NSSMC’S BASE THAT SUPPORTS GROWTH

Basic Way of Thinking Regarding Sustainable Growth

Our world-leading technologies and manufacturing capabilities, corporate culture to develop and bring out the best in our people, strong relationships of trust with customers that have been accumulated with our efforts to help solve customers’ challenges—these are all examples of our strengths that do not appear on the financial statements, and are the base that supports our growth. We will further enhance such strengths, hand them down to the next generation, and aim to realize sustainable growth.
INNOVATION OF TECHNOLOGIES

Aiming for Further Advancement in Technologies

R&D Policy

Amid diversifying societal needs, characterized by changing consumer preferences and growing concerns over energy and the environment, NSSMC is selectively investing management resources in R&D fields that will contribute to sustainable growth.

1) Improving the ability to develop and supply high-grade steel products
2) Bolstering technology that facilitates the use of low-grade iron ore, coking coal, and other raw materials and fuels, thereby enabling the Company to respond to a downward trend in raw material and fuel quality
3) Nurturing environment-oriented technology that underpins sustained corporate development

R&D Organization

In the true spirit of research and engineering, NSSMC promotes an integrated R&D structure, linking basic research to applied development and engineering. We also promote R&D from various perspectives at our four newly-established research teams (material reliability; infrastructure metallurgy; hydrogen and energy materials; and integrated processes).

Our R&D capabilities highlight six strengths: (1) comprehensiveness and speed of development, facilitated by the integration of R&D and engineering; (2) an R&D network with bases in customer regions; (3) integrated solutions enhanced by Group companies' products and technologies; (4) the ability to address energy- and environment-related concerns with solutions maximizing steelmaking process technology; (5) collaboration between industry and academic institutions, overseas alliances, and even customers; and (6) an extensive portfolio of fundamental and platform technologies.

With these strengths, NSSMC's approximately 800 employees, who are based in three core research centers (Research & Engineering Center in Futtsu City, Chiba Prefecture; Amagasaki R&D Center, Hyogo Prefecture; and Hasaki R&D Center, Ibaraki Prefecture) and R&D laboratories at steelworks across Japan, create innovative, functional products, primarily in the steelmaking business, pioneer production processes, and ensure their swift introduction into operations.
Innovation of Technologies

Major R&D Accomplishments

Technologies that contribute to lighter vehicle weight
NSSMC has developed high-tensile-strength steel sheets for automobile use that contribute to a reduction in vehicle body weight and an increase in strength. We have also developed forming and other application technologies for sheets, and make proposals on materials and solution technologies that match customers’ needs.

Three-dimensional hot bending quench (3DQ) mass processing technology for steel tubes
3DQ technology is the continual process of locally heating, bending, and immediately quenching with cooling water steel tubes with diverse shapes (round, square, and various different shapes). By using this technology, high-tensile strength of 1470 MPa or more, a level that conventional processing methods such as cold bending and hydroform bending could not realize, has been achieved. Application of this technology to manufacturing of automotive parts is expected to result in a significant reduction in the weight of vehicles and enhanced collision safety. The Mazda Premacy, a compact MPV, has a weight reduction of approximately 50% in the automotive parts that are manufactured using this technology, while maintaining similar rigidity and strength to conventional materials.

Tension strength 1.2 GPa level-galvannealed steel sheet used for automotive main frame parts
NSSMC has succeeded in manufacturing galvannealed (GA) steel sheet with a tension strength 1.2 GPa. It was adopted for the first time in the main frame parts of the new light automobile “Spacia” that Suzuki released in March 2013.

Compared to cold-rolling steel sheet, GA steel sheet required an additional galvannealing manufacturing process and was more difficult to manufacture. Its maximum strength was limited to 980 MPa. NSSMC then developed a component design that adjusted for the galvannealing process and upgraded the manufacturing process, which resulted in the manufacture of high-tensile-strength steel sheets that have strength at the 1.2 GPa level. This strength and their corrosion-resistance properties made them suitable for automotive main frame parts. This steel sheet has expanded the scope of application of high-tensile steel materials for automobiles, while offering improved collision safety and lighter weight.

Technologies that contribute to the stable supply of energy
In an environment of increasing demand for energy on a global scale, NSSMC is developing a wide range of materials and products, as we wish to enrich our product lineup and satisfy the needs of customers attentively.

Corrosion-resistant duplex stainless steel tubes for seamless line pipe
Development of SM65-2505
Super 13Cr martensitic stainless steel (S13Cr) had been used for flow lines* in the North Sea and North Africa. This steel, however, had to go through a post weld heat treatment (PWHT) procedure in order to prevent stress corrosion cracking (SCC) of the welded joints in a corrosive environment including carbon dioxide gas. NSSMC has developed SM65-2505 corrosion-resistant duplex stainless steel tubes (alloy steel of Cr 25%, Mo 1%, Ni 5%, and Cu 2.5%) that do not require the PWHT procedure and can satisfy corrosion resistance in a high-temperature environment including carbon dioxide gas and hydrogen sulfide.

By adding Cr up to 25% and strengthening passive state film, SM65-2505 exceeds S13Cr steel in the level of corrosion resistance and has significantly improved weldability for customers by eliminating the need for the PWHT procedure.

SM65-2505 is available up to a size of 16 inches and is expected to be adopted for the increasing development of ultra-deep oil and gas wells.

* Flow line: The surface pipe through which oil or natural gas travels from a wellhead to processing equipment
Technologies that contribute to social infrastructure improvements

NSSMC’s R&D achievements are contributing to social infrastructure.

Liquefaction countermeasure

NSSMC HI-DRAIN PILE, a steel material to counter liquefaction, is an innovative product that is able to maintain a high level of stability in the ground where it is located through a function to drain excess pore water in the soil when liquefaction occurs at the time of an earthquake.

