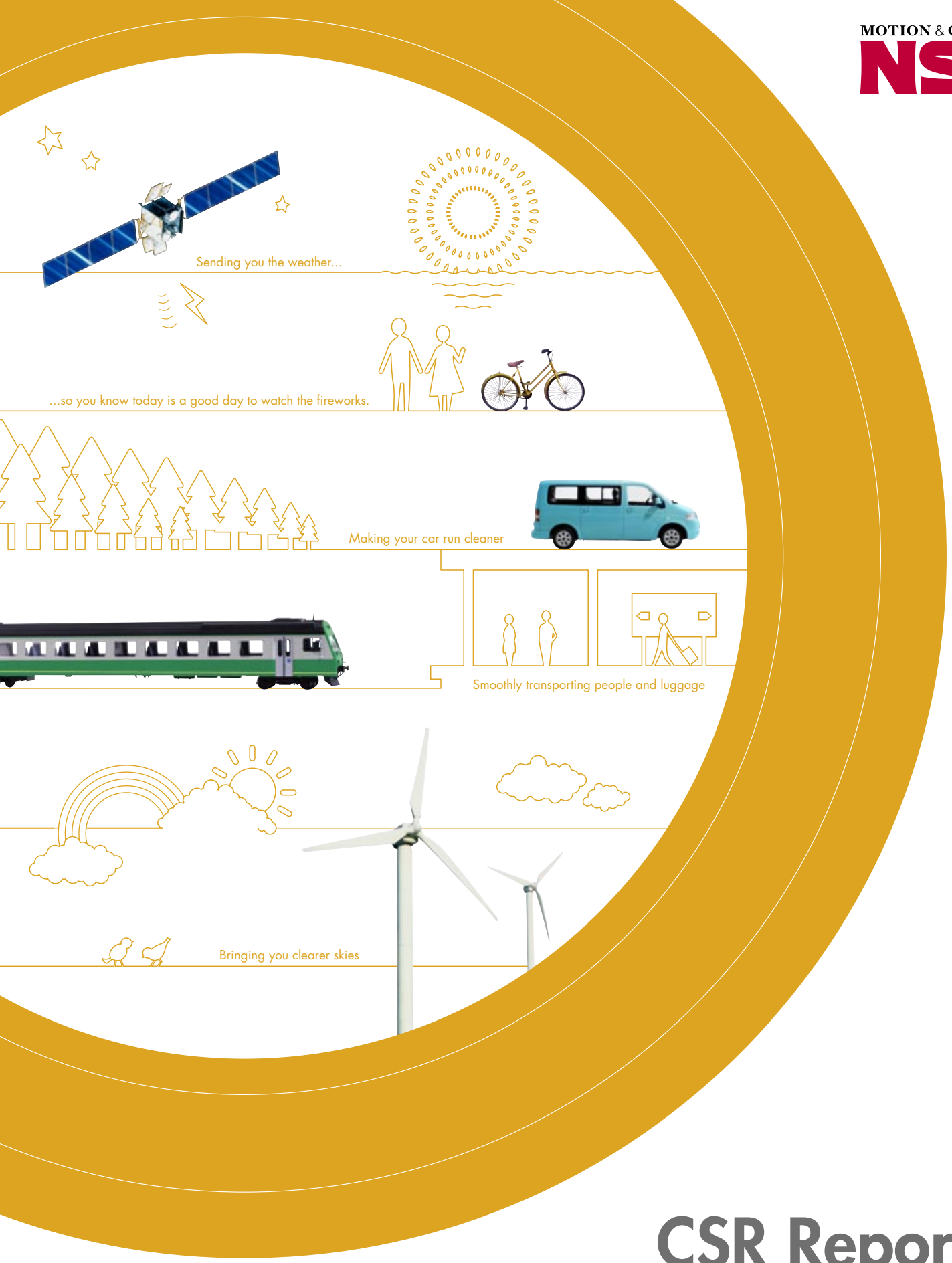
MOTION & CONTROL™
NSK



CSR Report 2008

The NSK Group's Vision and Initiatives for Society and the Environment

Editorial Policy

This report outlines the NSK Group's vision for society and the environment and introduces its current initiatives in these areas, reflecting the Group's commitment to its stakeholders.

The NSK Group believes that its business activities facilitate the sustainable development of society and the conservation of the environment. The Group hopes to succinctly convey its thoughts and actions to the community in this report.

The report includes a conversation with journalist and author Kazuma Yamane, during which the NSK president clearly explains the NSK Group's mission and its role in society. There is also a special article on the company's products that focuses on precision machinery and parts, one of the Group's core businesses. The Group decided to highlight these products because their sophistication supports many industries, and the ball screw, one of the products featured in the article, is a good example of an NSK product that has contributed to the development of society.

A second special article discusses the Group's activities in China, where NSK Group companies are expanding more rapidly than elsewhere in the world.

The CSR Report Working Team is made up of leaders from various divisions such as the IR & CSR Office and the Global Environment Department. The Team met and decided on the report's content after thorough discussion. The report is intended to help deepen readers' understanding of the NSK Group's business and its commitment to society.

What Is CSR?

CSR is the abbreviation of Corporate Social Responsibility. The NSK Group interprets CSR as "activities undertaken to ensure the sustainable growth of society and the NSK Group, while meeting the expectations of a wide array of interested people through corporate activities."

On the Cover

The weather satellite indicates that the day will be clear—the perfect day to ride a bicycle to the coast to watch fireworks! NSK products play an important role even in this kind of everyday scene. The vignettes in the pictures all involve NSK products. NSK's desire that such stories continue to enrich the lives of people and their communities is reflected in the cover of this report.

Related Reports and Website

The NSK Group provides information on its activities to stakeholders in the reports listed to the right as well as on its website.

Company Profile
(available in English, Japanese and Chinese)

Annual Report
(available in English and Japanese)

Referenced Guidelines

Sustainability Reporting Guidelines (third edition) by the Global Reporting Initiative (GRI) and *Environmental Reporting Guidelines* (2007 edition) by the Ministry of the Environment of Japan were referenced in preparing this report.

Period of Coverage

April 2007 to March 2008
Some sections of this report include information pertaining to dates after April 2008. In such cases, the dates are indicated.

Scope of Coverage

The report covers all NSK Group bases and plants, both in and outside Japan. "The Environment and NSK" covers NSK's product manufacturing plants, Group companies in which NSK has a stake of 50% or more (NSK brand product manufacturing, machinery manufacturing, logistics), and Group companies that manufacture NSK brand products.

Scope of "The Environment and NSK"

- NSK Ltd. (Fujisawa Plant, Ohtsu Plant, Ishibe Plant, Saitama Plant, Kirihara Branch)

Companies Manufacturing NSK Brand Products

- NSK Fukushima Co., Ltd. • NSK Steering Systems Co., Ltd. • NSK Precision Co., Ltd. (Maebashi Precision Machinery and Parts Plant, Saitama Precision Machinery and Parts Plant) • NSK Micro Precision Co., Ltd. • NSK Micro Precision Co., Ltd. (Nagano) • NSK Needle Bearing Ltd. • NSK Kyushu Co., Ltd. • NSK-Warner K.K. • Inoue Jikuuke Kogyo Co., Ltd.

