2011.

Energy conservation and CO₂ emissions reduction

The most effective measure against global warming is energy conservation, and thus, NSSMC is striving to improve energy efficiency by efficiently using energy generated in steelmaking processes, including power generation through by-product gas or exhaust heat recovery, or by reusing waste plastics and discarded tires. As a result of these efforts, the NSSMC Group (NSSMC and affiliated electric furnace companies²) consumed 1,086 PJ energy in FY2012, achieving a 9.0% reduction over the FY1990 level, while implementing new environmental measures and meeting the demand for higher-grade steel. **Fig. A**

The NSSMC Group's CO₂ emissions were 93.5 million tons in FY2012, an 8.7%¹ reduction from the FY1990 level. **Fig. B**

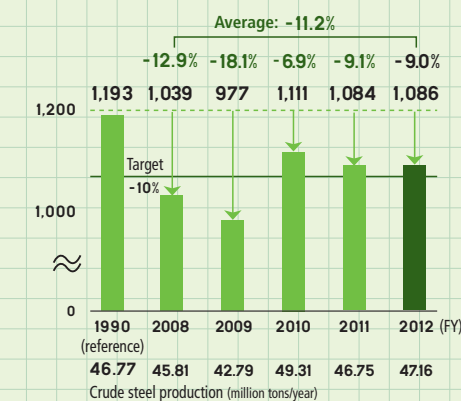
2: Affiliated electric furnace and other companies

Osaka Steel Co., Ltd., Godo Steel, Ltd., Nippon Steel & Sumikin Stainless Steel Corporation, Nakayama Steel Works Ltd., Nippon Coke & Engineering Co., Ltd, three Cooperative Thermal Power Companies (Kimitsu, Tobata and Oita), and two Sanso Centers (Nagoya and Oita)

Japan Iron and Steel Federation's action plans for a low carbon society

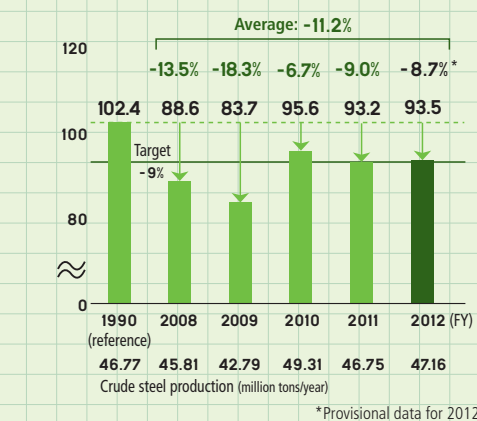
In the ongoing voluntary action plans, the Japanese steel industry promotes three "ecos": energy conservation in own manufacturing process (eco process); CO₂ reduction in final products containing high-performance steel materials (eco products); and CO₂ reduction on a global scale by transferring and promoting energy-saving technologies (eco solutions). From a medium- and long-term perspective on CO₂ reduction, the industry also intends to develop innovative steelmaking processes ("COURSE 50"). From FY2013 onward, we will continue to promote 4-pronged anti-warming measures consisting of the three "ecos" and COURSE 50, under action plans for a low carbon society. **Fig. C**

Fig. A NSSMC's Groups Energy Consumption
(PJ/year)



*PJ refers to petajoules or 10¹⁵ joules. One calorie is approx. 4.19 J. One PJ is equivalent to approx. 2.58 kiloliters of crude oil.

Fig. B NSSMC's Group's CO₂ Emissions
(Million tons/year)



*Provisional data for 2012

Fig. C Japan Iron and Steel Federation's Action Plans for a Low Carbon Society

1

Eco process

Aims at improving energy efficiency in the steelmaking process, which is currently the most efficient in the world. (CO₂ reduction of 5 million tons from the amount of CO₂ emissions expected under certain production assumptions.)

Eco products

By providing high-performance steel materials, which are essential to build a low carbon society, contribute to emissions reduction when they are used in final products. (Typical high-performance steel materials are estimated to help reduce approximately 33 million tons of CO₂ emissions in 2020.)

Eco solution

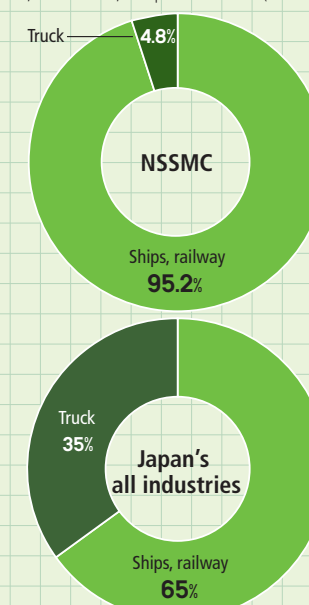
By transferring to and promoting the world's best energy-saving technologies cultivated through the eco process mainly in developing countries, contribute to a global reduction in energy use. (This is estimated to contribute to a reduction of approximately 70 million tons in 2020.)

Fig. D Logistics Sector's Ton-kilometer Achievements for FY2012

	Transportation quantity: 10,000 tons/year	100 million tonkilometers/year
Ship	1,933 (54%)	10,548 (87%)
Railway	7 (0%)	43 (0%)
Truck and trailer	1,622 (46%)	1,547 (13%)
Total	3,562 (100%)	12,138 (100%)

Fig. E Modal Shift

Transportation quantity base defined by the Ministry of Land, Infrastructure, Transport and Tourism (FY2012)



The data for "All industries (except basic industrial substances, i.e. iron & steel, oil, coal)" was obtained from "Transport material of different distance bands different transportation" issued by the Ministry of Land, Infrastructure, Transport and Tourism.

Left: A joint ship-scheduling meeting with a logistics company
Right: A portal screen image of the website "ECO-Kakeibo"



<https://www.kankyo-kakeibo.jp/>

Transportation sector

CO₂ reduction efforts in logistics

NSSMC transports approximately 1 billion ton-kilometers³ of steel products and semi-finished products every month. Historically, we have made joint efforts for logistics efficiency with the logistics companies within the NSSMC Group, such as the improvement of transportation efficiency and fuel economy. **Fig. D**

Efforts to improve the transportation efficiency include shortening ships' time at berth for loading and unloading by improving cargo handling efficiency or using larger vessels (changing from 700 ton to 1,500 ton vessels), in addition to maintaining and improving high modal shift rates⁴. **Fig. E**

To improve fuel economy, in land transportation for example, we have installed digital tachometers for fuel-efficient driving and introduced energy efficient tires and lightweight vehicles. In marine transport, fuel economy improvement measures have also been implemented and expanded the range of application. In addition to conventional measures, the usage of packing materials has been reduced by creating shipping systems for sheet products that do not require packing. For transporting large quantities of steel products in one shipment, a system has been introduced that combines the ship and land vehicle scheduling know-how accumulated over many years and the latest automatic distribution optimization methods. We are also working on adopting a new optimal ship and land vehicle distribution system. We will further strive to significantly reduce CO₂ emissions through early realization of synergy effects of the merger of former Nippon Steel and former Sumitomo Metals by improving logistics efficiency through an optimal production system and transportation efficiency by reviewing the logistics system.

3: Ton-kilometer

Total sum of the weight of load (ton) transported multiplied by transport distance (km)

4: Modal shift ratio

A modal shift indicates the domestic freight transport shift from truck carrier to coastal shipping and railroad carrier as a countermeasure against global warming. A modal shift rate is a percentage of cargo volume transported over a distance of 500km and more by rail or sea (including ferry) (as defined by the Ministry of Land, Infrastructure, Transport and Tourism).

Private sector

Efforts made in office and at home

In addition to concerted efforts to reduce CO₂ emissions in the manufacturing process, NSSMC has implemented a policy of lights-out during lunch breaks, a business-casual dress code during summer, eco no-working days, etc. in offices, as part of the energy-saving activities.

In order to encourage our employees make energy-saving efforts at home and actually reduce emissions, we have promoted "ECO-Kakeibo" (household bookkeeping) on a company-wide scale. Our "ECO-Kakeibo" system is used by over 10,000 employees' families. They keep records of usage of electricity, gas, kerosene, gasoline, etc. and to thereby know the actual amount of household CO₂ emitted. Doing so contributes to reducing CO₂ emission at home by visual representation of data, such as CO₂ emissions per family member and comparison of the average usage data of families of each business division.

Technical development

Research & development for global warming prevention

Striving toward improving its world's highest energy efficiency, NSSMC is taking on a challenge in the form of the "CO₂ Ultimate Reduction in Steelmaking Process by Innovative Technology Project," in addition to making efforts to reduce CO₂ by conserving energy at steelworks.

CO₂ Ultimate Reduction in Steelmaking Process by Innovative Technology for Cool Earth 50 (COURSE 50) Project

Since FY2008, four blast furnace steelmakers including us, and Nippon Steel & Sumikin Engineering, have been working on the "CO₂ Ultimate Reduction in Steelmaking Process by Innovative Technology for Cool Earth 50 (COURSE 50) Project" aimed at developing dramatically new CO₂ reduction technologies. Its goal is to reduce CO₂ emissions in the steelmaking process by 30% through technology that reduces iron ore using hydrogen amplified coke oven gas to curb CO₂ emissions from blast furnaces as well as technology that separates and recovers CO₂ from blast furnace gas using unused exhaust heat in steelworks. ◀ Fig. A

By FY2012, NSSMC conducted verification tests of CO₂ separation and recovery from blast furnace gas and hydrogen amplification of coke oven gas at Kimitsu Works. At Kashima Works, we conducted low-temperature exhaust heat recovery verification tests, among others. These tests played a large part in obtaining desired research results for Phase 1. We will also play a core role in Phase 2 (from FY2013 to FY2017), which is based on mini blast furnace development tests, in preparation for commercialization in 2030.

New coke furnace at Nagoya Works using the next-generation coke-making technology ("SCOPE 21")

In May 2008, the first commercial model that fully embodies the world's first next-generation coke-making technology "SCOPE 21" was installed at the No. 5 coke oven of our Oita Works. It has been operating smoothly. Based on this experience, the No. 5 coke oven of our Nagoya Works began operation in June 2013, as the second commercial model.

"SCOPE 21" is the technology developed under a national project of the Ministry of Economy, Trade and Industry to better address resource and energy problems. It shortens coke-making time, improves coke quality, and incorporates various other innovative technologies. It is expected to allow wider use of low-grade raw coal and bring about significant CO₂ reduction. According to the assumptions of the JISF's action plans for a low carbon society, released by the Nippon Keidanren in January 2013, CO₂ reduction is estimated to be about 900,000 tons a year in total, if all coke ovens in Japan are replaced at the time of facility renewal by 2020.