Patterns of liquefaction

Removal of salt from tsunami-damaged agricultural land

NSSMC is cooperating in a salt removal program organized by the Tokyo University of Agriculture for agricultural land in Soma City, Fukushima Prefecture, which was hit by the Great East Japan Earthquake. NSSMC provides converter slag fertilizer for free. As the salt removal effect achieved by converter slag fertilizer has been demonstrated to be quick and effective in 1.7 hectares of paddy fields, the applicable fields will be expanded to around 50 hectares, in which 500 tons of converter slag fertilizer will be used, from fiscal 2013.

Active suspension for railway cars adopted

Railway vehicles’ active suspension developed by NSSMC has been adopted for all railway cars of Kintetsu Corporation’s sightseeing limited express Shimakaze. This active suspension detects body movement from a sensor attached to the car body, makes an actuator generate power in the reverse direction, and controls the car body by canceling out the movement, helping to provide a more pleasant ride.

Praise from society: Recent prizes received

<table>
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<tr>
<th>Award</th>
<th>Fiscal Year</th>
<th>Category</th>
<th>Description</th>
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<tr>
<td>Okochi Award</td>
<td>FY 2011</td>
<td>Production</td>
<td>Municipal waste plastics recycling technology for producing chemical raw materials</td>
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<td></td>
<td>FY 2012</td>
<td>Production</td>
<td>Development of high-alloy OCTGs and their manufacturing technology that enables production increases of natural gas</td>
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<td>Innovative new coke making technology for expanding raw coal resources and saving energy (SCOPE21 - Jointly with Kobe Steel, JFE Steel, Nisshin Steel, and Mitsubishi Chemical Corporation)</td>
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<td>Ichimura Award</td>
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<td>National Invention Award</td>
<td>FY 2012</td>
<td>Nippon Keidanren Chairman’s Innovation Prize</td>
<td>Development of the functional steel plate with high enhancement of fatigue life for welded structures</td>
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<td>Invention</td>
<td>Excellent corrosion-resistant hot-dip alloy coated sheet</td>
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<td></td>
<td>FY 2013</td>
<td>Patent Office Commissioner’s Award</td>
<td>Invention of new type of high-performance copper bonding wire for LSI</td>
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<td></td>
<td>21st Century Invention Award</td>
<td>Invention of high-strength non-oriented electrical steel of resource-saving design</td>
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<td>The Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology</td>
<td>FY 2012</td>
<td>Science and Technology Award: Development Category</td>
<td>Development of a highly environment-sensitive Sn-Zn plated steel sheet for use in automobile fuel tanks</td>
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<td>Science and Technology Award: Development Category</td>
<td>Development of SuperDyma®, a highly corrosion-resistant Zn-Al-Mg plated steel sheet for use as a construction material</td>
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<td></td>
<td>FY 2013</td>
<td></td>
<td>Development of highly accurate cooling control technology through the use of a thermometer applied to cooling steel sheets at the hot rolling mill</td>
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<tr>
<td>Robot Award</td>
<td>The 5th Industrial Robot Category First Prize</td>
<td>Three-dimensional hot bending quench (3DQ) robot, exploiting flexibility of a robot</td>
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INTELLECTUAL PROPERTY

Pursuing Global Utilization of Intellectual Property

One of NSSMC’s Management Principles is to “pursue world-leading technologies and manufacturing capabilities.”

The basis of our intellectual property (IP) activity is to secure technologies, including the newly-created, most advanced ones, as IP and then to utilize the IP to meet our medium- and long-term IP strategy in line with our management/business strategies.

Priorities

The IP Division collaborates with the Business Divisions and the R&D Divisions to support the Company’s global strategies. We have been focusing on enriching and accumulating IP as “an effective leverage to compete in the world, and with the world” both in quality and quantity and use it as a ready-to-deploy “business tool.”

By converting our advanced core technologies into IP and strategically utilizing them, we will continue to reinforce NSSMC’s competitive edge and pursue its global strategy more effectively, with the aim of becoming the “Best Steelsmaker with World-Leading Capabilities.”

Specific Activities

Establishing a framework to avoid impairment of our IP and a basis for global utilization of our IP

I. Enhanced organizational activity as the Company’s functional division

1) Utilization of our IP for businesses, in defensive and offensive ways
2) Unification of our IP activities with our management targets and maximization of our IP values

II. Enhanced support and stimulation of activities to create IP

1) Sharing of strategies and enhancement of collaboration with our IP partners (external experts) in Japan and overseas
2) Strengthening of support for challenging technological development activities

Blend the technological strengths of the two integrated companies

We will thoroughly pursue blending the technological and IP strengths of the two companies, ranging from products to processes. We will also contribute to further enhancing our corporate value by compounding and raising each technical value and securing it as our IP asset.

Enhanced competitiveness of the overall NSSMC

In collaboration with related divisions across the Group, we are promoting the acquisition of IP both in Japan and overseas, relating to various world-leading advanced technologies, such as product/manufacturing technologies and technologies for coping with price increases in resources and for reducing environmental burden. Moreover, in order to establish a global business structure, we have been implementing mutual licensing of IP such as patents and know-how, and providing technical support to our strategic alliance partners and joint venture companies. This strengthens the competitive edge of the NSSMC Group as a whole.

Intellectual property compliance

From the viewpoint of respecting other companies’ IP rights, we conduct all of our IP activities in compliance with IP laws. At the same time, we engage in wide-ranging activities, from “utilization” to “information management,” with respect to NSSMC’s technology. We also strictly deal with any illegal use of our patents, corporate/trade name, trademark, and copyrights.