Companies Performing Pre-processing

- Chitose Sangyo Co., Ltd. • Asahi Seiki Co., Ltd. • Shinwa Seiko Co., Ltd.

Companies Manufacturing Steel Balls

- Amatsuji Steel Ball Mfg. Co., Ltd. • AKS East Japan Co., Ltd.

Machinery Manufacturing Company

- NSK Machinery Co., Ltd.

Logistics Company

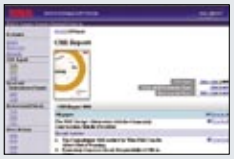
- NSK Logistics Co., Ltd.

Manufacturing Companies Outside Japan

- Production sites in which NSK holds a 50% or greater equity stake and sites that have been in operation for at least five years are included in the scope of coverage.

Table of Contents

CSR web pages
(social and environmental initiatives)



http://www.nsk.com/company/environment/index.html

Investor relations web pages

http://www.nsk.com/investors/index.html

Date of Issue

September 2008 (previous report, *CSR Report 2007*, issued September 2007; next report scheduled for September 2009)

Contact

IR & CSR Office, NSK Ltd.

Nissei Bldg., 1-6-3 Ohsaki, Shinagawa-ku, Tokyo 141-8560, Japan
Tel: +81-3-3779-7400 Fax: +81-3-3779-8906
E-mail: csr-report@nsk.com

The NSK Group's Interaction with the Community

The NSK Group has contributed to the development of a wide range of industries with its advanced technology and high-quality products ever since it produced the first bearings in Japan in 1916.
The Group's products now play a crucial role throughout society.

NSK in Daily Life

NSK Group products play an important role in supporting society as components in the products people use every day and also in the machines used to manufacture them.

Industrial Machinery Bearings

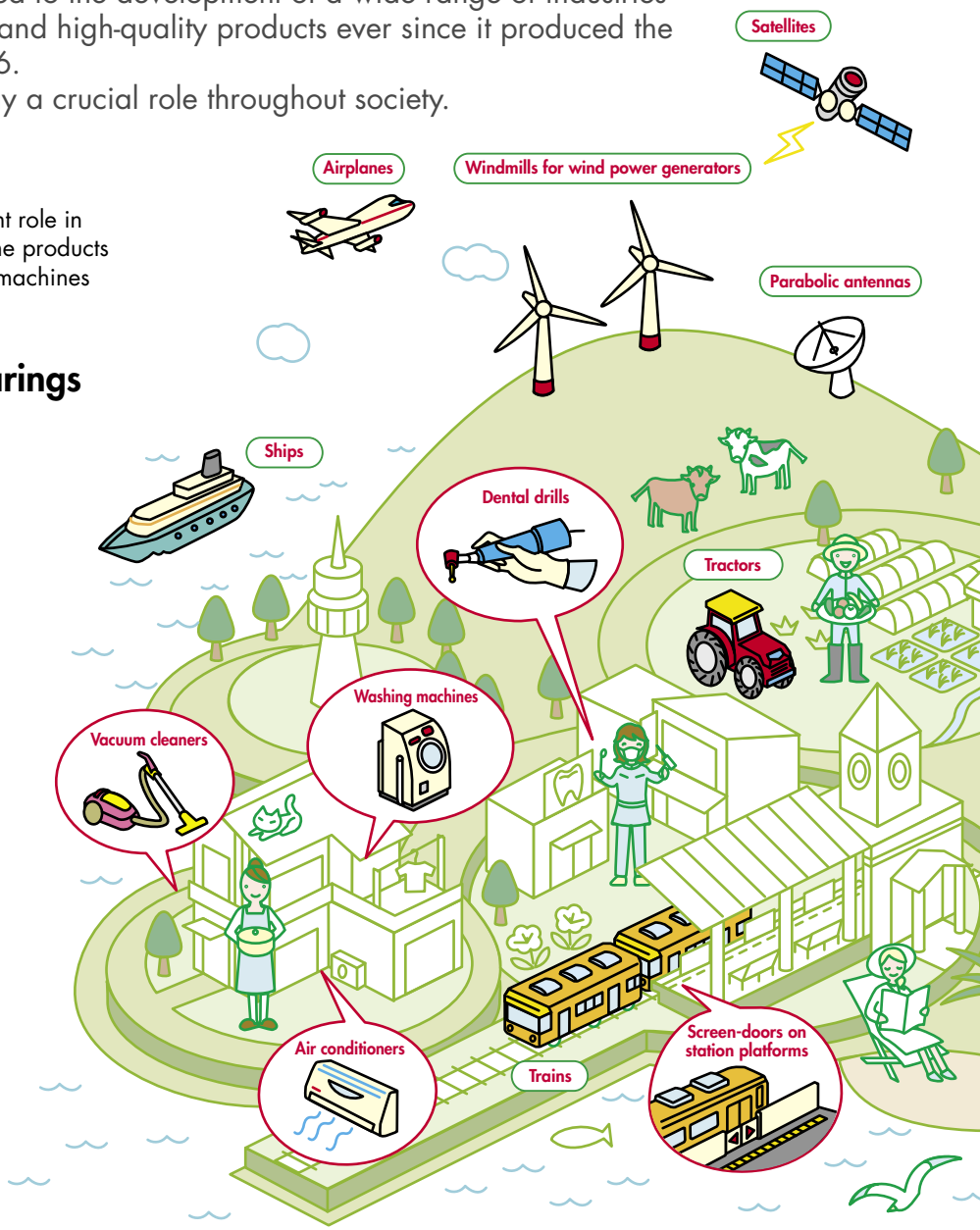
Industrial machinery bearings are components used in machines that have parts which rotate. They reduce friction in the rotating parts and support machines' smooth movement. These bearings are used in various products and machines including home appliances like vacuum cleaners, railway vehicles like Japan's bullet trains, steelmaking equipment, large industrial machinery, airplanes, and satellites.