Technology transfer

Technical cooperation and transfer promoted on a worldwide scale

With the understanding that the transfer of Japan's advanced energy-saving technologies overseas can be one of the most effective ways to globally reduce CO₂ emissions, NSSMC is participating in many energy-saving and environmental initiatives in Japan and overseas. For example, we work with the World Steel Association, the GSEP¹, or directly with countries such as China, South Korea, and India. ◀ Fig. B

Fig. A Technological Development of Innovative Steelmaking Process (COURSE 50)

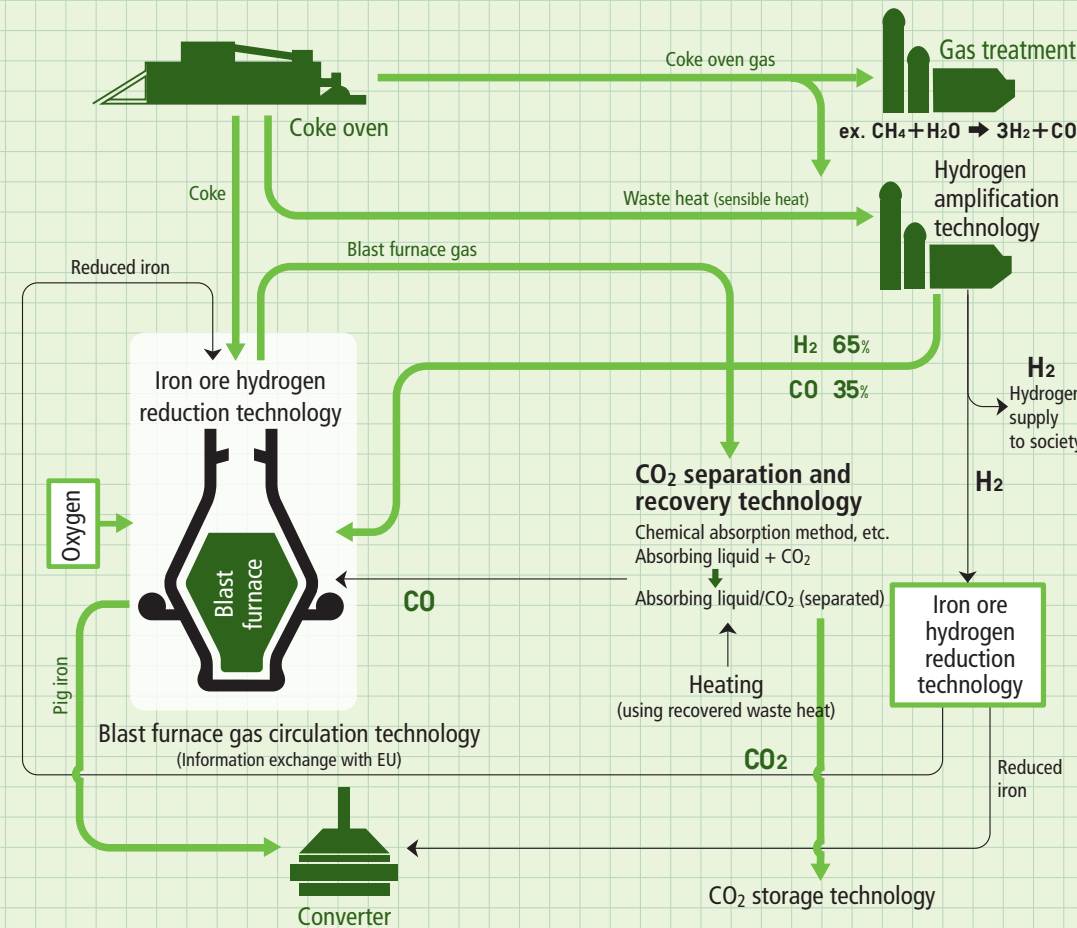
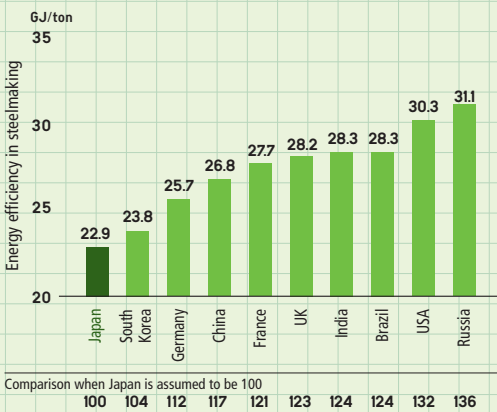


Fig. B Energy Efficiency in Steelmaking by Country (2010)



Source: International Comparisons of Energy Efficiency (Sectors of Electricity Generation, Iron and steel, Cement), RITE, 2010 (The Japanese translation and numerical values were provided by the Japan Iron and Steel Federation.)

Japanese steel industry's international cooperation on environmental preservation and energy conservation

Japan's steel industry, including NSSMC, plays a leading role in the global sectoral approach², a worldwide initiative to preserve the environment and conserve energy based on technologies within the industry.

Since 2005, China and Japan have held the "Japan-China Steel Industry Advanced Technology Exchange Meetings for Environmental Preservation and Energy-saving" to exchange industry-based technology between Japanese and Chinese specialists.

The Japanese government is currently proposing a new approach called a "bilateral offset mechanism" as a means to contribute to CO₂ reduction overseas. This is a system, under a bilateral agreement with a developing country, to smoothly and flexibly evaluate and recognize contributions of low carbon technologies to emissions reduction and distribute the merits among the parties concerned (governments of Japan and a partner country, steelmakers, and related companies). As part of these activities, the Japanese government and Japan's steel industry, with Indian steel industry participants, initiated a "Public and private collaborative meeting between the Japanese and Indian iron and steel industries" in FY2011. In FY2012, specific energy-saving technologies suitable for the current situation of the Indian steel industry were identified.

Regarding the multi-national efforts, the Task Force of APP³, which comprises seven countries of Japan, the U.S., Canada, China, South Korea, India, and Australia, started in 2006 for transferring and promoting energy-saving and environmental technologies, but was dissolved and succeeded by a steel section WG (Working Group) of the GSEP (with Japan as the chair) in FY2011. In March 2012, the first conference was held in Tokyo. The new partnership aims at regional collaboration with more countries including the EU in promoting energy-saving and environmental technologies. NSSMC also participates in the Climate Action Program of the World Steel Association, which calculates and reports on the CO₂ emitted by steelworks using universal methods. We have been selected as a Climate Action member. Recently, quite a few customers have sought confirmation that their steelmakers are Climate Action members. Efforts to standardize these calculation methods as ISO have been made by the Japanese steel industry, and others. In March 2013, ISO 14404, "Calculation method of carbon dioxide emission intensity from iron and steel production" was issued. This allows steelworks not participating in the World Steel Association to calculate CO₂ intensity using universal methods. This marked the first step forward in greatly facilitating the global sectoral approach sought by the steel industry.

1: GSEP
Global Superior Energy Performance Partnership

2: Global sectoral approach
A method to help solve global warming problems by seeking CO₂ reduction potential based on sector-specific technologies and adopting the world's best energy-saving technologies.

3: APP
Asia-Pacific Partnership on Clean Development and Climate

Message from Innovators

Hisatsugu Kitaguchi

Chief
Global Environment Office
Environment Department

Proposing energy-saving technologies to the Indian steel industry

NSSMC is focusing on the remarkably developing Indian steel industry and is making Japan's world-class energy-saving technology available to them. Starting with the energy conservation analysis of the Rourkela steelworks in FY2007, we participated in the FY2011 launch of the "Public and private collaborative meeting between the

Japanese and Indian iron and steel industries" and have since then been discussing matters with Indian steel industry participants. Through such discussions, we were able to suggest energy-saving technologies that we understand India needs. I have come to realize the importance of clear communication between all parties concerned.

5 Contribution to Create a Recycling-oriented Society

NSSMC not only works on the realization of zero emissions with low environmental impacts and recycling of in-house waste, but also is actively engaged in recycling of by-products generated by society or other industries, by utilizing its iron-making process as a means of doing so.

Promotion of in-house zero emissions

By-products generated and their final disposal amount

In the iron-making process, over 600 kg of by-products are generated for every ton of iron produced. These by-products include steel slag, dust, **sludge**¹, and used firebricks. In FY2012, NSSMC produced 43.55 million tons of crude steel and generated 25.11 million tons of by-products. The majority of these by-products were recycled inside and outside the company. Approximately 310,000 tons were ultimately disposed, which is below the FY2015 target of 330,000 tons. **Fig. A B**

1: Sludge
Slimy by-product collected from industrial wastewater or sewage water

Recycling of steel slag

Steel slag², which accounts for a majority of by-products, is almost entirely utilized. Approximately 70% of blast furnace slag is used for cement. Steelmaking slag is used for materials for road base, civil engineering work, soil improvement, fertilizer, etc. Recently, it has been used to restore seaweed beds and the marine environment. Calcia modified soil, a mixture of steelmaking slag and dredged soil, has the beneficial effects of improving the strength and inhibiting the generation of phosphorus, hydrogen sulfide, etc. in dredged soil. In Kamaishi City, as post-disaster restoration, work was conducted to transform tsunami sediments mixed with rubble washed ashore in the wake of the Great East Japan Earthquake into high-quality soil for use as a construction material, using the **CALSPIN method**³.

“Blast furnace cement,” a mixture of pulverized blast furnace slag and **ordinary portland cement**⁴, contributes to a 40% reduction of CO₂ emissions during manufacturing, since the cement-making process can be omitted. Blast furnace cement exhibits superior long-term strength and resists salt damage or **alkaline aggregate reaction**⁵. It is registered as an Eco Mark product, designated as a “**designated procurement item**⁶” under the Green Purchasing Act, and used in the “common specification for civil engineering work” compiled by the Ministry of Land, Infrastructure, Transport and Tourism. **Fig. C**

2: Steel slag
Slag is a by-product that is separated and recovered from molten metal during metal refining. It is used as road base material and raw material for cement.

3: CALSPIN method
A method that uses a rotary pulverizing/mixing unit and a calcia modified material made of steelmaking slag as raw material.

4: Ordinary portland cement
Hydraulic cement. Gypsum is added to clinker produced by calcinating raw materials containing silica, alumina, iron oxide and lime, and then the mixture is made into powder.

5: Alkali aggregate reaction
A deterioration phenomenon in concrete. It refers to abnormal swelling and cracking caused by the alkali component of concrete reacting with the aggregate (gravel and sand).

6: Designated procurement item
An Eco-friendly item that the government, independent administrative institution, etc. takes the lead in procuring.