NSSMC Receives 2012 Thomson Reuters Top 100 Global Innovator Award

• NSSMC has received a “Thomson Reuters 2012 Top 100 Global Innovator Award,” which honors the world’s 100 most innovative corporations and institutions.
• In the 2012 Top 100 Global Innovators List, 25 Japanese companies were represented, while NSSMC was the only company selected from the global metal refining industry including steel.
ENVIRONMENTAL INITIATIVES

The NSSMC Group contributes to building a society with a lighter environmental burden by positioning "environmental management" as one of its core objectives.

We operate our businesses by keeping in mind environmental preservation in communities. For example, we consider the preservation and improvement of human living environments, and promote recycling and reduction of waste. At the same time, we will aggressively tackle global issues such as global warming.

We have adopted “Three Eco-Friendly Initiatives” to global environmental problems: reducing the environmental burden at all stages of our operational activities (Eco process; The way we manufacture is “eco-friendly”); offering eco-friendly products (Eco products; What we produce is “eco-friendly”); and global-scale environmental protection proposals and solutions (Eco solution; Our proposals and solutions are “eco-friendly”).

Moreover, we are promoting the development of innovative technologies, with the aim of further enhancing energy efficiency and developing new eco products from a medium- to long-term perspective.

NSSMC’s Three Eco-Friendly Initiatives

ECO PROCESS
The way we manufacture is “eco-friendly”
NSSMC manufactures steel products with world-leading resources and energy efficiency and is aiming to develop eco-friendly steelmaking processes by further improving efficiency.

ECO PRODUCTS
What we produce is “eco-friendly”
We produce and offer eco-friendly “eco products” using our world-leading technological capabilities, thus conserving resources and energy and thereby contributing towards building a sustainable society.

ECO SOLUTION
Our proposals and solutions are “eco-friendly”
We contribute to a reduced environmental burden and environmental protection by offering various solutions for energy conservation and environmental issues. In addition, we are promoting technology transfer and development to prevent global warming and protect the environment on a global scale.

DEVELOPMENT OF INNOVATIVE TECHNOLOGIES
Based on the objective of offering technologies and products that contribute to environmental protection and the saving of resources and energy to society, we are developing innovative advanced technologies from a medium- to long-term perspective.
Environmental Initiatives

**ECO PROCESS** *(THE WAY WE MANUFACTURE IS “ECO-FRIENDLY”)*

We aim at reducing environmental impacts in our operations and manufacturing processes. We strive to efficiently utilize limited resources and energy at every stage of operations.

### Energy

- **Fuels**
  - Fossil fuels: 199 thousand kl

- **Electricity**
  - Purchased power: 4.46 billion kWh

- **Industrial water**
  - Raw water: 0.61 billion m³

### Resources

- **Iron ore**: 63.74 million tons
- **Coal**: 31.79 million tons

By-products from other industries:
- **Waste plastics**: 200,000 tons
- **Waste tires**: 80,000 tons

* Numbers represent fiscal 2012 performance

### Recycling of Resources

- **Recycling rate**: Approx. 99%
- **Solder**
  - Generated in-company: 4.85 million tons
- **Purchased scrap**: 31%

### Use of By-product Gases

- **Electric furnace**
- **Continuous casting facilities**

### CDQ (Coke Dry Quenching)

This equipment quenches red-hot coke (approx. 1,000°C) from a coke oven with inert gas. Compared to the conventional method of quenching with water, this method generates little white smoke (steam) and scatters little dust. As the coke is strengthened, it contributes to the stable operation of a blast furnace.

### RHF (Rotary Hearth Furnace)

Dust, sludge, and other ferric-oxide-containing by-products occurring in the iron-making process are blended with coal and other reducing agents and continuously processed at elevated temperatures by this equipment, for the recovery and recycling of iron and zinc, etc.
NSSMC’s steelworks are working rigorously to save energy in all manufacturing processes with the aim of reducing CO2 emissions. For example, we try to achieve efficient use of equipment, higher combustion efficiency, and electricity savings. In addition, water for cooling or washing products and production facilities is recycled and reused, while by-products generated in manufacturing processes are actively recycled and reused. Our long-accumulated know-how and technologies have enabled us to use resources and energy thoroughly and efficiently.

The NSSMC Group is also contributing to the supply of electricity.

1. GTCC (Gas Turbine Combined Cycle)
A GTCC is a power generating plant that consists of one highly efficient gas turbine, one waste-gas boiler, and one steam turbine, which displays efficiency in power generation. NSSMC implemented a GTCC at the Kimitsu Cooperative Thermal Power Plant within Kimitsu Works in July 2004, and plans to further introduce such plants at Kashima Works, Wakayama Works, and Oita Works.

2. NSSMC internally generates 85% of the electricity it uses.

3. NSSMC supplies 40% of internally-generated electricity to the works’ community.
**ECO PRODUCTS (WHAT WE PRODUCE IS “ECO-FRIENDLY”)**

NSSMC’s eco-friendly products help reduce environmental burden

Our highly functional and reliable “eco-products,” which have been developed based on our strong technological capabilities, are used in energy, transport equipment, household products, and other areas. They typically help our customers become more efficient while making their products lighter or lengthening facility life. That translates into the saving of resources, energy, or both, and a reduction in carbon emissions at the point of use at our customers.

**Energy-Related Products**

**Boiler tubes for efficient power generation**

Higher temperatures and pressure are the keys for coal-fired power stations to be efficient. Our “ultra supercritical” (USC) stainless steel tubes have contributed to the realization of highly efficient coal-fired thermal power generation.

**Super 13 chromium pipe**

Pipelines for natural gas have to withstand hostile corrosion environments such as the bottom of the sea. Our “super 13 chromium pipe” has superior corrosion-resistant properties, was first applied at North Sea sites, and is now in use at many natural gas development sites.

**Eco-friendly CLEANWELL® DRY**

Seamless pipes for oil and gas development use grease which contains heavy metals such as lead when connected to joints. Our premium joint CLEANWELL® DRY is grease-free and therefore eco-friendly.