Bearings used in railway vehicles


Bearings used in steelmaking equipment


Bearings used in machine tools

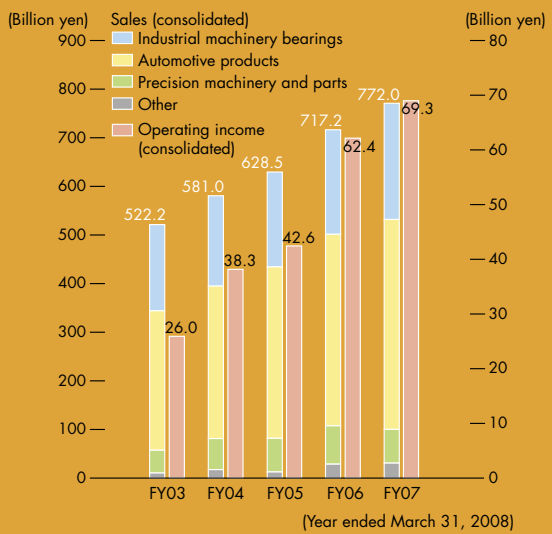

Bearings used in jet engines



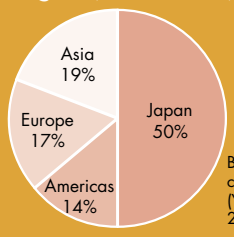
Corporate Overview

Company name	NSK Ltd.
Head office	Nissei Bldg., 1-6-3 Ohsaki, Shinagawa-ku, Tokyo, 141-8560, Japan
Established	November 8, 1916
Capital	67.1 billion yen (as of March 31, 2008)
Net sales	Consolidated: 772 billion yen Non-consolidated: 471.6 billion yen (year ended March 31, 2008)
Employees	Consolidated: 25,069 Non-consolidated: 4,888 (as of March 31, 2008)
Group companies	Within Japan: 23 Outside Japan: 64 (as of March 31, 2008)
Shareholders	24,753 (as of March 31, 2008)

Sales/Operating Income

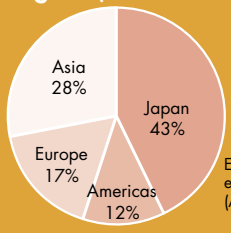


Breakdown of Net Sales by Region (Consolidated)



Based on location of customers (Year ended March 31, 2008)

Breakdown of Employees by Region (Consolidated)



Excluding temporary employees (As of March 31, 2008)

Automotive Products

Of all the categories of NSK products, that for automotive vehicles is the most diverse and widely used. NSK is strengthening its research, development, and production capabilities for the various automotive bearings used in the drive parts that transmit the engine's rotational force to the wheels, and for automotive components such as electric power steering systems. In this way, the Group supports automobile safety, comfort, and fuel efficiency.

Hub unit bearings

Clutch pack for automatic transmissions (AT)

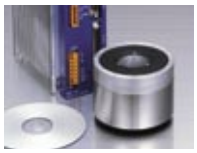
Electric power steering systems

Precision Machinery and Parts

The NSK Group's precision machinery and parts are used as the core components in the machine tools and industrial robots used to manufacture various products, such as automobiles, mobile phones, and personal computers. They are also used in equipment used to produce the liquid crystal displays and semiconductors that are the foundation for the development of IT home appliances and the injection molding machines producing plastic parts. The NSK Group's precision machinery and parts in this segment are crucial for the machines at the front-line of manufacturing, and they contribute to more precise and higher-quality production ability.