Recycling of dust and sludge

To recycle the dust and sludge generated in the iron manufacturing process to be used as raw materials, NSSMC has a dust reduction kiln (RC: Resource circulating oven) at Kashima Works

Left: Waste plastic recycling facilities (Yawata Works)
Center: Waste tire recycling facilities (Hirohata Works)
Right: Electronic manifest system operation screen



Fig. A By-products and Recycling

By-product	Process of generation	Amount generated (wet weight – million tons)		Recycling application	Recycling rate	
		FY2011	FY2012		FY2011	FY2012
Blast furnace slag	Components other than iron melted in blast furnace	12.92	13.07	Blast furnace cement, concrete, fine aggregate, road base, etc.	100%	100%
Steelmaking slag	Substances other than steel generated in the steelmaking process	5.81	5.65	Road base, civil engineering materials, fertilizer, etc.	99%	99%
Dust	Fine dust collected with a dust collector	3.38	3.49	Raw materials for use in-house and also zinc refining	99%	100%
Sludge	Water treatment sludge, residue from plating solution, road cleaning sludge	0.44	0.53	Raw materials for in-house use	86%	86%
Coal ash	Ash from coal-fired power plants	0.52	0.54	Cement raw materials	100%	100%
Waste furnace materials	Refractories from steelmaking facilities and furnace facilities	0.29	0.33	Reuse, road base, etc.	63%	71%
Others	Scale, etc.	1.61	1.50	In-house use, others	96%	97%
Total		24.97	25.11	Total recycling rate	99%	99%

Fig. B NSSMC's Final Disposal Amounts (Wet 10,000 tons/y)

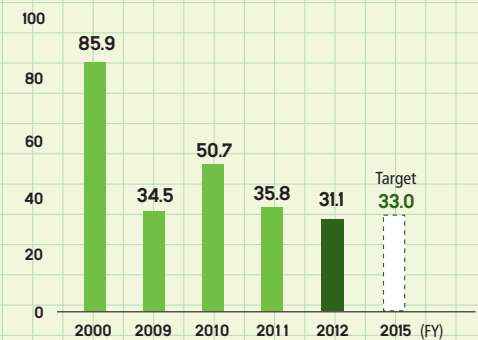


Fig. D NSSMC's Progress in Dissemination of Electronic Manifests (%)

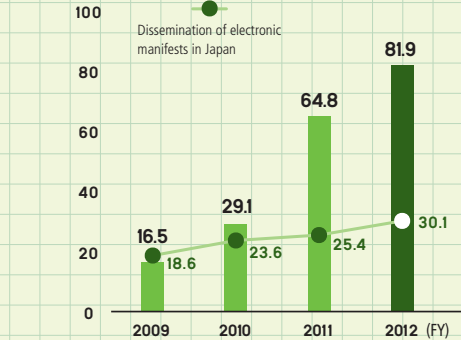
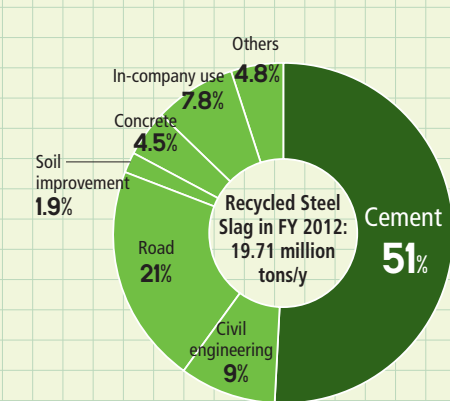


Fig. C NSSMC's Use of Recycled Steel Slag



Message from Innovators

Development of “iron” supply unit to prevent ocean desertification

NSSMC promotes the “creation of marine forest” to counteract the “rocky-shore denudation,” which has been a nation-wide environmental concern in recent years.

One of the causes of the “rocky-shore” phenomenon is the decreased supply of iron—which is necessary for kelp and seaweed to grow—through rivers as a result of deforestation and upstream development. To cope with this problem, in 2004, we developed an iron supply unit containing humic substances made of iron/



Sea Laboratory (marine environment simulator)

steel slag and waste wood. Since then, we have been working on creating a seaweed bed (marine forest).

NSSMC also opened a “Sea Laboratory” (marine environment simulator) at the Technical Development Bureau in Futtsu City, Chiba Prefecture. We are working to scientifically clarify the usefulness and safety of using steel slag to create marine forest.



Chika Kosugi
Chief researcher
Environmental Infrastructure
Research Department
Technical Development Bureau

and a rotary hearth reduction furnace (RHF: Refer to note 2, page 9) at Kimitsu Works, Hirohata Works, and Hikari Works⁷. This enables us to recycle all internally-generated dust. In March 2009, we obtained special approval for RHF under the Waste Disposal Act to carry out recycling of externally-generated dust as well.

7: Hikari Works
Transferred to Nippon Steel & Sumikin Stainless Steel Corporation.

Promotion of the adoption of an electronic manifest

In outsourcing industrial waste disposal, NSSMC is promoting use of an electronic manifest to enhance manifest control. In FY2012, 82% of manifests issued at all of our steelworks and factories were digitized. As a new project, we are also working on digitizing industrial waste outsourcing contracts, while ensuring full compliance. **Fig. D**

Efforts made through collaboration with society and other industries

Recycling of waste plastics and waste tires

NSSMC recycles 100% of plastic containers and packaging collected from general households by a chemical recycling process using a coke oven. To date, we have established an acceptance structure at six of our steelworks to cover all municipalities throughout Japan. They dispose of approximately 200,000 tons a year or 30% of what is collected nationwide. This amounts to an accumulated total disposal of approximately 1.9 million tons (from FY2000 through FY2012), which is equivalent to 5.9 million tons of CO₂ reduction. Recently, chemical textiles and food trays are also being recycled by the same process for reuse as petrochemical products. Moreover, all discarded tires are recycled. At Hirohata Works, they are processed by a scrap melting method, which is a steelmaking process, and used as a fuel. They are also thermally decomposed in gasification recycling equipment for 100% reuse. The disposal capability is 120,000 tons a year. Approximately 10% of discarded tires in Japan are recycled.

6 Promotion of Environmental Risk Management

SSMC is promoting management of environmental risk with the aim of continually enhancing preservation of the environment in various regions, with due consideration of environmental risks, which differ by each steelworks and factory, and with due consideration to compliance with Japan's Air Pollution Control Act Law and other regulations. We also are engaged in reducing environmental risk throughout the Group.

Activities for reducing environmental risks

Atmospheric risk management

In order to reduce emissions of sulfur oxides (SOx) and nitrogen oxides (NOx), NSSMC is taking measures such as to use low-sulfur fuel, and to install effective equipment, including equipment that reduces SOx and NOx emissions, low NOx generating burners, and exhaust gas treatment units. To curb emissions of soot and dust, we try to choose equipment based on air pollution risk analysis through scientific simulation. We also conduct constant monitoring and regular patrols to ensure that no abnormal emissions are released into the environment. **Fig. A**

Water quality risk management

NSSMC uses approximately 6 billion m³ of freshwater a year at all of our steelworks and factories combined. Approximately 90% of this is re-circulated or reused. We try not to waste precious water resources, and to limit wastewater discharge to a minimum. To achieve this, we make daily efforts to maintain and improve the performance of wastewater treatment equipment, and inspection and control of wastewater quality. **Fig. B**

In consideration of the importance of preventing water pollution, we have installed devices such as detectors, shutoff valves, and emergency pits; established work procedures to use them effectively; provide periodical training; and try to improve our procedures, so that in the event of operational problems, dangerous or potentially dangerous wastewater will not be discharged outside our steelworks and factories.

In addition, to prevent abnormal water leakage from revetments and quay walls, we have established procedures, periodically inspect equipment, and take proper measures for the equipment.

Soil risk management

With respect to environmental preservation specifically for soil and underground water, we are taking appropriate measures in compliance with the Soil Contamination Countermeasures Act, local government ordinances and guidelines, and so on. Based on the amended Soil Contamination Countermeasures Act, which took effect in April 2010, we report to the local government when performing landform modification work such as an excavation of 3,000 m² or more. We conduct pollution surveys when needed.

If soil contamination is detected, we take appropriate action in accordance with guidelines issued by the Ministry of the Environment.

Chemical substances discharge control

Comprehensive control of discharge

NSSMC appropriately manages and tries to improve the production, handling, and discharge or disposal of chemical substances in accordance with the PRTR Act¹, Chemical Substance Control Law², and other laws concerning the management of chemical substances as well as following requirements of relevant management procedures. Under the PRTR Act, we ensure thorough control by checking the material balance including the amount of chemical

Fig. A SOx and NOx Emissions (10⁶Nm³)

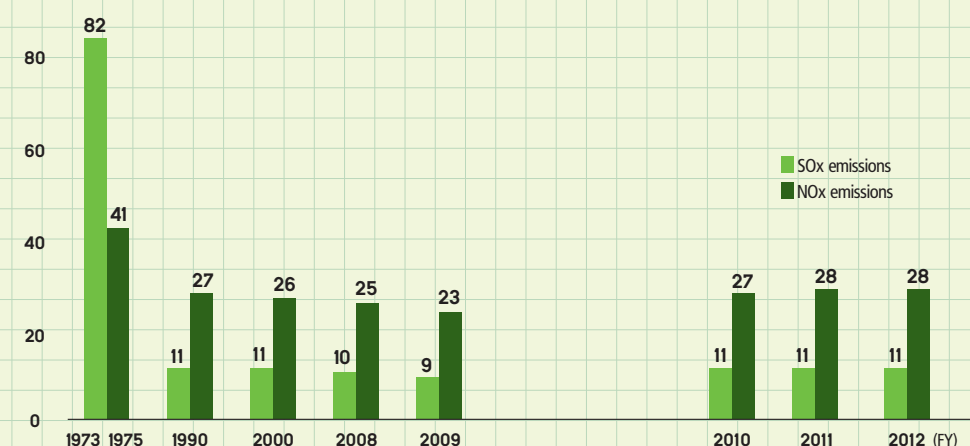
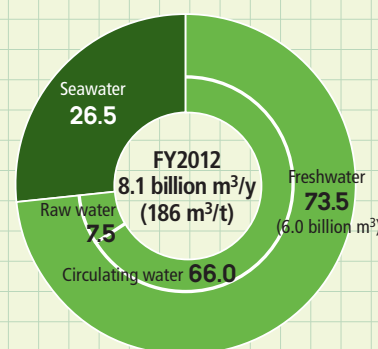
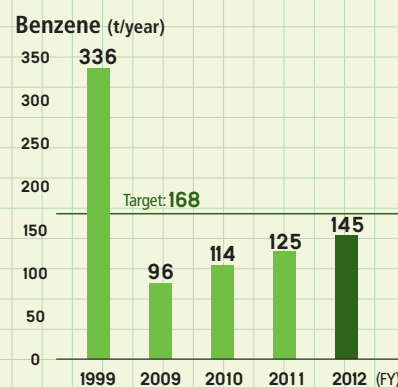


Fig. B Water Consumption (%) (not including water used by power stations)



* () is the consumption of water per ton of crude steel

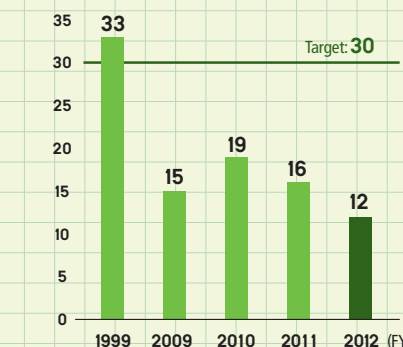
Fig. C Voluntary Intensive Control of Chemical Substances



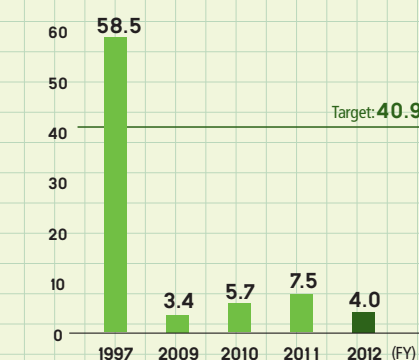
Left: No.5 sintering flue gas desulfurization and denitrification facilities (Wakayama Works)
Center: Emergency drain shutoff valve (Hirohata Works)
Right: Emergency drain shutoff facilities (Sakai Works)



Tetrachloroethylene (t/year)



Dioxin (g-TEQ/year)



VOC (t/year)



substances concerned, the amount discharged to the environment, and disposal volume. In a similar manner, we control **volatile organic compounds (VOC)**³, which cause photochemical oxidants or airborne particulate matter. Under the Chemical Substance Control Law, we report the amounts of chemical substances manufactured and sold.