**Ultra high-strength line pipe X120**

NSSMC has developed ultra high-strength UO pipe that can be used under hostile environments such as under the ground and at the bottom of the sea. This large-diameter transmission pipeline, which withstands high pressure, has improved energy transmission efficiency.

**Transportation-Related Products**

**Electromagnetic steel sheet for efficient motors**

Our electromagnetic steel sheet is used for fuel-efficient and powerful hybrid and electric vehicles (EVs).

**High-tensile-strength steel materials**

NSSMC’s high-tensile-strength steel materials have solved the two almost incompatible themes of reducing vehicle body weight, to enhance fuel efficiency, and improving collision safety. The materials are not only strong but also superior in formability.

**Steel material for high-strength cracking connecting rods**

A connecting rod consists of a rod and a cap and connects the piston motion of the engine to the crankshaft. We have developed a steel material for connecting rods, which can be separated (or cracked) from a forged single part on the same line into two parts. This resulted in a 10–20% reduction of its weight and a significant reduction in the amount of CO₂ emissions. (Example of adoption by Honda Motor Co., Ltd.)

**Oil tanker cargo tank’s bottom plate NSGP®-1**

NSGP®-1 is a world-first steel plate that shows more than five times greater corrosion resistance to a pitting corrosion of 10mm that occurs on the bottom of a tank in a crude-oil tanker. Non-coating means saving 100 drums of organic paint per vessel.
Household-Related Products

**Zinc-coated steel sheet NS ZINKOTE® color steel**

NS ZINKOTE® color steel has realized ultimate thinness and high formability to unprecedented levels compared to conventional coated steel sheet. Color top coating performed by an electro-galvanized process frees customers from the need for the coating process, the procurement of fuel, and the treatment of waste liquid while eliminating concern about emission gas.

**Lightweight welded SMart BEAM®**

Our lightweight welded H-beams are lighter and less thick than conventional rolled H-beams and highly regarded for their durability and high dimensional precision. They are used in pre-fabricated houses as well as in beams of wooden houses.

**Low-alloy corrosion-resistant steel ARU-TEN**

Low-alloy corrosion-resistant steel ARU-TEN hinders the occurrence of red rust due to a general coating that contains zinc in outside high-salt environments. It hinders the occurrence of red rust even without a coating in indoor lower-salt environments. This steel has significantly reduced the amount of additives used, such as nickel, chrome, and molybdenum, compared to stainless steel. It is thus economical and eco-friendly.

**Pure titanium sheet for aircraft and titanium alloy rods for aircraft engines**

The use of titanium contributes to stronger, lighter, and more eco-friendly aircraft. We supply titanium alloy rods used in aircraft engine blades and pure titanium sheet used in pylons that connect wings and engines.

**Corrosion-resistant SuperDyma® galvanized sheets**

SuperDyma®, a high corrosion-resistant alloy hot dip galvanizing steel sheet, is coated with a zinc alloy containing around 11% aluminum, around 3% magnesium, and a tiny amount of silicon. SuperDyma® has four times the corrosion resistance of general grade galvanizing steel. Thus, the amount used for coating to achieve similar corrosion-resistance performance can be reduced by a quarter. In addition, the coating process can be reduced, resulting in the saving of coating materials, in other words, petroleum resources.

**Lead-free, free-cutting steel material (EZ, Sumi-Green CS)**

Shafts used in paper feeders and other parts of printers contain lead to make it easy to process the shaft. NSSMC’s EZ and Sumi-Green CS are made of lead-free steel but ensure similar free-cutting performance and superior coating performance compared to conventional steel that contains lead.

**Steel for Bridge High-Performance Structures (SBHS) 500 that supports the Tokyo Gate Bridge**

NSSMC’s SBHS500 was adopted in the Tokyo Gate Bridge, which was constructed to ensure smoother transportation and relieve traffic jams. This new steel is extremely strong and has reduced the overall weight of steel materials used by 3%. This has also resulted in a significant reduction in CO₂ emissions for the whole process from the manufacturing of steel materials and the construction of bridges to transportation. In addition, compared to conventional bolted connections, the adoption of an all-welded structure resulted in a less tongued-and-grooved face, leading to a reduction in the repainting burden.
**ECO SOLUTION** (OUR PROPOSALS AND SOLUTIONS ARE “ECO-FRIENDLY”)

The NSSMC Group’s technologies help solve the environmental challenges of various countries throughout the world.

We are cooperating in energy-saving and other environmental initiatives in China, India, and other parts of the world, as the international technical transfer of our superior energy-saving technologies is most effective in reducing CO₂ emissions and in other environmental countermeasures on a global scale. In India, especially, we are actively participating in a feasibility study to design a bilateral offset credit scheme.

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*1 JICA: Japan International Cooperation Agency*

*2 NEDO: New Energy and Industrial Technology Development Organization*

*3 JBIC: Japan Bank for International Cooperation*
DEVELOPMENT OF INNOVATIVE TECHNOLOGIES

The NSSMC Group focuses on the development of technologies that help improve environmental burden substantially.

**Coke Oven Incorporating Next-Generation Coke Manufacturing Technology (SCOPE21)**

“SCOPE21” is technology that was developed under a national project for the purpose of increasing the ability to overcome resource and energy issues. It incorporates various innovative technologies for reducing coke manufacturing time, improving the quality of coke, and so forth, and is expected to result in increased utilization of low-grade metallurgical coal and produce significant energy savings. Based on the assumption of the Ministry of Economy, Trade and Industry, if all existing coke ovens in Japan were replaced by this new type of coke oven by 2020, a reduction of approximately 310,000 kL/year converted into crude oil could be achieved. The first SCOPE21-type coke oven has been operating at our Oita Works since its implementation in May 2008 and its favorable results have led to the construction and start of a second coke oven at our Nagoya Works in June 2013.