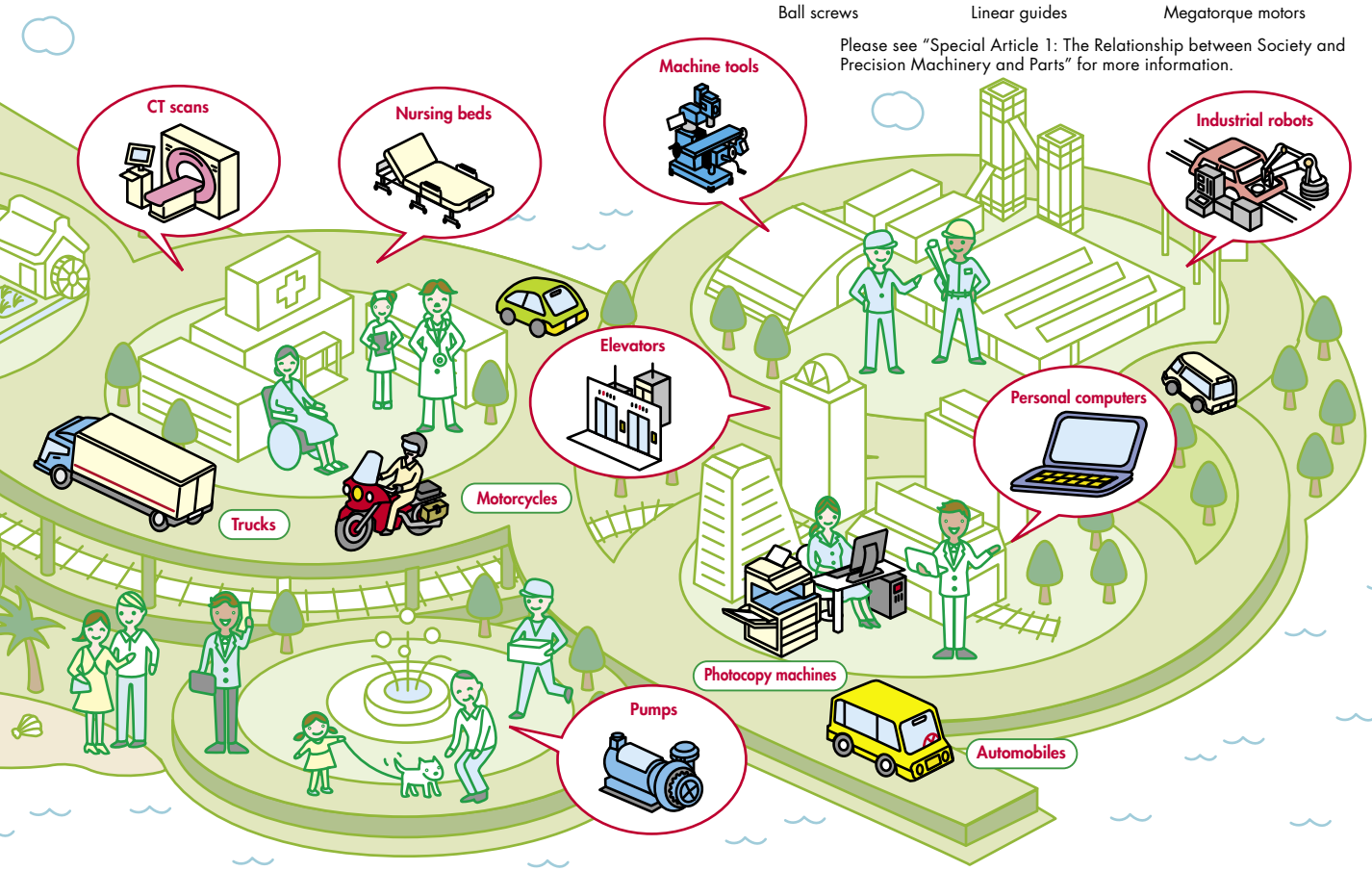
Ball screws

Linear guides



Megatorque motors

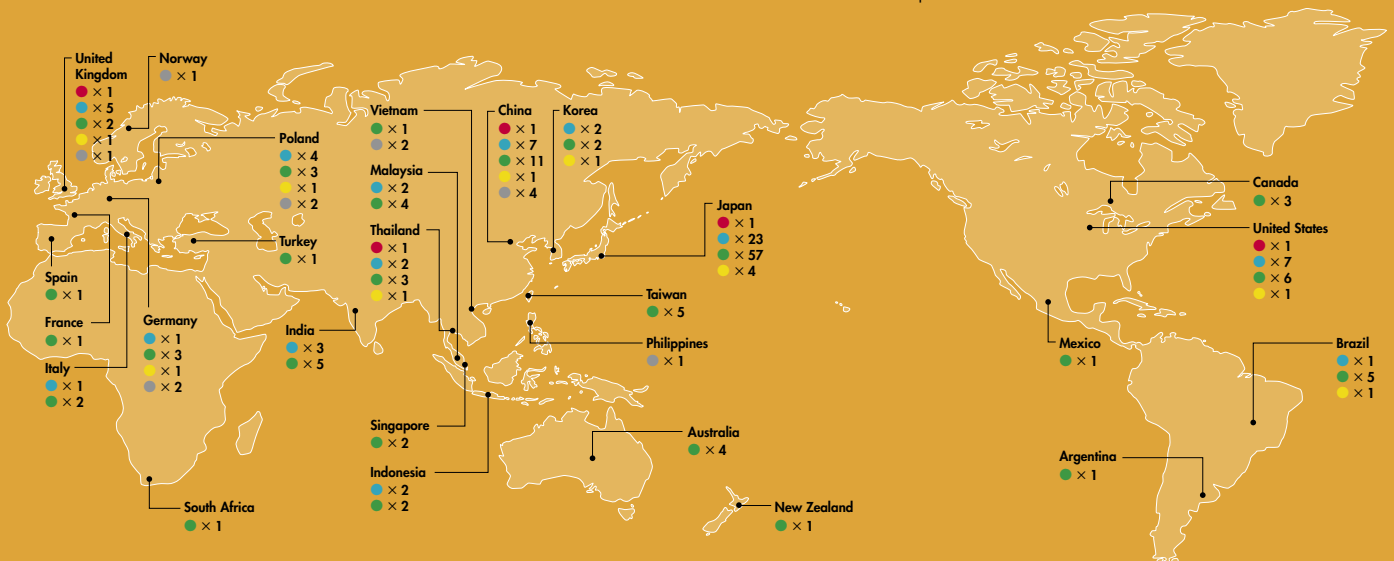
Please see "Special Article 1: The Relationship between Society and Precision Machinery and Parts" for more information.



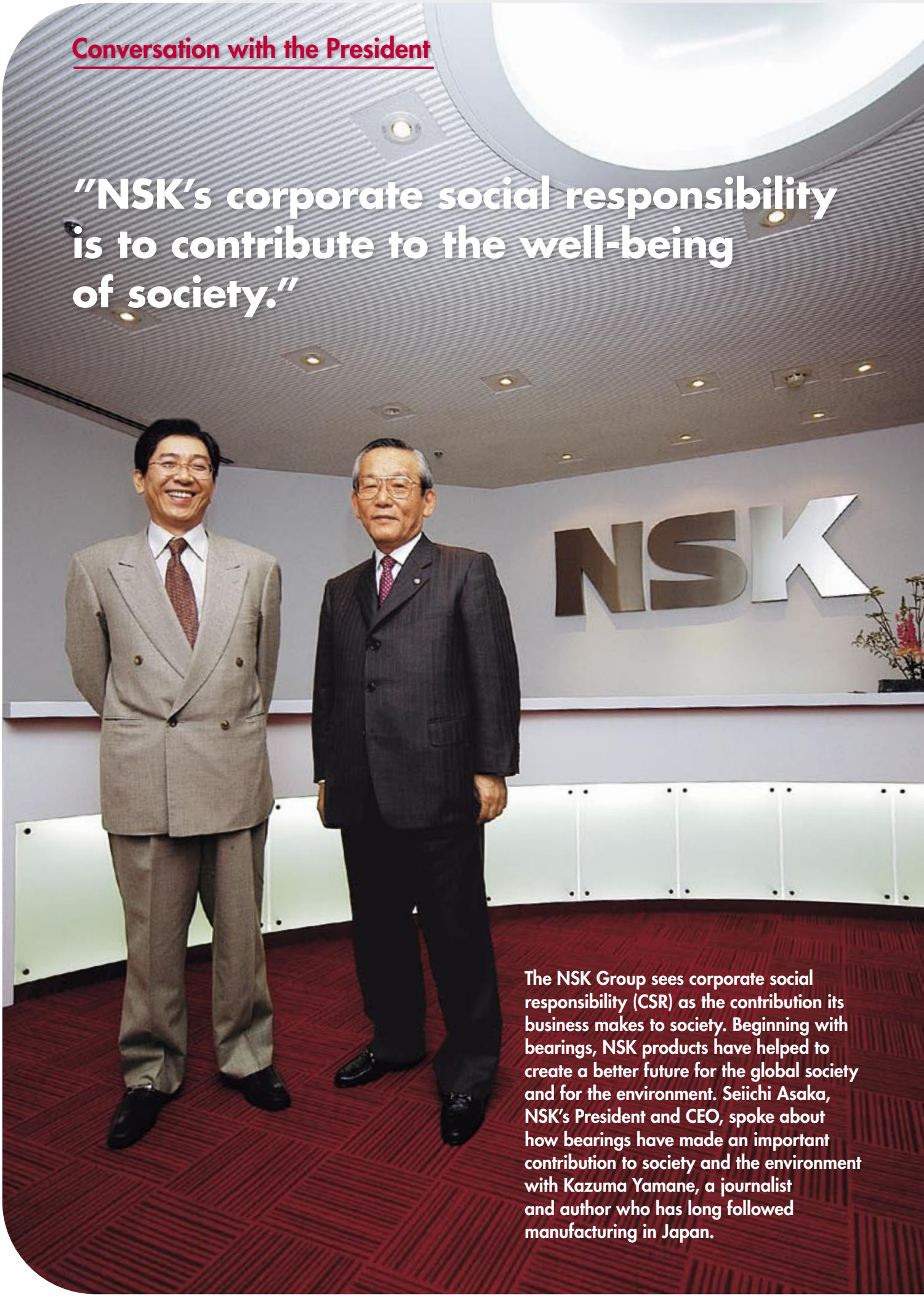
NSK Group Sites Worldwide

60 production sites in 13 countries, 127 sales sites in 24 countries, 12 R&D centers in 8 countries

● Headquarters ● Production site ● Sales site ● R&D center ● Representative office



"NSK's corporate social responsibility is to contribute to the well-being of society."



The NSK Group sees corporate social responsibility (CSR) as the contribution its business makes to society. Beginning with bearings, NSK products have helped to create a better future for the global society and for the environment. Seiichi Asaka, NSK's President and CEO, spoke about how bearings have made an important contribution to society and the environment with Kazuma Yamane, a journalist and author who has long followed manufacturing in Japan.