NSSMC also took the lead to promote use of alternatives to steelmaking materials and equipment that contain hazardous materials such as asbestos and polychlorinated biphenyl (PCB). We have been replacing or disposing of possibly risky parts and materials, according to safe handling standards.

1: PRTR Act

An abbreviated name of the Act on Confirmation, etc., of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof. PRTR stands for Pollutant Release and Transfer Register.

2: Chemical Substance Control Law

An abbreviation of the Law Concerning the Examination and Regulation of Manufacture of Chemical Substances.

3: Volatile organic compounds (VOC)

Organic chemical compounds emitted into the atmosphere in the form of gases, which are considered to be the source of undesirable airborne particles and photochemical oxidants, which became subject to control under the Air Pollution Control Act of 2004, as amended.

Discharge control under the PRTR Act

In 1999, before the law took effect, NSSMC started research according to the voluntary control manual prepared by the Japan Iron and Steel Federation (JISF). At present, we monitor 462 substances in accordance with the PRTR Act in an effort to regulate discharges and improve control. The results in FY2012 are as follows: 51 substances were reported; 490 tons were emitted to the atmosphere; and 38 tons were discharged to public water bodies. A total of 7,265 tons of substances were transferred (disposed) outside of the steelworks and factories. The majority of substances were metals such as manganese or chrome and their compounds.

Data are collected at each facility every year. Effective reduction measures are applied at other facilities. Collected data are disclosed on the company's website.

Similar efforts have been made to reduce VOC. The FY2010 goal of 30% reduction (over FY2000 results) was achieved in FY2009, and the reduction trend continues.

Voluntary prioritized control of chemical substances

- ◆ Benzene, tetrachloroethylene, dichloromethane

NSSMC voluntarily set a hazardous air pollutant reduction plan, with the exception of trichloroethylene, that was used only in small quantities. By implementing the plan, we reached the goals for all three substances and are currently maintaining the reduction levels.

- ◆ Dioxins

NSSMC has sintering equipment and incinerators that release dioxins into the atmosphere. All of our equipment meets emission concentration standards. As a result of voluntary reduction efforts based on the JISF guidelines, we achieved reduction far exceeding the target of the FY1997 level. Since FY2009, we have maintained low emission levels. **Fig. C**

7 Promotion of Environmental Management

NSSMC has built an environmental management system that includes not only its own steelworks and factories, but also its group companies in Japan and abroad. Activities to reduce environmental risks are promoted by combining internal and external audits and rotating the plan-do-check-act (PDCA) cycle.

Environmental management

Management system

NSSMC effectively rotates the management cycle of PDCA centered on the environmental management committee, which convenes semiannually to promote improvement. As part of governance enhancement efforts, it also regularly holds meetings for the general managers of the environment departments and meetings for the environment group leaders for all the steelworks and factories. In particular, with respect to falling dust, drainage, and waste that pose critical environmental risks, specialists in each field hold meetings to devise measures for risk prevention and reduction. **Fig. A**

Environmental audits

In accordance with the international standard ISO 14001, NSSMC has built an environmental management system, with each steelwork or facility general manager serving as the responsible person. Each year, a management review is conducted within the steelworks and facilities by the internal auditor and the steelworks and facilities general manager, while each steelworks or facility and factory is audited by the Head Office Environment Department. Environment officers of other steelworks and facilities also participate in these audits to cross-check. In addition, periodical review is conducted by the ISO certification agency.

For the group companies including those overseas, a direct interview is conducted by a member of the Head Office Environment Department to improve management levels. This is part of the corporate governance conducted by the Head Office Internal Control/Audit Department.

Annual Environmental Management Cycle

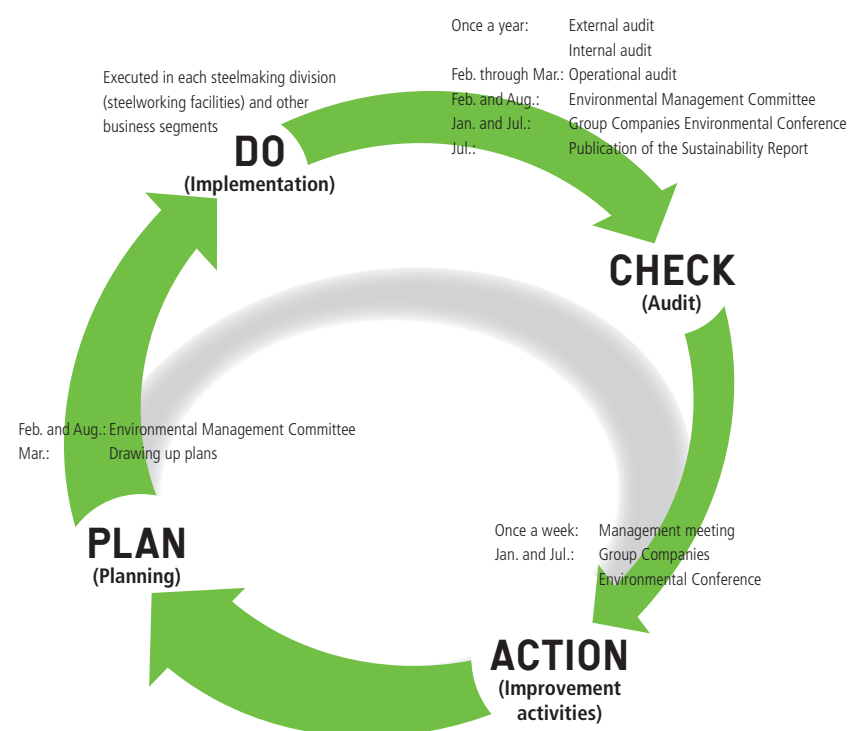
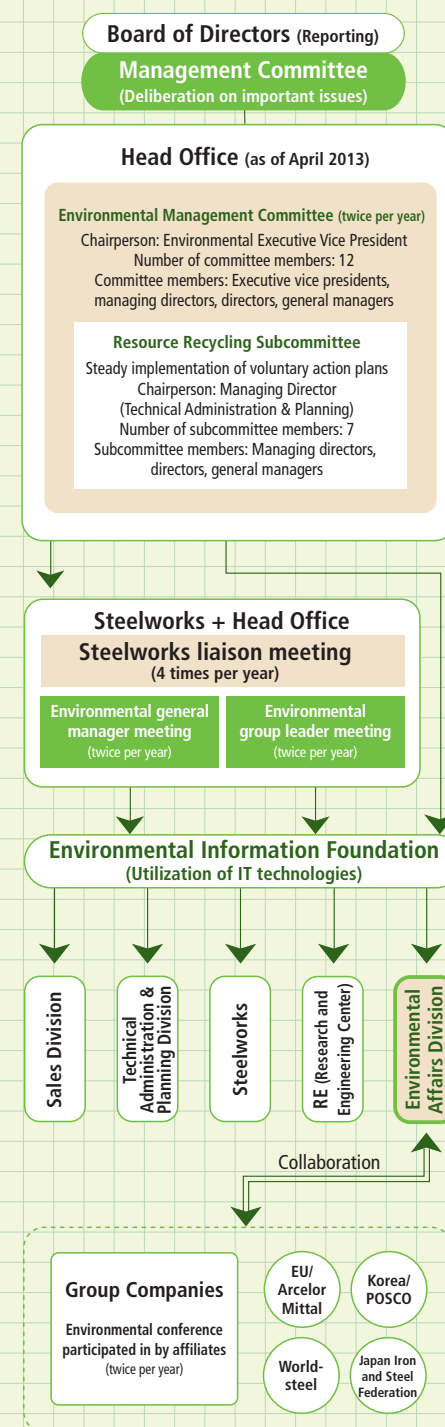


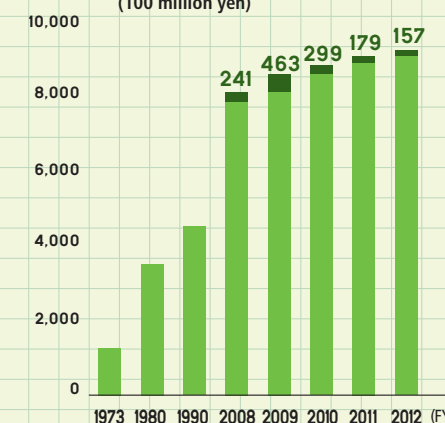
Fig. A Environmental Management System



Left: Internal audit (hearing)
Center: Internal audit (on-site patrol)
Right: Environmental education (training for mid-level engineers)

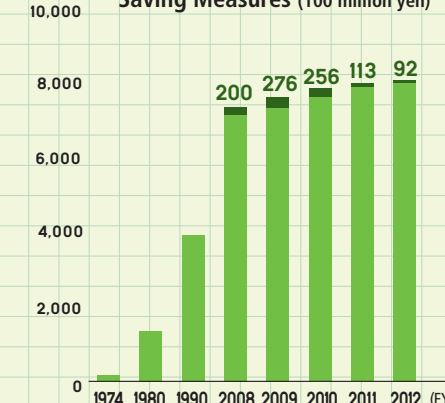


Fig. B Cumulative Investments in Environmental Measures (100 million yen)



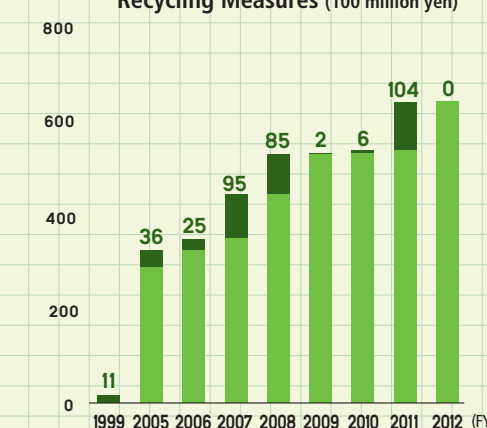
*The figures above the bar graphs represent the amounts of investment made in each respective fiscal year.

Fig. C Cumulative Investment in Energy-Saving Measures (100 million yen)



*The figures above the bar graphs represent the amounts of investment made in each respective fiscal year.

Fig. D Cumulative Investments in Support of Recycling Measures (100 million yen)



*The figures above the bar graphs represent the amounts of investment made in each respective fiscal year.

Environmental meeting for affiliate companies

From the group companies in Japan, NSSMC has identified companies (71 companies) with certain environmental burdens and holds semi-annual environmental meetings for those companies. In the meetings, the latest trends of environmental laws and regulations are studied, cases of environmental initiatives are reported, and other information is shared to reduce environmental risks.

Environmental education

NSSMC regards environmental management as an important basis for our business and continuously provide environmental education to each rank of new employees, mid-level engineers, and managers on the subject of basic environmental policies, medium-term environmental management plans, environmental compliance, etc. In addition, a seminar on the environment is given by the general manager of the Head Office Environment Department at all steelworks and facilities. We encourage our employees to acquire national qualifications, such as those of pollution prevention managers and energy managers, as well as to take ISO 14001 internal auditor training.

Environmental accounting

Philosophy of environmental accounting

NSSMC has adopted environmental accounting to be used as guidelines for corporate activities, and to accurately track the environmental costs and effects. The iron and steel industry is an equipment-intensive industry. We have achieved environmental preservation and energy conservation by installing environmental-friendly equipment such as dust collectors and improving the efficiency of production equipment. Costs of environmental preservation are quantified by adding the costs of capital investment associated with environmental measures, energy-saving measures, and recycling measures to expenses incurred to preserve the environment.