**Development of Environmentally Harmonized Steelmaking Process Technology (COURSE50)**

We are working to develop revolutionary steelmaking processes aimed at large-scale CO₂ reductions.

The Japanese steel industry is already the lowest energy consumer in the global steel industry. This means that we have realized steelmaking processes that emit the least amount of CO₂. Any further improvements in efficiency would require the development of a revolutionary new steelmaking process. Under contracts from NEDO, various steel companies are working to develop eco-conscious steelmaking process technologies.

NSSMC and other steel companies have carried out hydrogen reduction testing by using a test blast furnace of LKAB, a mining company in Sweden, and have achieved the desired results. Within the project team, NSSMC is in charge of the testing to amplify hydrogen extracted from coke oven gas and the application development of the Kalina Cycle power generator, which we were the first in the world to commercialize.

* COURSE50 (CO₂ Ultimate Reduction in Steelmaking process by Innovative technology for cool Earth 50): NSSMC and four other steelmakers in Japan are carrying out this project with the aim of developing innovative process technologies that enable substantial reductions of CO₂ in the steelmaking process.
TOGETHER WITH EMPLOYEES

One of NSSMC’s Management Principles declares that “we develop and bring out the best in our people.” Accordingly, we provide “on-the-job training” in normal working situations, with active dialogues between supervisors and subordinates as the core, and various “off-the-job training” activities (i.e., training by job class, skill training) that complements the former. These activities are designed to enhance the comprehensive capability of our people.

Training Employees to Support Business Expansion in Overseas Growth Markets and Technological Innovation

With the aim of fostering people who can work on a global stage, we have established and carried out a range of educational activities that includes language lessons, inter-cultural learning programs, overseas assignment, and overseas study programs. It is also important to hire and invest in engineers who will lead us to advance our technological edge. There are various specialized technological training sessions for these engineers.

Skill Transfer and Constant Hiring Support Our Sustained Growth

Our veteran employees are relaying their accumulated skills and know-how to the next generation of young workers in their manufacturing worksites. The method of transferring skills has been evolved by systemized teaching methods such as visualized work procedures and comprehension tests.

Diverse People Work for Business Development Overseas

We foster employees who promote our business expansion in overseas growth markets by utilizing our world-leading technologies. Over 12,000 employees from diverse backgrounds are working at approximately 80 overseas bases in the NSSMC Group. In North and South America, Southeast Asia, China, India, and other countries, NSSMC’s employees are working together with employees of our joint venture partners and local employees.
Creating an Employee-Friendly Environment

From the viewpoint of supporting the work of various employees and realizing a balanced way of work and living, we prepare a good work environment and a good work-life environment for our employees and their families. We also offer various welfare benefit programs that accommodate the needs of employees. These include dormitories, company housing, and the "work-life support program," which allows each employee to choose options for leisure, child support, etc.

Safety and Health at Work Are of the Utmost Importance

“Safety and health of employees at the Nippon Steel & Sumitomo Metal Corporation Group are the most important, top-priority values and the basis for supporting business development.” “Under the Management Principle of ‘developing and bringing out the best in our people,’ the NSSMC Group makes continuous efforts to ensure the safety and health of the people who work for the Group and continues to contribute to society through the safety and health of the employees as well.” Under the Basic Philosophy on Safety and Health, we promote activities with the aim of eliminating any serious injuries. In particular, our TAIKAN Program (Experience-based safety education program) enables employees to experience risk at their worksite through simulation. Moreover, we make investments in equipment and develop technologies aimed at enhancing the inherent safety of production facilities and realizing a pleasant work environment.

Respect Human Rights

NSSMC respects human rights, gives due attention to the rights of workers, and staunchly opposes the use of forced and child labor. These are prerequisites of our corporate activities. We have also prohibited unjust discriminatory treatment of workers. In addition, we give careful consideration to the traditions and cultures of each country as we accelerate overseas business development.
TOGETHER WITH CUSTOMERS

Our business does not simply entail delivering products required by our customers. We help customers solve problems by providing services based on their perspective. Such efforts have been accumulated to result in long-term strong relationships of trust with customers, which is one of our strengths.

Contribute to Customers by Providing Comprehensive Solutions

In general, it is customers who do the final processing of steel products. NSSMC thus contributes to quality enhancement of customers’ products by providing them with comprehensive solutions including proposals on process technologies, in addition to improving the quality of materials.

Example of solution: High-tensile steel sheets for automobiles

High-tensile steel sheets for automobiles are required to satisfy needs for weight reduction to lessen environmental burden and for vehicle body stability. They are thin, strong, and hence difficult to process. Based on our long relationships of trust with customers, we are engaged from the design and development stage of automobile bodies, use our forming, joining, and analysis technologies, and develop easy-to-process steel materials with high performance. At the same time, we propose a wide range of solutions, including methods of processing, which utilize steel materials’ properties, shapes, and structures. In addition to activities “before service,” we provide “after service,” in which our engineers visit customers’ manufacturing sites on a regular basis, bring back the “voices of customers” to their own worksites, and thus ensure further improvement in developing steel materials.

Seek to Be No. 1 in Customer Satisfaction

The relationships of trust with our customers and their satisfaction, which we have gained by providing products and services to them from the customer’s point of view, are our precious assets. We will seek to ensure that our customers say “only NSSMC can do this,” with the aim of being the No. 1 steelmaker in terms of customer satisfaction.

Winning 11th consecutive award from Toyota in the U.S. - International Crankshaft Inc.