Supporting Society with "Motion & Control" Technologies

Yamane: Some years ago, I wrote about NSK's technology in my series of articles entitled "*The Spirit of 'Made in Japan:' The Age of the Metal Collar Worker,*" which ran in a weekly magazine. I'll never forget how impressed I was by my findings. Even so, I think the name "NSK" may not be familiar to many people out there. Could you say a few words about what NSK is doing for society?
Asaka: Put simply, we provide "Motion & Control." By integrating these two fundamentals, we are contributing to the safety and well-being of society around the world. This is our mission statement.
Yamane: By Motion and Control what do you mean?
Asaka: When things move, they cause friction. If you reduce friction, things move more easily and the motion requires less energy. Friction is, in short, a loss. The essence of our work is the ongoing quest to reduce energy loss to as close to zero as possible through products such as bearings, automotive products that employ bearing technology, and precision machinery and parts. By pursuing motion and control technologies, we are determined to make a contribution to the global community. We express this determination in our corporate message, "Motion & Control."
Yamane: When it comes down to it, modern society is founded on machines. And almost all machines have rotating parts. Making that motion smooth and precisely controlling it—isn't that NSK's role? In short, hasn't NSK taken on the role of supporting the whole of society? Isn't that a role that will go on forever?
Asaka: Yes, we will always have a contribution to make.
Yamane: There aren't many corporations that can say they fulfill a role that will never end. Mr. Asaka, that is something the world should know about—everywhere you look, NSK is at work.

Everywhere You Look, Around the World

Asaka: Precisely. You can, of course, find our bearings and other products in automobiles, but they are also used in home appliances and Japan's bullet trains—in almost anything that needs smooth motion. In addition, our products are used in the machine tools used to make those products, as well as in the steel and other industries that produce materials for manufacturing.
Yamane: These are the kinds of places one would expect to find bearings, but aren't there many times when people say, "Wow! Even here, there's an NSK product?"
Asaka: Yes, there are. It's well known that many bearings are used in automobiles, but dentists' drills, for instance, contain bearings just a few millimeters in diameter. Bearings eliminate rotation runout, and make it possible to maintain high-speed rotation at 450,000 revolutions per minute. This helps to provide safe, comfortable dental treatment.
Yamane: There are also giant bearings, right?
Asaka: Some are four to five meters in diameter. These bearings are used in the parabolic antennas that receive electric waves from satellites and other celestial objects, and there are also giant bearings in the tunnel boring machines that were used to dig the Channel Tunnel between Britain and France.
Yamane: Those tunnel boring machines are some of the largest machines ever made. I visited the Channel Tunnel after it opened, but didn't know that NSK's technology was used in the tunnel's excavation.
Asaka: In the environmental field, there are many NSK products in the gearboxes of wind turbine generators.
Yamane: I understand that the blades of modern wind turbines can be over 80 meters in diameter. The weight is tremendous, and minimizing rotation loss is a big issue. If the turbines do not rotate smoothly, their

Mission Statement

NSK aims to contribute to the well-being and safety of society and to protect the global environment through its innovative technology integrating Motion & Control. We are guided by our vision of NSK as a truly international enterprise, and are working across national boundaries to improve relationships between people throughout the world.

Management Principles

1. To serve our customers through innovative and responsive solutions, taking advantage of our world-leading technologies.
2. To provide challenges and opportunities to our employees, channeling their skills and fostering their creativity and individuality.
3. To identify the needs of the times and of the future and to use all of NSK's resources to meet those needs by being versatile, responsive and dynamic.
4. To work together with our employees and contribute to the communities in which we operate.
5. To manage our business from an international perspective and to develop a strong presence throughout the world.

Corporate Message

Responsive and Creative
Motion & Control

Corporate Slogan

Beyond Limits, Beyond Today

Profile

Graduate of the Department of German, Faculty of Foreign Languages, Dokkyo University.
For over seventeen years since 1991, Yamane has drawn attention to precision manufacturing in his weekly series "*The Spirit of 'Made in Japan:' The Age of the Metal Collar Worker,*" for which in 1998 he received the Tokyo Creation Award. In 1996, he received an award for distinguished service from Brazil's Para State Assembly for organizing the first international symposium on the environment in the Amazon region. He also worked for many years as a television newscaster for NHK. Among his more recent publications is *Biographies of Metal Collar Workers: Japanese Power—The Era of Toyota as the World's No. 1.*

power-generating efficiency suffers. The wind turbines must also be able to withstand strong winds.
Asaka: With such a large object, maintenance is also a challenge. And reliability is important. Recently, demand for windmills has suddenly risen due to heightened global awareness about the environment. Our people manufacturing bearings for wind turbines are working hard to keep up with the strong demand.
Yamane: Really! The increase in environmental awareness generated so much demand for NSK's products that you are finding it hard to keep up with production.

NSK's Core Business—Kind to the Environment Since its Establishment

Yamane: Has anyone roughly calculated how much energy would be lost worldwide if NSK bearings were not used?
Asaka: A rough calculation was done with vacuum cleaners. By simply replacing the bearings used in the motors of vacuum cleaners worldwide with NSK's low-friction bearings, the annual CO_2 emissions reduction would be equivalent to the CO_2 absorbed by 5.6 million cedar trees every year.
Yamane: Vacuum cleaners alone? Isn't that something! Sites using enormous amounts of energy such as steel mills may make an even greater contribution.
Asaka: To give an example from outside Japan, after installing our products in their steel mill's rolling machines, one of our customers was astonished at how NSK's bearings don't break down.

NSK has adopted the bold role of controlling the smooth motion of the machines that modern society depends on.

Kazuma Yamane
journalist and author

Yamane: What's the surprise, right? That's just the high quality of these products. If a steel mill stops production, the loss would be quite something. And the client's trust would be lost.
Asaka: The customer can be sure of the reliability of NSK products and of a substantial reduction in energy consumption. Improved product durability means less energy loss due to breakdowns and stopped production, and that is precisely the result of NSK having grappled with this issue for so long.
Yamane: When people talk about CSR and the environment, the topic of tree planting and other initiatives outside a corporation's core business comes up, but there should be greater recognition of the contribution that NSK's core business makes to the environment.

The Secret of NSK Management Strength—Manufacturing and Human Resources

Asaka: Naturally, we continue to work hard as a company. One example is energy conversions that reduce CO_2 emissions. We replaced the fuel oil and kerosene that we have been using up to now with electricity and natural gas. We have also organized teams of the production technology managers at all plants to promote Group-wide activities for improving the environment.
Yamane: Improving the manufacturing process itself is also important, right?
Asaka: If you put in enough materials for ten products, it would be nice to get ten products out. But that's nearly impossible. Nonetheless, we are making our utmost efforts to get close to those ten products. We are also trying our best to reduce work-in-process inventories. In the future, we plan to use about five percent of total capital investment for environmental programs.
Yamane: Do you visit the Group's plants?
Asaka: I frequently visit our worksites. For instance, when I visited the Ohtsu Plant in Shiga Prefecture, I gave the younger employees the assignment of shortening the production line. The result was that the production line

Be "No. 1 in Total Quality" and contribute to the realization of an even better society.