Environmental preservation costs

Our environmental preservation costs for FY2012 include 15.7 billion yen for investment in equipment for environmental measures, 9.2 billion yen for investment in energy-saving equipment, and 91.6 billion yen for expenses incurred to preserve the environment. The sum of equipment investment costs for environmental, energy-saving, and recycling measures accounted for approximately 7% of the total costs of equipment investment. On the expenses side, atmospheric prevention costs amounted to 45.3 billion yen and water contamination prevention costs, 10.8 billion yen. In addition, 10.3 billion yen was spent as environmental research and development costs. **Fig. B C D E**

As environmental measures, we invested in visual chimney-smoke prevention measures and water leakage prevention measures at the revetments and quay walls of steelworks and facilities. For saving of energy, measures were taken to improve the efficiency at power generation stations as well as overall energy-saving measures in each manufacturing process.

Among the environmental preservation costs, atmospheric prevention costs including measures to prevent dust generated at steelworks accounted for the largest share. We also vigorously worked on energy-saving measures and spent almost the same amount in equipment investment and expenses as in the previous year. **Fig. E** (next page)

8 Offering of Environmental and Energy Solutions

NSSMC and its group companies manufactures and provides steel products with excellent functions, and thereby contributing to reducing the environmental burden throughout their entire supply chain. Specific activities include energy conservation, resource saving, and the removal of harmful substances.

Japan's steel recycling (example from FY2011)

Steel stock manufactured by steelmakers is supplied to society in the form of iron and steel products. After being used and collected, they are recycled as scrap, together in good balance with in-house scrap generated by steelmakers and process scrap generated during the processing of steel stock. The blast furnace method that uses iron ore as the main raw material and the electric furnace method that uses scrap as the main raw material complement each other to transform iron into necessary applications. Thus, iron is a material that contributes to the sustainable development of society.

Manufacture of eco products (environmentally friendly products) that take into account LCA

Various highly functional steel, such as high-tensile steel sheets and magnetic steel sheets, are indispensable for hybrid vehicles, energy conservation equipment, and power generation facilities, including wind power, solar power, and atomic power, which support the mitigation of global warming. In order to realize a recycling-oriented society, it is necessary to use products that have a long life and that are highly recyclable. In order to meet these needs of society, NSSMC offers eco products that reduce the burden on the environment to the maximum extent, within the flow of: "mining raw materials → transportation → manufacturing of steel materials → forming and assembly of parts and members → use of the product by the customer → recycling," by means of its technical development strength – one of the best in the world – and based on the philosophy of LCA¹.

1: LCA (Life Cycle Assessment)

A system of assessing the environmental impact of a product, based on an integrated life cycle approach encompassing the mining and transportation of raw materials, production of base materials, and manufacturing and assembly of parts, as well as the use, recycling, and disposal of the product.

Effects of environmental preservation

It would be difficult to quantify environmental preservation effects in monetary terms, since such calculation would require many assumptions. Therefore, this report shows environmental preservation performance as effects vs. costs of taking environmental measures.

For example, reduction in energy consumption is shown under "promotion of measures against global warming." Reductions in water consumption and various resources spent are shown under "water quality risk management" and "energy material balance," respectively.

For the atmospheric pollution area, SOx and NOx emissions are shown; for water quality and soil, individual performance indicators are used; for hazardous chemical substances, actual reduction volume of substances such as dioxins, benzene, and VOC's are stated; and for waste products, reduction in final disposal volume is stated.

NSSMC will continue efforts to improve accuracy in environmental accounting and use it as a management benchmark to effectively invest in equipment and attempt to further preserve the environment and conserve energy. ◀ Fig. F

Fig. E Environmental Preservation Costs

		(100 million yen)	
Item		FY2012	
		Capital investment	Expense
Pollution Prevention Costs	Countermeasures against air pollution	145	453
	Countermeasures against water pollution	12	108
		Total 157	
Global Warming Prevention Costs	Energy saving measures	92	37
Costs of Recycling Resources	Treatment of by-products and industrial waste	—	108
	Treatment of general waste from business activities	—	8
Environmental Management Activities Cost	Construction of EMS and acquisition of ISO14001 certification	—	0.4
	Monitoring and measurement of environmental loads	—	9
	Personnel expenditures related to environmental measures	—	25
Research and Development Costs	Development of eco products	—	58
	Development of products which have low environmental impact during manufacture	—	45
		Total 103	
Social Activity Costs	Greening, supporting environmental organizations, and advertising	—	29
Other Environmental Costs	SOx levy	—	36
Total		249	916

Fig. F Environmental Preservation Effects

Type of effect		Index variation		Related information in the Sustainability Report can be found at:	Page
Effects within operational sites	Effects related to resources used for operations	Reduction in energy consumption		Promotion of anti-global warming measures	10
		Reduction in water consumption and circulation		Risk management for water quality	16
		Reduction in the amount of each resource used		Energy and material balance	8, 9
	Effects related to environmental impact and waste from operations	Release into the air	Reduction in the discharged amount of environmental impact substances	Atmospheric risk management	16
		Release to water or soil	Reduction in the discharged amount of environmental impact substances	Water quality risk management, soil risk management	16
		Release of waste	Reduction in the total amount of released waste	Promotion of zero-emissions within the workplace	14, 15
		Chemical emissions	Reduction in the amount of released hazardous waste	Synthetic control of chemical emissions	16, 17
Other environmental preservation effects	Effects related to transportation, etc.	Reduction in transportation volumes and reduction in environmental impacts in connection with transportation		Efforts to reduce CO ₂ from logistics operations	11



High-efficiency non-oriented electrical steel sheets

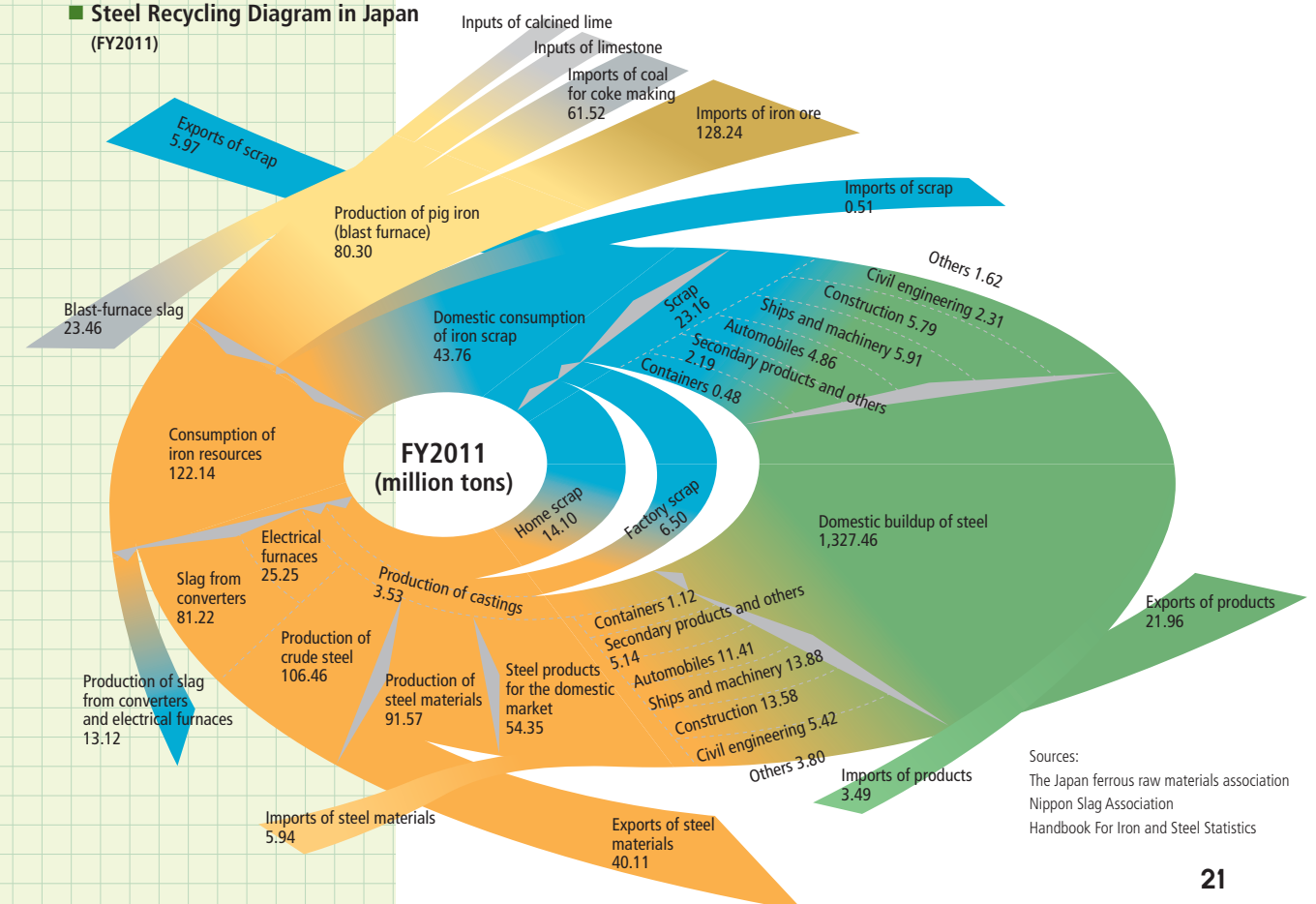


The back cover of a flat-screen television that uses ZINKOTE® Black



Highly corrosion-resistant steel plates for ship building (NSGP®-1)

Steel Recycling Diagram in Japan (FY2011)



Sources:
The Japan ferrous raw materials association
Nippon Slag Association
Handbook For Iron and Steel Statistics

3 Social Report

The NSSMC Group treasures its partnership with all its stakeholders and aims to improve its corporate value by enhancing its relationships with them through better communication.