NSSMC’s crankshaft forging subsidiary in the U.S., International Crankshaft Inc. (ICI), was awarded “Certificate of Achievement” for 2012 performance. This is the 11th consecutive year of receiving the award from Toyota to ICI. The commitment of each and every member of ICI to quality and customer satisfaction is the foundation of this achievement. ICI, with 21 years of experience under its belt, will continue to try hard to satisfy its customers.
CORPORATE GOVERNANCE

In line with its corporate philosophy, NSSMC aims at building the dynamic NSSMC Group. To that end, we are establishing a corporate governance structure and internal control system and mechanisms for cooperation among Audit & Supervisory Board Members, the Internal Control and Audit Division, and accounting auditors. By doing this, we seek to ensure management’s efficiency, soundness, and transparency, and enhance our corporate governance with the ultimate aim of achieving sustainable improvement in corporate value and being trusted by society.

Corporate Governance Structure

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.

NSSMC has in place the Board of Directors, which consists of an appropriate number of directors well-versed in the Company’s business. Being comprised of such knowledgeable members, the Board of Directors can adequately and swiftly make decisions regarding the Company’s business execution, contributing to the quality enhancement of corporate management. The Company also has in place the Audit & Supervisory Board, which is comprised of Audit & Supervisory Board Members who hold strong auditing authority and maintain integrity, objectivity, and independence when monitoring and overseeing the execution of duties by directors. NSSMC believes that its structure, underpinned by these two organizations, is effective and appropriate for ensuring sound corporate governance.

In addition, to clarify responsibilities for the results of each business segment, the Company has introduced an executive management system under which directors strive to ensure the proper execution of business activities.

Directors and Audit & Supervisory Board Members

NSSMC’s Board of Directors has 12 directors (term of office of one year), while the Audit & Supervisory Board has seven Audit & Supervisory Board Members (term of office of four years), including four outside Audit & Supervisory Board Members. The Company has notified Japanese bourses on which its stock is listed of the designation of the four outside Audit & Supervisory Board Members as independent director / auditor, pursuant to the Securities Listing Regulations of these bourses. All these bourses have accepted the Company’s notifications.

Board of Directors

Executive decisions on key issues that may affect the activities of the NSSMC Group are determined by the Board of Directors, which convenes once or twice a month, after such matters have been discussed by the Corporate Policy Committee, a group that includes participation by the Chairman and CEO, the President and COO, and other members, and normally meets once a week. In addition, NSSMC has set up 16 Companywide committees, each with its own objective, where details on designated themes are hashed out before the Corporate Policy Committee and the Board of Directors embark on decision-oriented discussions.

Audit & Supervisory Board

NSSMC’s Audit & Supervisory Board has four outside Audit & Supervisory Board Members who have vast experience and deep insight in fields such as legal affairs, fiscal and financial matters, accounting, and corporate management. It also has three Audit & Supervisory Board Members who are experienced in various operations of the Company’s business. These Audit & Supervisory Board Members work together to perform auditing in a systematic manner, and proactively provide their opinions at Board of Directors’ and other important meetings, while endeavoring to maintain and enhance proper corporate management.

Prompt and appropriate execution of business strategies

The execution of business strategies mandated by the Board of Directors and other executive structures is promptly addressed 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.
Executive Team (As of June 25, 2013)

Shoji Muneoka
Representative Director, Chairman and CEO

Hiroshi Tomono
Representative Director, President and COO

Representative Directors and Executive Vice Presidents

Syuichiro Kozuka
• Project Leader, Wuhan Tin Mill Project
• Overseas Business Development; Overseas Offices
• Cooperating with Executive Vice President S. Higuchi on Pipe & Tube
• Cooperating with Executive Vice President M. Iwaki on Usiminas Project

Kosei Shindo
• General Administration; Legal; Internal Control & Audit; Business Process Innovation; Human Resources; Environment
• Cooperating with Executive Vice President M. Iwaki on Safety

Masakazu Iwaki
• Project Leader, Usiminas Project
• Intellectual Property; Safety; Technical Administration & Planning; Quality Management; Plant Engineering and Facility Management; Ironmaking Technology; Steelmaking Technology; Slag & Cement
• Cooperating with Executive Vice President M. Iwaki on Usiminas Project

Shinya Higuchi
• Marketing Administration & Planning; Global Marketing Administration & Planning; Transportation & Logistics; Project Development; Machinery & Materials Procurement; Steel Products Units; Shanghai-Baoshan Cold-rolled & Coated Sheet Products Project; India Continuous Annealing & Processing Line Project; Domestic Office and Branches
• Cooperating with Executive Vice President S. Kozuka on Overseas Offices
• Cooperating with Executive Vice President M. Iwaki on Usiminas Project

Katsuhiko Ota
• Corporate Planning; Group Companies Planning; Accounting & Finance; Raw Materials
• Cooperating with Executive Vice President M. Iwaki on Usiminas Project

Akihiro Miyasaka
• Head of Bureau, Technical Research & Development Bureau

Managing Directors, Members of the Board

Kinya Yanagawa
• Intellectual Property; Safety; Technical Administration & Planning; Quality Management; Plant Engineering and Facility Management; Ironmaking Technology; Steelmaking Technology; Slag & Cement
• Rendering Assistance to Executive Vice President S. Higuchi on Steel Products Units

Soichiro Sakuma
• General Administration; Legal; Internal Control & Audit

Yasumitsu Saeki
• Head of Unit, Flat Products Unit; Project Leader, Shanghai-Baoshan Cold-rolled & Coated Sheet Products Project; Project Leader, India Continuous Annealing & Processing Line Project
• Marketing Administration & Planning; Global Marketing Administration & Planning; Transportation & Logistics

Shinji Morinobu
• Head of Unit, Railway, Automotive & Machinery Parts Unit

Senior Audit & Supervisory Board Member

Toshihide Tanabe

Audit & Supervisory Board Members

Hiromitsu Suetsugu
Hirohiko Minato

Outside Audit & Supervisory Board Members

Shigeo Kifuji
Toshiro Mutoh
Hirotake Abe
Katsunori Nagayasu
Internal Controls and Risk Management System

NSSMC resolves the Basic Policy concerning Internal Control System at its Board of Directors’ meeting and stipulates its Basic Rules for Internal Control for establishing a system for internal controls and risk management.