Seiichi Asaka
President and Chief Executive Officer

was shortened from 70 meters to 30 meters.
Yamane: By shortening the production line, they improved efficiency, reduced the time required for retooling, and minimized work-in-process inventories. Why did you choose younger employees for that kind of assignment?
Asaka: I left it to younger employees because I want to encourage a Group-wide understanding of the importance of bringing new ideas to our work.
Yamane: Valuing the ideas of younger employees is a good strategy. It's one of the sources of NSK's management strength.

Partnerships with Customers and Suppliers

Yamane: In the past, I think there was a long period in which the strength of an enterprise was determined by the enterprise itself, but what about the businesses that supply materials to NSK, and the businesses to which NSK provides products? Are we now in an age when this kind of upstream and downstream cooperation is important?
Asaka: Cooperation between product and material manufacturers is growing stronger. In the past, there were cases, with automakers for instance, where NSK provided the bearings and other products as single units, but in light of our customers' needs the proportion of unitized products has vastly increased. The collaboration that led to these products affords increased precision, and, in addition, the units are easier for our customers to assemble. Furthermore, because so many of the materials we buy are special steels, we've started to collaborate with suppliers to develop metals at the level of their crystalline structure.
Yamane: Just as I thought. Lately, I've really felt such collaboration can become one of the strengths of Japanese industry, and now I see NSK is already working on this.
Asaka: We've made partnerships with our customers and suppliers, but the challenge we face now is the supply chain. There is still plenty of room for reducing waste in transportation during manufacturing and distribution. To address this, we are taking initiatives such as moving forward with a modal shift* that takes the environment into account.
Yamane: Those initiatives affect the issue of global warming. But, by addressing the issue with measures like geographic consolidation, investments will also increase. Investors will better understand if it is known that infrastructural investment is aimed at reductions in energy losses throughout society.
Asaka: In the past, some among us thought that advertising to the general public was unnecessary because we do not sell directly to end-users. However, it's important to have more people aware of the company, so we are now putting effort into communicating with the public.

* Changing the mode of freight transport from truck and air carriers to rail, ships, and other modes that generate less CO_2 emissions.

For Tomorrow's Global Society and the Environment

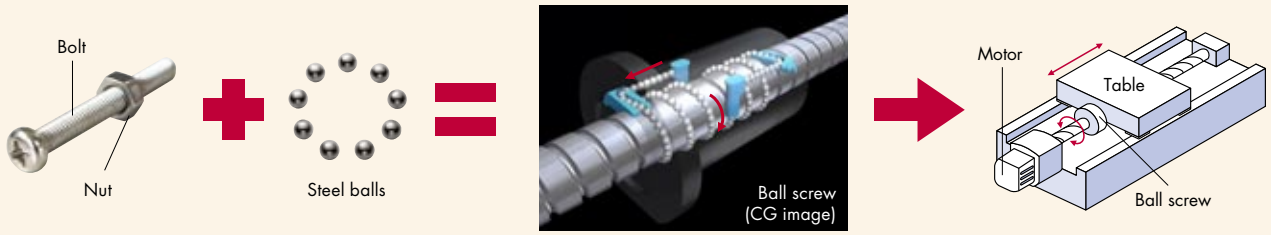
Yamane: How is Japan as a country going to sustain itself in the future? I think we're coming to a time when we will have to think seriously about this. Japan's manufacturing is sound, and technological capability is the best way to resolve the problems that are directly facing humanity.
Asaka: That's exactly right. Through our core business in manufacturing, NSK contributes to the well-being of society and the reduction of various energy losses.
Yamane: I hope you keep up your efforts to earn trust as a champion for the environment.
Asaka: Leave it to us. We will continue to advance along the road of precision manufacturing and push forward with our goal of becoming "No. 1 in Total Quality."
Yamane: Thank you for this uplifting talk.
Asaka: You are welcome. And, thank you as well.

Making People and Society More Prosperous through NSK Products

The NSK Group's precision machinery and parts business has contributed to an affluent society. One reason for this is the ball screw technology that has helped the Group attain a leading market share worldwide. This technology facilitates a smooth and precise conversion from rotary to linear motion. This section provides an overview of the ball screw's simple yet precise mechanism and how it supports society, industry, and precision manufacturing.

Ball Screw Construction and Performance

The nut moves rapidly and accurately with the spinning of its screw shaft. Why is it that ball screws make such a significant contribution to creating a more convenient and prosperous world?



First, imagine a typical nut and bolt. Imagine holding the bolt in one hand, and screwing the nut back and forth along the bolt with the other hand. The nut's rotational motion is converted into linear motion. This is the same principle as a car jack. With a regular nut and bolt, though, there is a degree of play and the bolt does not screw on and off so smoothly, a factor that makes its motion less precise. To reduce friction and make the motion smoother, steel balls are inserted in a spiral raceway between the nut and bolt to make it a "ball screw." If these balls were simply sandwiched between the nut and bolt, though, they would fall out one by one. To prevent this, a passage is provided within the nut itself that allows the balls to continue moving indefinitely by returning them to the nut's feeder as they reach the end of the nut. This allows both smooth motion and, because there is almost no play in the mechanism, precise motion as well.

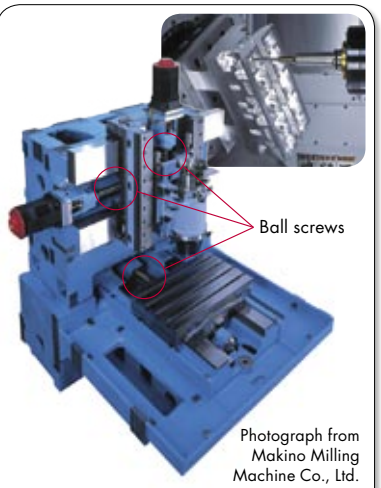
Usually installed in machines, the ball screw is typically used as part of a table together with a motor. By smoothly and precisely moving the table back and forth, this ball screw technology facilitates fast delivery for efficient production and a complex series of motions at the precision manufacturing worksite.

NSK's Ball Screws at Precision Manufacturing Worksites

NSK Is Supporting Industrial Development and Contributing to a Prosperous Society

Between the 1950s and 1970s, Japan achieved rapid economic growth along with scientific and industrial development to become a world leader in manufacturing. The TV set, washing machine, and refrigerator that were once known as the "three treasures" of the Japanese household, and later automobiles as well, were coveted by ordinary people, gained popularity, and were subsequently mass-produced. Since those days, these products have advanced to become safer, easier to use, and more environmentally friendly, and as a result, people's lives have become easier and more prosperous.

Amidst these developments, the numerical controlled (NC) machine tool appeared; this is a machine that has advanced the rapid manufacture of complex parts. And, at the heart of these NC machine tools are NSK's ball screws.



Photograph from Makino Milling Machine Co., Ltd.

NC Machine Tools
An NC machine tool operates according to a predetermined program in the computer controlling its motion. In this way, a single machine can perform intricate manufacturing processes.

Ball Screws in Mass Production of Automobiles

The automobile is an example of a product where the performance of NC machine tools has achieved dramatic advances. An automobile's body is made from sheet metal stamped in a press die. For each type of vehicle, a manufacturer must make many precise and intricate press dies. Each vehicle is said to use between 20 and 30 thousand machine parts so there is also a need to mass produce intricate, high-precision parts.