3 Social Report

1 Nippon Steel & Sumitomo Metal Group and its Stakeholders

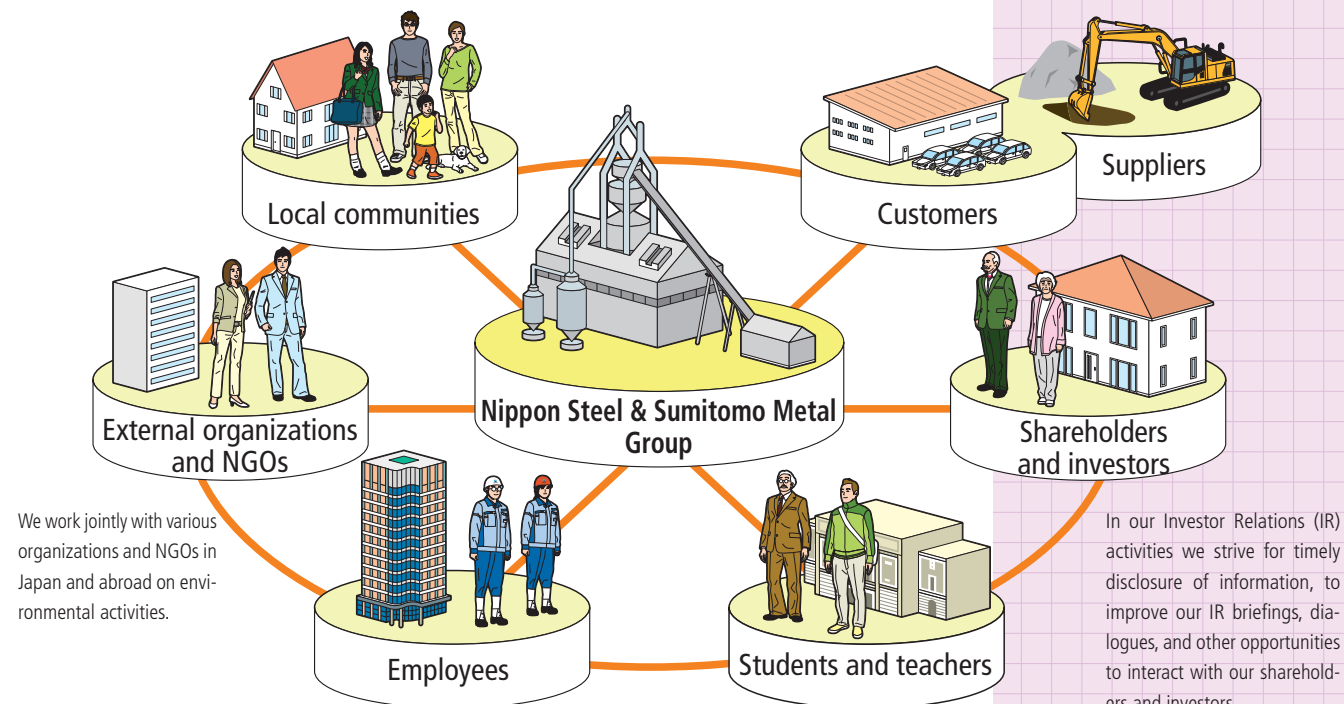
At NSSMC, we aim to become a company trusted by all stakeholders including our customers, suppliers, and local communities at all times, and endeavor both to offer our shareholders and investors sufficient opportunities for communication and to ensure timely disclosure of information. We also strive to create workplaces in which employees can work with pride and enthusiasm.

NSSMC will continue to make social contribution activities that are closely tied to local communities, and fulfill our corporate social responsibilities as a member of society. We are also actively promoting environmental activities with various organizations in local and international communities.

In particular, we find it important to make young people and their teachers, who are fostering future generations, understand and appreciate the importance of "monodzukuri (product manufacturing)" and our various initiatives on environmental issues.

We carry out environmental protection activities which match the needs and characteristics of local communities, and engage in environmental activities with various stakeholders in our local communities.

We endeavor to closely communicate with our customers and our suppliers of raw materials and equipment, and ensure that environmental and social concerns are addressed at all levels of our supply chain from procurement and production to sales.



3 Social Report

2 Partnerships with Local Communities

NSSMC conducts environmental activities which match to the needs and characteristics of each of our local communities.

Environmental conservation agreements with local communities

Each of our steelworks in Japan has concluded an environmental conservation agreement (anti-pollution agreement) and an agreement for the greening of plant sites with their local municipality. These agreements cover the entire scope of the environment including air and water quality, waste material, noise, vibration, and odor, as well as greening initiatives, reflecting the characteristics of the respective localities. We work hard to fully comply with these agreements, which are based on partnerships with the local municipalities, and revise them as needed in order to ensure environmental conservation in the local communities.

"Creation of a Hometown Forest" that harmonizes with local scenery

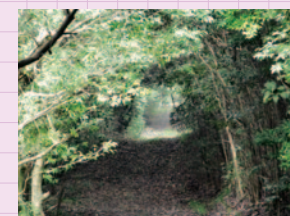
We have carried out the "Creation of a Hometown Forest" projects at our steelworks and factories in Japan under the guidance of Dr. Akira Miyawaki, director of the Japanese Center for International Studies in Ecology (professor emeritus at Yokohama National University), with the aim of harmonious coexistence between nature and humans. This project seeks to research the natural vegetation inherent to a certain area, carefully select suitable trees, grow their saplings in pots, and have them planted in developed grounds by both local residents and our employees. This was the first project by a private company in Japan to create a forest that harmonizes with the local scene and is based on an ecological approach. This is one way we try to raise the awareness of our employees regarding the environment.



Public road cleaning (Kimitsu Works)



Tree-planting project along a prefectural road in the zone covered by the Forest of the 21st Century in Amagasaki Project (Amagasaki Works)



Local forest (project) (Kashima Works)



Tree-planting by new employees

Chemical substances subject to hazardous chemical management

- Cadmium and its compound
- Hexavalent chromium compounds
- Lead and its compounds
- Mercury and its compounds
- (Bis) tributyltin oxide (TBTO)
- Tributyltins (TBTs), Triphenyltins (TPTs)
- Polybrominated biphenyls (PBBs)
- Polybrominated diphenylethers (PBDEs)
- Polychlorinated biphenyls (PCBs)
- Polychlorinated naphthalene (where Cl is greater than 3)
- Short-chain paraffin chloride (where C is between 10 and 13)
- Asbestos
- Azoic dyes and pigments
- Ozone depleting substances
- Perfluorooctanesulfonic acid and its salts
- Dimethyl fumarate

3 Social Report

3 Partnerships with Customers and Suppliers

NSSMC constantly strives to be a company trusted by its customer and supplier and we ensure that environmental and social concerns are addressed at all levels of our supply chain.

Quality control management

Quality management is most important in providing products and services that gain customer trust and satisfaction, and this is an issue that all of our employees are tackling. The head office, steelworks, and factories jointly promote measures such as standardization and systematization, and investment in plants and equipment for quality improvement and assurance.

Our quality management framework is based on autonomous quality improvement activities by each NSSMC group company including overseas companies. The internal monitoring (audits) and external audits, such as those for ISO9001 and Japanese Industrial Standards (JIS) certification, help improve credibility of our framework.

Supply chain management

We are engaged in initiatives to mitigate environmental impact throughout our supply chain, based on the life-cycle assessment (LCA) approach. Especially, amid growing demand for stricter management of chemical substances, we have collaborated with our customers and suppliers to specify the management standards for 16 hazardous chemical substance groups, including cadmium, and have established arrangements to control environmentally hazardous substances contained in procured raw materials and products, including packaging materials.

We have also established internal regulations, which include relevant laws & regulations and the fair purchasing policy specified in the Charter of Corporate Behavior advocated by the Nippon Keidanren. Our basic purchasing policy states that we shall always pay proper attention to resource and environment conservation. Furthermore, we make sure that raw materials procured from our suppliers do not contain minerals from conflict-affected and high-risk areas.

4 Partnerships with Shareholders and Investors

NSSMC is actively engaged in IR activities (investor relations): for its shareholders and investors. The company is making diverse efforts to enhance IR activities, by holding IR briefings and meetings for institutional investors in Japan and overseas; inviting shareholders to presentations and plant tours; and disclosing corporate information via its website, annual reports, shareholders' newsletters, and other means.

Plant tours and IR briefings

NSSMC invites shareholders on tours of our steelworks or mills twice a year, in spring and autumn. The tours have been well received by the participants who appear to enjoy to look at our world's state-of-the-art and dynamic manufacturing processes and to better understand our operations. In addition, we hold IR briefings in Tokyo, Osaka, and other major cities in Japan where we explain our business policies and general business performance to participants. Opinions and feedback from those participants are used for our future IR activities.

Improvement in conveying information

Following the merger of Nippon Steel and Sumitomo Metal Industries, the Investor Relations site on our website has been renewed. Documents and presentations used in IR briefings, stock and corporate bond information, and other information are available on our site. We intend to further improve our corporate information disclosure on our website, both in Japanese and English.

We also send an informational newsletter to all our shareholders holding one or more trading units. We intend to make it easy to understand and replete with various information, including a message from top management and business topics of the NSSMC Group. The electronic version of the newsletters is also available on our website.

Announcement of the Mid-term Management Plan

On March 13, 2013, we released our mid-term Management Plan. In order to be the "Best Steelmaker with World-Leading Capabilities" at an early stage, the plan is aimed at building an organization with world-leading competitive strength by 2015—when newly emerging steel mills in East Asia are expected to go into full-scale operation—through the early realization of maximum synergies made available uniquely to NSSMC by the business integration. While aiming to strengthen our competitive position and make our overseas business more competitive and show growth in profit earned, we are committed to grow cash flows and profitability, with the mid- and long-term minimum target in return on sales (ROS) of 5%. Our further goal is to establish an organization capable of achieving an ROS of 10%. (Further details of the plan are available on our IR site, including streaming video.)



Shareholders' visit to the steelworks (Kashima Works)

Shareholders newsletter (2013)

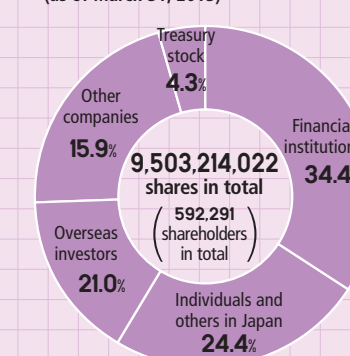


IR site
<http://www.nssmc.com/en/ir/index.html/>



Mid-term management plan announcement

◆ Share Ownership by Category (as of March 31, 2013)



5 Partnerships with Young People

NSSMC finds it important to be involved in educating young people and their teachers, who are helping prepare our future generations. We try to help them better understand the appeal of "monodzukuri (product-manufacturing)" and our various initiatives on the environmental issues.

Demonstrating the joy of product-manufacturing through "Tatara Ironmaking"

With the aim of showing children the joy of product-manufacturing, NSSMC has been holding demonstrations on "tatara ironmaking¹" — Japan's indigenous ironmaking technique — at our steelworks and nearby schools in Japan every year. The most recent series of demonstrations were held from August to November 2012.

1: Tatara ironmaking

Tatara ironmaking is a traditional Japanese method of making iron that uses iron sand as the source material. A bellows is used to help burn charcoal for producing iron. It is said that this method was transmitted to Japan from the Korean peninsula in the latter half of the 6th century. The technology was perfected during the middle of the Edo period. From the Meiji era, production using the modern steelmaking process employing a blast furnace began, and as a result, commercial production using the tatara method stopped in 1923.



"Tatara ironmaking" demonstration



Travelling scientific lecture (Oita Works)



Workshop at Masugata Junior High School



Training Programs for Educators at Private Companies (Nagoya Works)

Support of community-based education

NSSMC has been engaged in unique community-based environmental education support programs and educational activities on "monodzukuri (product-manufacturing)." In 2012, for example, we organized a scientific stand at Kimitsu Works, where our younger employees introduced the fascinating properties of iron and the mechanism of electricity generation to primary and secondary school children. Our employees at Oita Works also gave a "travelling scientific lecture" at local primary and secondary schools. NSSMC's Head Office staff took part in an Energy and Environmental Workshop held by Masugata Junior High School in Kanagawa Prefecture, showing an example of waste plastics at NSSMC to demonstrate the steelmaking industry's environmental initiatives.

Internship programs

For many years, NSSMC has been offering internship opportunities to students at steelworks and research centers to help them learn our business and gain some work experience. In FY2012, a total of 200 students from universities and technical colleges participated in the two-week programs at our steelworks throughout Japan, and the program was favorably received.