• NSSMC establishes an annual plan on internal controls and risk management and acts accordingly.
• It regularly confirms the status of internal controls and the risk management system through the Risk Management Committee, chaired by the executive vice president in charge of Internal Control & Audit.
• Each division of the Company designates a person in charge of risk management, while each Group company designates a person responsible for risk management. This is to encourage each division and company to take initiatives and share information about risk management among the Company and Group companies through regular meetings and other means.
• NSSMC regularly checks the Groupwide status of internal controls by establishing measures to check and supervise matters related to internal controls and risk management.
• NSSMC has set up a whistleblower system—namely, the Compliance Consulting Room within the Company and the Compliance Hotline run by the Company’s attorney—as a conduit for communication, to handle risk-related concerns among Group employees, staff of purchase agreement companies, and other Group employees regarding the execution of operations. This helps prevent accidents and the violation of laws and regulations preemptively and also improves operations.

Corporate Organizations and Internal Control System

Compliance Education

“We continue to emphasize the importance of integrity and reliability in our actions.” This is the first principle we stated in the Management Principles. Through messages from top management, periodic legal training programs, and other activities, we make certain that all employees fully understand NSSMC’s basic policy of ensuring fair management.

In particular, in order to ensure full compliance with the Antimonopoly Act, the Company has designated every December as the “Antimonopoly Act Compliance Campaign Month.” Specific activities conducted in December every year include: (1) the President’s direct instruction to all sales and marketing personnel to prevent the recurrence of violations; (2) the holding of seminars and meetings to explain the Company’s voluntary restrictions on making contact with competitors; and (3) the implementation of audits on the status of the administration of these restrictions. Through these activities, NSSMC is continuing to bolster its compliance.

In addition, we have prepared “30 Don’ts of Business Behavior,” a set of compliance guidelines that include simple examples of violations of the Antimonopoly Law and other laws governing business activities, “Guidelines to Prevent Sexual and Power Harassment in the Workplace” to ensure a pleasant environment in the workplace, and the “Handbook for Proper Business Practices” as a guide for proper administrative practices on financial reporting and tax affairs. These original written materials are designed for our employees to conduct fair and appropriate business. By conducting educational programs and e-learning programs for each rank, we cultivate a strong awareness of these guidelines and the importance of complying with laws and regulations among everyone at the NSSMC Group.
**Quality Management**

Quality management is one of the most important aspects in obtaining the trust and satisfaction of customers in the provision of products and services. All of our relevant employees are engaged in thorough quality management.

In coordination with product units and steelworks, the Company’s Quality Assurance Department promotes measures to cope with Groupwide quality control and assurance issues. We also make efforts to standardize or systemize ways to enhance and assure quality and carry out capital spending.

The quality management structure for all Group companies including overseas ones is based on the autonomous quality enhancement activities of the relevant section of each product unit and steelworks, which are then internally monitored and checked.

Furthermore, NSSMC has received certifications from external institutions such as for ISO 9001 and Japanese Industrial Standards (JIS), which has boosted its credibility.

**Environmental Management**

While NSSMC has supported Japan’s industrial development, we realize that we also have a significant impact on the environment in our business activities, as we account for approximately 5% of Japan’s overall energy consumption. NSSMC and all its Group companies are tackling environmental management based on its “Environmental Basic Policy,” which has Groupwide comprehensive environmental management as its core.

**Environmental Management System**

*Constructing a system for environmental preservation activities as a group*

NSSMC’s Environmental Management Committee convenes every half year and spearheads environmental management. Air, wastewater, and industrial waste are emphasized as important environmental risks to manage and the Groupwide periodic conference for each of those risks is held for further improvement.

In addition, the Group Companies Environmental Conference convenes twice or more per year, so that information is shared with Group companies. We have established a scheme to focus on a specific environmental risk and strive to ensure environmental preservation.

Through internal environmental supervision, internal control interviews with Group companies in Japan and overseas, and other measures, we check and follow up on the environmental status effectively using the “plan–do–check–act” (PDCA) cycle.
Information Security

Compliance with Information Management Rules
NSSMC has rules governing information management and several implementation rules of them for the purpose of controlling and managing information as valuable assets. Among their functions those rules provide protection to prevent infringement of third-party confidential information.

Measures to Prevent Leakage of Confidential Information
- NSSMC constantly strives to enhance the security level of the IT systems it uses, and to take effective measures against unauthorized access and computer viruses.
- Technical presentations and technology licenses are required to undergo prior internal review to prevent unintentional disclosure of confidential information.
- NSSMC classifies its facilities based on level of criticality and limits entry to those facilities according to that classification.

Protection of Personal Information
NSSMC has rules for the proper handling of personal information.

Education on Information Management
- NSSMC provides a “Manual for Protection of Confidential Information” to all employees. All employees are required to complete e-learning programs on information security once a year.
- NSSMC uses appropriate opportunities to inform employees of the importance of protecting confidential information, rules, and practical matters for management of information.

Protection of Intellectual Property

Intellectual Property Risk Management
We aim to implement intellectual property (IP) activities organizationally, respect other companies’ technologies, and maximize the values of our proprietary technologies. For those purposes, we constantly promote proper information management, prevent violation of IP-related laws and regulations, manage IP risks by expanding the scope of Groupwide IP activities, and reduce risks associated with our overall IP activities by enforcing our internal rules.