A computer controls the motion of NC machine tools, moving the cutting tools or the object being cut—or both—in six directions to work in a complex three-dimensional manufacturing process. With its smooth motion, the ball screw assembled in the drive mechanism of these NC machine tools allows their speed and stopping position to be accurately controlled. In this way, the ball screw has increased precision in manufacturing, and contributed to the mass production of automobiles, leading to advances in vehicle quality and environmental friendliness.

HMD Series Ball Screw for High-speed Machine Tools
The HMD Series contributes to high-performance machine tools with greater acceleration, and which are stronger, quieter, and have a longer service-life.

Manufacturing to Meet the Needs of Society

Currently, people's needs are diversifying. Accordingly, product performance and design are also becoming more specialized. To respond to these needs, NSK is continuing to supply high-precision ball screws that further contribute to prosperity.

Ball Screws and Machine Tools: A Relationship of Trust Improves Product Quality

Tatsuaki Aiba

Director,
Executive Manager,
Production Division,
Makino Milling
Machine Co., Ltd.

Makino Milling Machine Co., Ltd., introduced to the market the first made-in-Japan numerically controlled (NC) milling machine in 1958. The company has made machine tools since it was established in 1937. It has also developed new manufacturing technologies and makes machine tools that utilize those technologies. The company is continually evolving to meet the needs of its customers.

For intricate and high-precision manufacturing, it is necessary to control machines extremely accurately. Like the human body, a machine tool also needs to respond immediately to electronic stimuli and to be able to move exactly according to the commands it receives. The ball screw powers the "muscle" that moves the body. A very precise ball screw is essential for intricate and high-precision manufacturing. If a ball screw malfunctions, then the machine tool does not work. For these reasons, ball screws are core parts that must be both precise and reliable.

When machine tools are pushed to the limit, ball screws can suffer unanticipated damage. On such occasions, Makino receives invaluable assistance from NSK technology and know-how. It is mutually beneficial when we can state, "This is what we'd like to do," and NSK has the technology to offer a solution. Makino is looking forward to the development of even more reliable ball screws.

Meeting the Needs of the Information Society

The Challenge of Miniaturization and High-Precision for an Advanced Information Society

Astounding Performance and Information in the Palm of Your Hand

About twenty years ago, the first commercial mobile phones were so large that they had to be slung like a bag over one's shoulder. Ten years on, these devices had evolved into pocket-sized and truly mobile phones. Today, they are packed with technologies such as hi-tech digital cameras and Internet access, all in a handset that is so small it can fit in the palm of one's hand.

Supporting these functions are silicon chips that process large amounts of electronic data. Several silicon chips with circuit line widths, and with a size in the range of tens of nanometers,* run each mobile phone and enable their various functions.

*One nanometer is one billionth of a meter.

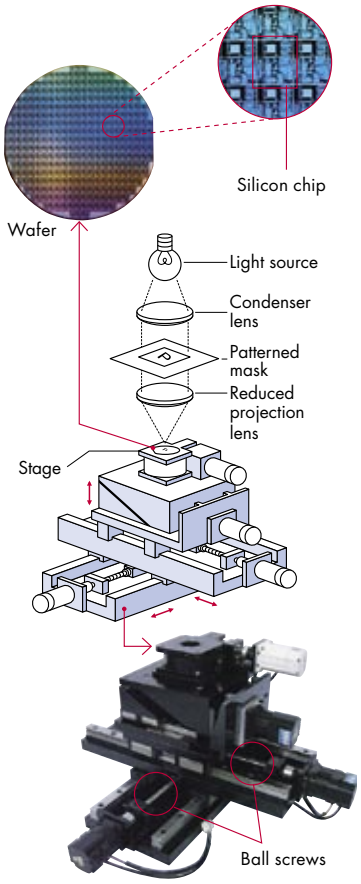
Precision Manufacturing Is the Key to High Performance

There are between ten and 100 million circuits on a single silicon chip. And, a silicon chip's processing capacity increases if more circuits can be added to the chip. In other words, the key to high performance is to maximize the number of integrated circuits that can be put on a silicon chip. NSK's ball screws support this kind of precision manufacturing.

The manufacturing process for silicon chips requires a method that uses a high-definition lens to print layers of circuit patterns without the slightest deviation. The patterns are then photo masked onto a silicon semi-conductive material called a wafer. In order to do this, ball screws must have the capability to repeatedly and accurately move the wafer to a set location. As the number of circuits per chip increases, thanks to NSK's high-precision ball screws, semiconductor manufacturing equipment will be capable of production on an even more microscopic scale.

Contributing to an Information Society by Sowing the Seeds of New Technology

This is an age of ubiquitous information. As intellectual curiosity has grown, the NSK Group has extended its technological know-how, developed in the machine tools field, to the electronics field. The Group desires to benefit people and contribute to a sustainable society. With this in mind, the NSK Group works behind the scenes to underpin the information society.



Precision Positioning Table
Silicon chips are made with an exposure device whose stage uses a precision positioning table. The latest devices achieve positioning with an accuracy in the range of a few nanometers by moving the table minute increments left and right and forward and backward, as required.

Meeting Directly with Customers and Understanding their Needs

Hideyuki Sato
Manager, Ball Screw Technology Department, NSK Precision Co., Ltd.

Most of our precision machinery components are made to order. The job of a development engineer is to communicate with customers and get a grasp of the product capability they are seeking. The engineer can then offer the best, most up-to-date solution. As a matter of course, it is necessary to visit the customer's facilities, to understand how they use our products for their machines, and to anticipate the kind of capability and precision that will be required for the next phase of development.

We customize for specific customers and are also charged with the task of designing new product line-ups that look to the next phase of development. Precisely because so much of this design and development is made to order, effective utilization of previous customer requests and our accumulated solutions are important assets for the company. Although we are routinely busy with demands to resolve conflicting design and development problems, we are also striving daily to give shape to the ideas of young engineers through the sharing of the knowledge and wisdom of the staff in our own and other departments.

Expanding NSK's Activities into the Medical and Social Services Arena

Fostering Technology in the Medical Field

The NSK Group contributes in various industrial fields to shape a prosperous future. The company is expanding from the arena of industrial manufacturing, into medical and social services that are closer to people's daily lives.

During a CT scan used in full physical examinations, for instance, a patient lying on the bed is moved smoothly, with high precision, and X-rayed through 360-degree scanning in a tomographic examination.

During such scans, it is NSK's ball screw technology that meets the need for smooth, quiet, vibration-free motion that is non-intrusive for the patient.

Easier and More Expedient Advanced Examinations

Methods of examination are improving and diversifying with advances in medical technology. Advances in computer-controlled, automated examination instruments are making it possible for even more people to receive fast and sophisticated examinations.

The handling of specimens by automated examination instruments is an important example of technology being involved in people's lives. There is growing expectation for controlling technologies that carefully move specimens with the high-precision and smooth motion of ball screws and at the same time quickly and accurately perform examinations.