"Training Programs for Educators at Private Companies" for enhancing teacher understanding of the steelmaking industry

Every summer we support the "Training Programs for Educators at Private Companies" sponsored by the Japan Institute for Social and Economic Affairs, so that teachers can better understand how the steel industry is contributing to society and can better appreciate the fascination of product-manufacturing. In 2012, we hosted some primary, secondary, and junior high school teachers at our Muroran, Kashima, and Nagoya Works for the tours of our facilities and our human development activities.

6 Partnerships with Employees

NSSMC's is promoting various personnel programs based on the concept of fair personnel management so that our employees can do their jobs with a long-term commitment and with a sense of security and enthusiasm. Moreover, we are promoting various health and safety measures so that our employees, business partners, and group companies can work in safe and secure workplaces.

Respect for human rights

NSSMC is in the business of creating and delivering valuable and attractive products and ideas, by respecting our employees' diverse views and individualities and utilizing them. The NSSMC Group set the NSSMC Group Conduct Code. By adhering to its nine principles, NSSMC conducts business ethically, while paying full heed to human rights issues arising with the increasing globalization of the economy.

Corporate philosophy and Employee Action Guidelines

Following the merger, the NSSMC Group Corporate Principles were adopted. It consists of the "basic principles," which articulate the meaning of the existence of the NSSMC Group and represent our most important values, and "management principles," which shows our management's important stance and policies in realizing such values. Moreover, in order to realize our corporate philosophy, Employee Action Guidelines were established to serve as the basis of individual employee's attitude, stance, and judgment.

Fostering personnel and personnel policies

Based on the belief that the development of excellent personnel is a prerequisite for the production of excellent products, NSSMC is actively rolling out programs to strengthen the overall capabilities of each employee. Specifically, the identification of skills and capabilities required for certain worksites are being identified and corresponding on-the-job training is being planned and executed through dialogue between a supervisor and his/her subordinate. In addition, training geared to specific career levels and various types of off-the-job training sessions are conducted to complement the basic plan. Moreover, a booklet Iron-man Will is distributed to all employees to help them understand our corporate philosophy and Employee Action Guidelines as well as our human development programs.

NSSMC's administering of personnel policies aim at encouraging our employees to grow and develop their overall capabilities. We also find it important. to ensure fair treatment of all employees. Furthermore, we have various measures that support our employees' childcare. In April 2013, we implemented a "work at home" system to give employees time for child care, and a rehiring program for employees who previously left the company for child or elderly care and other reasons.

Other programs

As part of the workplace vitalization measures, JK¹ Convention, skill triathlon games, and the Electric Instrumentation Section skills competition for the whole NSSMC Group are held for our employees and our business partners.

1: JK is an acronym for *jishu kanri* (voluntary management). Small groups are formed on a voluntary basis to achieve self-actualization and pass skills and expertise on to future generations.



Actively working at the manufacturing site (Kimitsu Works)



Actively working at the manufacturing site (Naoetsu Works)



Skill triathlon game



Electric Instrumentation Section skills competition



Commendation of the President's Award for Safety and Health



Training for experiencing danger



Tree-planting ceremony by the NPO "Mori wa Umi no Koibito" (June 2013)



Tree-planting

Efforts toward safety and health management

In keeping with the corporate philosophy that "safety and health are the most valuable factors that take precedence over all other things and they are the basis that supports business development," NSSMC has been improving its occupational safety and health management system (OSHMS) and making a safe and secure workplace by taking the following measures:

- ♦ **Creation of a workplace which is disciplined but has a comfortable and friendly atmosphere with NSSMC, business partners, and group companies working with a sense of unity**

We strive to create a disciplined but comfortable and friendly workplace atmosphere through open communications, enhanced education programs on safety and health, and support for the safety activities of group companies and our business partners.

- ♦ **Reducing disaster risks to zero**

Specific measures taken are to identify more risk factors, seek for more safety of equipment even when essentially safe, and take more countermeasures against human error.

- ♦ **Group-wide sharing of effective measures**

We are sharing effective examples of accident-preventive measures and those based on analysis of actual accidents. We are also in the process of standardizing and unifying safety rules and signals, which could be different depending on the steelworks.

- ♦ **Making work and workplace environments more comfortable and improving the physical and mental health of our employees**

Regarding health management, besides improving healthcare counseling for employees, we make efforts for early detection and appropriate actions in the area of mental health. As to measures against asbestos, NSSMC has taken steps in accordance with laws and regulations, and completed (by the end of FY2009) the shift from asbestos to alternatives, except for those areas without the risk of exposure. Moreover, we offer consultation services to our current and former employees to discuss their health concerns and will continue to deal with asbestos issues in an appropriate manner.

7 Partnerships with External Organizations and NGOs

In order to respond appropriately to environmental and energy issues and to build a recycling-oriented society, it is necessary that businesses, governments, academia, and citizens go beyond the limits of their respective domains, and think and act for the best of our future generations. NSSMC is cooperating with various organizations in local and international communities on behalf of environmental activities.

GPN activities

We have participated in the Green Purchasing Network (GPN) since 1996, when the network was founded, in order to promote green purchasing activities. Jointly with businesses, governments, academia, local governments, and NGOs, we have taken the initiative in developing a framework to prioritize the purchasing of products and services that represent less environmental load.

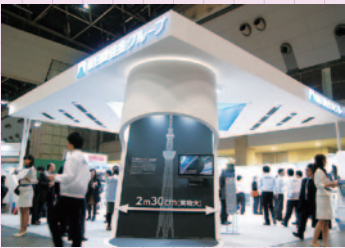
Collaboration with an NPO, "Mori wa Umi no Koibito"

In 1989, Mr. Shigeatsu Hatakeyama, a fisherman cultivating oysters and scallops in Kesenuma City, Miyagi Prefecture, and the leader of the NPO, *Mori wa Umi no Koibito* (The forest is longing for the sea, the sea is longing for the forest), along with his fellow fishermen, commenced the Forests are Lovers of the Sea campaign to plant trees at Murone Mountain in Iwate Prefecture, located in the upper reaches of the Okawa River, which flows into Kesenuma Bay. Mr. Hatakeyama was awarded the 2012 United Nations Forest hero. This activity was based on the theory that the chain of forests, villages, and the sea nurtures the blessings of the sea. We have been supporting this activity. In June 2013, approximately 1,400 people, including school children, college students, and our employees, joined their tree-planting festival.

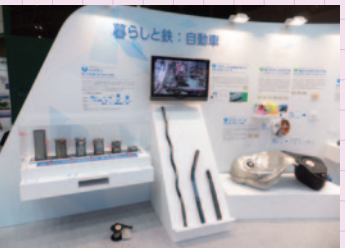
Various Communication Activities

Participation in Eco-Products 2012

In December 2012, NSSMC exhibited various products and technologies at Eco-Products 2012, the largest ecological exhibition in Japan, which was held at Tokyo Big Sight. Our exhibition theme of this year was “Nippon Steel & Sumitomo Metal Group Supporting Life & Lifestyle with Environment and Energy Solutions, and Taking A Step Forward.” We presented our initiatives of the three “ecos” of eco process, eco products, and eco solutions. We also introduced to visitors how we help rebuilding of the disaster-stricken areas in the Tohoku region. It is estimated that around 10,000 people, including primary school children, visited our booth.



Booth at “Eco-Products 2012”



Presentation at the booth

Publishing the illustrated book series “Understanding Iron and Steel”

The “Understanding Iron and Steel” book (Nippon Jitsugyo Publishing, full color), which was compiled from the series of articles “Origin of Product Manufacturing—The World of Science” in a magazine we publish for general readers, has become an exceptional bestseller among scientific publications, with over 50,000 copies in print since it was first issued in 2004. The books “Showing the Future of Iron” and “Understanding Thick and Thin Iron Plates” from the same series are also very popular and have been reprinted many times. This series of books not only introduces steelmaking processes and major iron and steel products through the use of illustrations, but also explains in an easy-to-understand and friendly manner the scientific technology of steelmaking under such various subjects as “Battling Rust,” “Advanced Analytic Technology,” and “Iron and Steel Materials.”



“Understanding iron and steel books” series

Support for the arts

The Nippon Steel & Sumitomo Metal Arts Foundation operates the Kioi Hall (in Chiyoda-ku, Tokyo), holds classical concerts by Kioi Sinfonietta Tokyo (KST, the resident orchestra of the hall). The foundation makes the hall available for traditional Japanese music performances; there are few places where such performances are common. The objective is to help popularize traditional Japanese music. In 2012, in order to familiarize children and their parents with the fascination of such music, we held a participative program named “Welcome to the world of traditional Japanese music. Enjoy Japanese musical instruments!” in which people who were not musicians joined in Japanese musical instrument workshops with professional musicians.



Kioi Hall



“Welcome to the world of traditional Japanese music. Enjoy Japanese musical instruments!” program

Awards and Commendations from External Organizations

Two Okochi Memorial Production Prizes (FY2012)

We received the following two awards of the Okochi Memorial Production Prize, which is a prestigious, traditional award given to honor outstanding contributions to production engineering and advanced manufacturing methods in Japan.

◆ Award for “the development of high-alloy oil well pipes and their manufacturing technology that makes it possible to significantly increase natural gas production”: Development of the following three technologies to solve various technical problems was acclaimed.

1. Technology for mass-producing mid- and small-diameter (18 cm or less) high-alloy oil well pipes
2. Technology for manufacturing large-diameter (18 cm or more) long-length high-alloy oil well pipes (over 18 cm)
3. Development of ultra-high strength high-alloy oil well pipes for deep gas well development (with a yield strength of 1000 MPa grade)

◆ Award for “the coke-making technology for expanding raw coal resources and saving energy” (received jointly with JFE Steel Co., Kobe Steel, Ltd., Nisshin Steel Co., and Mitsubishi Chemical Co.) This technology enables the production of high-grade coke from low-priced low-grade coal. Oita Works increased its stable usage ratio of low-grade coal to 57%.



High-alloy oil well pipe



Coke oven at Oita Works



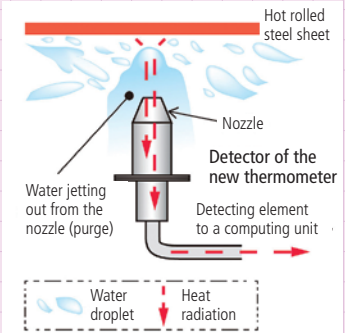
SuperDyma®

Two awards for the FY2013 Commendation for Science and Technology (development category) from the Minister of Japanese Education, Culture, Sports, Science and Technology

The Commendation for Science and Technology is given to honor outstanding achievement in the development of science technology and promoting understanding of science technology. NSSMC’s activities were recognized and awarded in each of the past seven years.

◆ Award for the development of excellent corrosion-resistant Zn-Al-Mg-Si alloy hot-dip galvanized steel sheets, “SuperDyma®,” for construction materials. The cut-end surfaces of the steel sheets are corrosion resistant, enabling a longer service life of the steel. It is also thinner and lighter, contributing to cost reduction for our customers.

◆ Award for the development of highly accurate cooling technology by the steel sheet thermometer in the cooling zone of the hot rolling mill. The development of innovative measurement technology that can measure steel sheet temperature with high accuracy made it possible to manufacture high-value-added hot rolled steel sheets of which the metallographic structure is accurately controlled and the quality of high-tensile steel sheets is stabilized. It results in weight reduction of steel sheets and their final products, and CO₂ emission reduction.