Efforts for the Protection of Intellectual Property
We continuously acquire and utilize IP rights on technologies sustaining our technological edge, and eliminate counterfeits that infringe our IP rights. At the same time, we respect the IP rights of other companies, and conduct necessary investigations to avoid any infringement. We also carry out IP training each year to enhance the understanding and awareness of our employees.
TOGETHER WITH SOCIETY

NSSMC highly values partnerships with its stakeholders as one aspect of its corporate social responsibility (CSR). We strive to expand opportunities to communicate in a timely and cordial manner to our shareholders and other investors. We also support people in local communities by engaging in environmental conservation activities and cultural and athletic activities.

Communication with Shareholders and Investors

NSSMC is actively engaged in activities to enable our shareholders and investors to better understand our business strategies, philosophies, and manufacturing sites. We have an extensive IR program. We hold results briefings for institutional investors and analysts; publish a reporting booklet and an annual report for shareholders; maintain an Investors Relations section on our website; conduct investor surveys; and offer business briefings and tours of our steelworks for shareholders.

In addition, we have various benefit programs for our shareholders, such as invitations to J1-League football games of the Kashima Antlers soccer team and concerts at Kioi Hall, and we also give the Company calendar to our shareholders.

We will continue to work on ways to provide timely and useful information and improve our IR activities by increasing interactive communication with shareholders and other investors. Through these activities, we hope to give investors many reasons to continue owning our shares.

For more financial information about NSSMC, please visit the Investor Relations section of our website at www.nssmc.com/en/.

Plant Tours and Business Briefings

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<tr>
<th>Event</th>
<th>Summary of program</th>
<th>Period of implementation</th>
<th>Applicable shareholders</th>
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<tbody>
<tr>
<td>Invitation to plant tours (by lottery)</td>
<td>Shareholders are invited to a tour of our steelworks and manufacturing sites (Plant tours are conducted at 4-6 steelworks and other plants twice a year, in the spring and in the fall. Eligible shareholders are asked to apply by selecting one of those plants.)</td>
<td>Twice a year (October–November and March–April)</td>
<td>Shareholders who own 10,000 or more shares as of the end of September and March (We may expand the scope of shareholders eligible to receive invitation notices.)</td>
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<tr>
<td>Invitation to business briefings (by lottery)</td>
<td>Business briefings are conducted in Tokyo, Osaka, and other locations</td>
<td>Twice a year (July–September and February–March)</td>
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Other Events

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<th>Event</th>
<th>Summary of program</th>
<th>Period of implementation</th>
<th>Applicable shareholders</th>
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<tbody>
<tr>
<td>Invitation to football games of the Kashima Antlers (by lottery)</td>
<td>Shareholders are invited to J1-League football games (home and away)</td>
<td>Semi-annually (April–August and August–December)</td>
<td>Shareholders who own 5,000 or more shares as of the end of September and March</td>
</tr>
<tr>
<td>Giving out the Company calendar</td>
<td>NSSMC’s calendar is sent to shareholders</td>
<td>Once a year (late November to early December)</td>
<td>Shareholders who own 7,000 or more shares as of the end of September and March</td>
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<tr>
<td>Invitation to concerts at Kioi Hall (by lottery)</td>
<td>Shareholders are invited to periodic Kioi Sinfonietta Tokyo concerts and other concerts</td>
<td>Semi-annually (April–July and September–March)</td>
<td>Shareholders who own 50,000 or more shares as of the end of September and March</td>
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Communication with Local Communities and Society

NSSMC has a long history of managing steelworks all over Japan in harmony with local communities. As a trusted and responsible member of the community, we have distinctive social contribution program activities. These programs include promoting the creation of “hometown forests” by planting trees and plants in communities, musical activities based at Kioi Hall, and the operation of regional sports clubs that increase community spirit.

Creation of “Hometown Forests”

NSSMC's steelworks all over Japan have their own environmental conservation forest. The creation of “hometown forests” began in 1971, when we planted saplings at Oita Steelworks. Now our forests of around 900 hectares (about the size of 190 Tokyo Domes) in aggregate have grown to become home to diverse birds and small animals. NSSMC will continue to proactively disseminate this project in the strong belief that these activities will contribute to biodiversity conservation and climate change prevention.

Supporting Sporting Activities

We support community-based sports clubs, mainly for baseball, volleyball, rugby, judo, and football. Through these sports clubs, we organize sports classes for children and provide guidance to junior teams. We also make our athletic facilities available to community residents for games and training. Our baseball team participates in Japan’s Inter-City Baseball Invitation Tournament every year, while our men’s volleyball team, the Osaka Blazers Sakai, won the 2012/2013 V. Premier League, the top-level league in Japan. The Kashima Antlers, one of the top professional J-League football teams, also won the 2012 Yamazaki Nabisco Cup, marking its second consecutive year of victory and fifth victory to date. In addition, our employee and judo player Masashi Nishiyama won a bronze medal in the 2012 London Olympics.

Supporting Musical Activities

NSSMC has supported artistic and cultural activities for many years. A wide variety of activities are primarily conducted by the NSSMC Arts Foundation and include classical concerts by the Kioi Sinfonietta Tokyo chamber orchestra, which is based at Kioi Hall (Chiyoda-ku, Tokyo), Japanese traditional music concerts in a dedicated Japanese-style music hall within the Hall, and the ceremony for the presentation of the Nippon Steel & Sumitomo Metal Music Awards. The NSSMC Mixed Chorus has achieved a formidable record by winning the 26th Consecutive Gold Award for the Choral Competition in Japan.

Providing Education on Manufacturing and the Environment

NSSMC hosts a number of programs nationwide to help young children and students—on whose shoulders the future rests—to better understand steelmaking and learn about the importance of manufacturing and the wonders of science and technology. Activities include a hands-on steelmaking program using the tatara method (a traditional Japanese ironmaking technique). For elementary and junior high school students, we help support an energy conservation and environmental protection class and conduct science experiments and special classroom lectures.