Steel sheet thermometer in the cooling zone of the hot rolling mill

Major Awards and Commendations (FY2012)

Award	Sponsor	Reason for award
Thomson Reuters 2012 Top 100 Global Innovator Award	Thomson Reuters	Overall patent volume, patent globalization, and possession of influential patents
Steel Sheet Quality Special Award	Toyota Motor Corporation	Zero defects of steel sheets delivered
Award of Appreciation in Excellence in Quality	Honda Motor Co., Ltd.	Steel sheets delivered (Awarded six times as former Nippon Steel and three times as former Sumitomo Metal)
Best Partner Award	Panasonic Corporation	Contribution to CO ₂ emissions reduction of Panasonic products and strengthening competitiveness of its products (Awarded for the second consecutive year)
Procurement Partners Forum 2012	Fuji Xerox Co., Ltd.	Establishment of a stable global supply system of environmentally-friendly high-quality products by NSSMC and Nippon Steel Trading Co., Ltd.
Nippon Keidanren Chairman’s Innovation Prize	Japan Institute of Invention and Innovation	Innovation of steel sheet that extends the fatigue-life of welded steel structures
Fifth Robot Award (Award for Excellence)	The Japanese Ministry of Economy, Trade and Industry and the Japan Machinery Federation	The robot for three-dimensional bending of steel pipes by NSSMC, Sumitomo Pipe & Tube Corporation and Nippon Steel & Sumikin Plant Co., Ltd.
Award for Excellent in Quality	NHK Spring Co., Ltd.	Zero defects of electro-resistance-welded steel pipes for stabilizers delivered in 2011 by Hikari Pipe & Tube Division
FY2012 Good Design Award	Japan Institute of Design Promotion	CO ₂ emissions reduction by the smart heat pump system at the dormitory of Nippon Steel & Sumikin Engineering Co., Ltd. in Kitakyushu
25th Nikkei Best New Office Award	Nikkei Inc.	Introduction of energy-saving / low-carbon technology to the Kitakyushu Technology Center Building E of Nippon Steel & Sumikin Engineering Co., Ltd.
Japan Institute of Energy Award 2012 (Academic Division)	The Japan Institute of Energy	Development of technology for turning natural gas into liquid fuel by Nippon Steel & Sumikin Engineering Co., Ltd.
Nikkei Superior Products and Services Awards 2012 (Grand Prize)	Nikkei Inc.	Non-frame method and new lightweight bearing plates by Nippon Steel & Sumikin Metal Products Co., Ltd.
SAMPE Special Award	Society for the Advancement of Material and Process Engineering	Development and industrialization of pitch-based advanced carbon fiber by Nippon Graphite Fiber Corporation
Certificate of Achievement	Toyota Motor Engineering & Manufacturing North America, Inc.	Remarkable quality performance by International Crankshaft Incorporated (NSSMC’s subsidiary in the U.S.) (Awarded for the 11th consecutive year)

Third-party Opinion



Eiji Hosoda

Professor, Faculty of Economics, Keio University
Major: Environmental economics and theoretical economics

I always keep two things in mind when reading environmental reports and CSR reports. The first is what corporate philosophy underpins the company's daily business operations, and the second point is how the company presents what it has achieved and has not achieved, based on its philosophy. These are what I kept in mind when I read this report.

Reading through the text of this report, I found that Nippon Steel & Sumitomo Metal Corporation (NSSMC) has taken its first step forward as a new company with its distinct corporate philosophy for its environmental and social contribution and is striving to realize it. Looking at the environmental aspects, for example, I could learn that NSSMC is operating its business with priority given to the "three ecos" of eco process, eco products, and eco solutions. This is not an abstract idea. This is the corporate philosophy that the company has been realizing in its daily business activities.

In my view, what is important is whether the business is organically linked to environmental and social contributions, and whether the synergy effects can be evident to society. When companies behave well, society in turn is enhanced. This is what society calls for from companies. This social demand is not easily achieved unless the company has a solid concrete corporate philosophy. Strong corporate governance is also essential to do so.

From this aspect, the introduction of technology for manufacturing next-generation coke and reuse of waste plastics and discarded tires are good examples of NSSMC responding to social demands, proving that doing business can contribute to better environmental conservation and energy use. NSSMC has been steadily conducting such wide-ranging activities based on its corporate philosophy.

As to synergy effects, more people are paying attention to the synergy effects produced from the merging of the two companies, Nippon Steel and Sumitomo Metal Industries. As a matter of course, the increased economic power due to the business integration should be used to enhance environmental and social contributions at the same time. One of the areas attracting a great deal of interest is the synergy effect in the railway wheel sets (wheels and axles) and rail production. The railway is a typical example of transportation with low environmental impact, and wheel sets and rails are basic elements that support the transport function. Reduction of the weight of wheel sets and longer service life of rails will significantly reduce CO₂ emissions. I do not think I am the only one who looks for such synergy effect to spread to other business sectors.

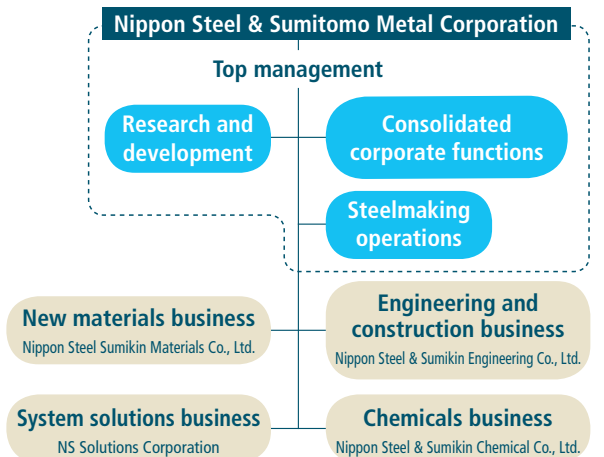
In fact, another point struck me when reading this the report. It is its negative content. It is important to announce legal violations and other negative factors without hiding them. This is not only required from the viewpoint of accountability, but is an indispensable action to take new steps forward in making environmental and social contributions. The company must recognize its negative or inconvenient results so that it does not become complacent with its achievement and that all employees can set higher goals. I believe that this report will contribute to these processes.

The new company NSSMC is receiving a lot of attention and interests in Japan and abroad. People must be watching NSSMC with the hope that the company will contribute to creating a sustainable society. I firmly believe that this report proves that NSSMC has entered a new stage.

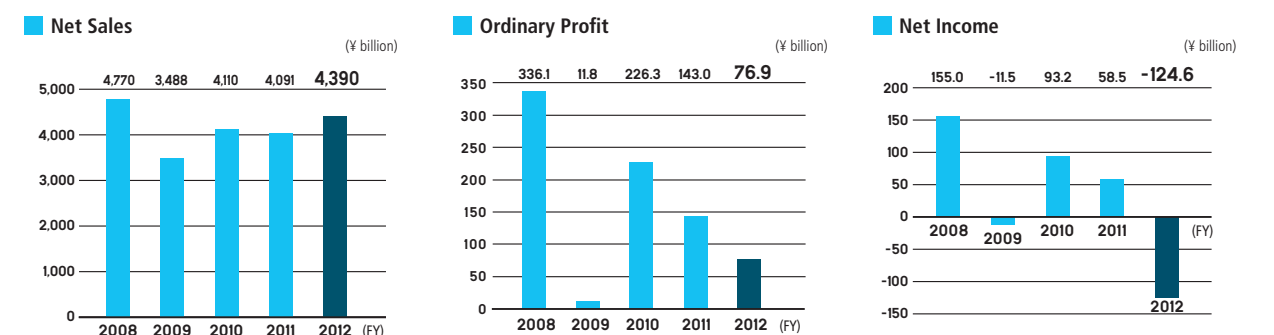
Corporate Profile

Company name	Nippon Steel & Sumitomo Metal Corporation
Head office	2-6-1, Marunouchi, Chiyoda-ku, Tokyo 100-8071 Phone: +81-3-6867-4111
Incorporated	October 1, 2012 (merger date)
Chairman & CEO	Shoji Muneoka
President & COO	Hiroshi Tomono
Capital	¥419.524 billion (Total number of shareholders: 592,291)
Stock listings	Tokyo, Osaka, Nagoya, Fukuoka, and Sapporo
Number of employees	83,187 (consolidated basis)
Group companies	370 consolidated subsidiaries and 107 equity-method affiliates

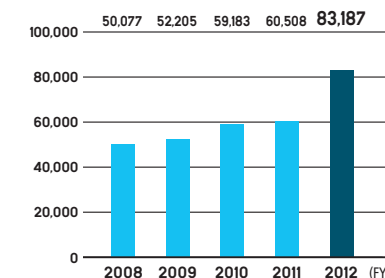
Framework of Business Segments



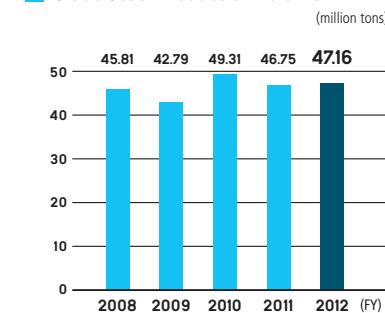
Financial Indicators (consolidated basis)



Number of Employees

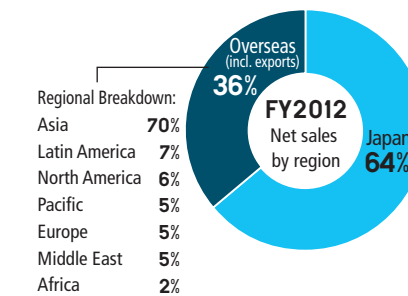


Crude Steel Production Volume*

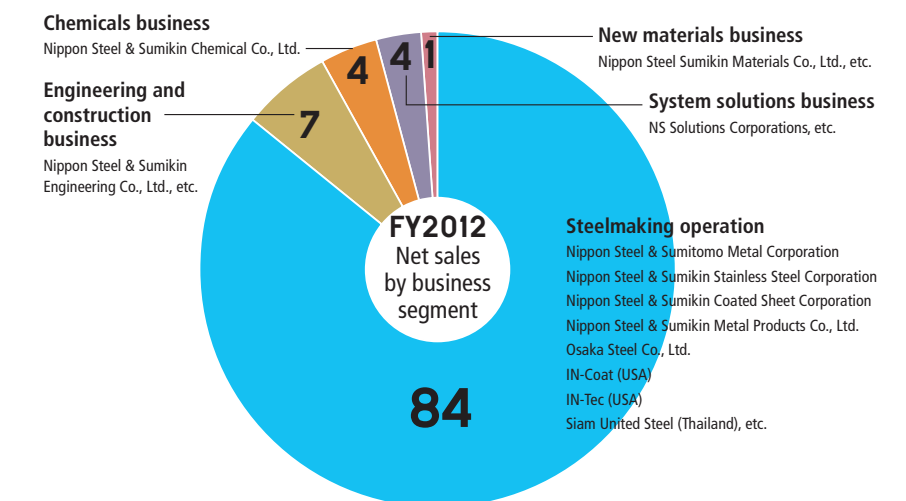


*Production volume of Nippon Steel & Sumitomo Metal and five affiliated electric furnace companies (see page 10)

Net Sales by Region



Net Sales by Business Segment (%)



*Based on net sales before internal elimination