Meeting the Challenge of Bringing Prosperity

Reliability is the most highly valued characteristic for machines working in the medical field, where lives are at stake. To provide the vital machines that people's lives depend on, the NSK Group is constantly focused on delivering higher levels of product reliability.

The NSK Group is also striving to develop quiet and environmentally friendly products in consideration of the need for such technology in the medical field.

Ball screws smoothly and accurately convert rotary motion to linear motion. In the future, the NSK Group will bring this technology even closer to hand. From now and into the future, while listening to the needs of society, the Group will continue to pursue technologies that realize prosperity for all.

Photograph from Sysmex Corporation

Blood Analyzer (Automated Hematology Slide Preparation Unit)
This device automatically prepares the blood samples necessary for blood analyses. A ball screw incorporated into an actuator is used to slide the Smear Unit which makes the blood smear samples. Because this is an analytic device affecting the quality of medical care, NSK products must be reliable and durable.

BSS Series of rapid, quiet ball screws
The BSS Series of ball screws are quiet, low in vibration, and capable of high speeds. Their future application in the medical and welfare services fields looks promising.

Recognized as a high-speed and quiet technology, the BSS Series was awarded the 2008 Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology (Development Category).

Robot guide dog currently under development

Sowing the Seeds for Future Technology

Koichi Morita
General Manager, Emerging Technology Research Center, Mechatronics Technology Development Center

The Mechatronics Research and Development Center develops new products employing all of the technologies the NSK Group has accumulated.

Currently the Center is steadily moving forward with its realization of a DNA chip. It is said that medical treatment tailored to people's genetic characteristics will be possible in the near future. To achieve this, however, it is necessary to develop a technology that can extract genes from individual cells. The DNA chip being developed at the Center is intended to extract genes from a single cell.

Another product the Center seeks to develop is a robot guide dog. This robot will have the ability detect the topography of its environment with its sensors. The robot will move autonomously and is an attempt to realize the real meaning of the term human assistance. This kind of research focuses on technologies that contribute to people's prosperity through "Motion & Control" as denoted by the NSK Group's corporate message.

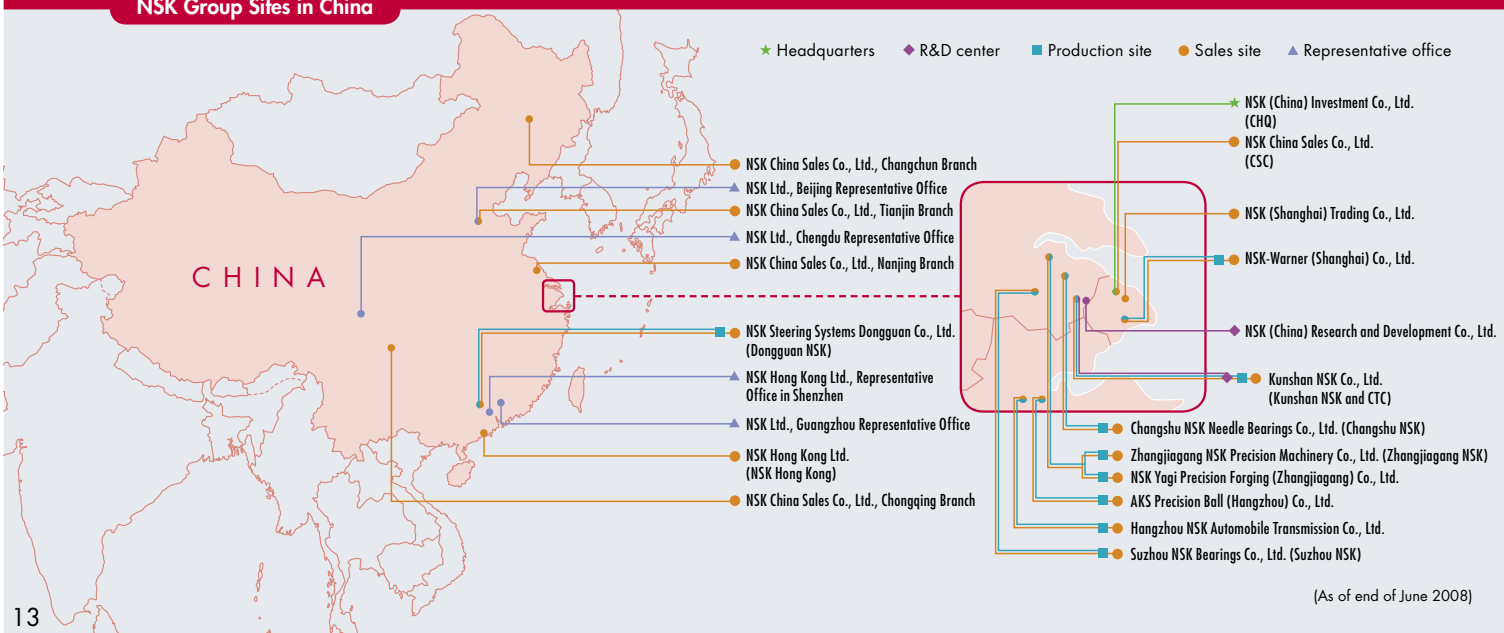
Contributing to a Prosperous Chinese Society through Precision Manufacturing and Human Resources

China's economy is developing at a remarkable speed. Along with this development, people's lifestyles have also been rapidly changing.

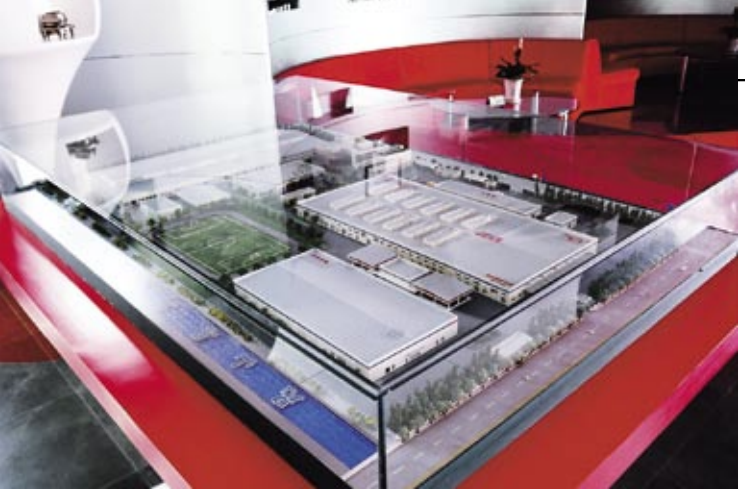
The NSK Group has been working to strengthen China's economy and improve its peoples' lifestyles through products such as bearings—the building blocks of industry.

NSK contributes to a prosperous China by offering both high-quality products and fostering human resources through education and technology transfers.

NSK Group Sites in China



(As of end of June 2008)



Kunshan NSK lobby

Enhancing the Presence of China Sites within the NSK Group

The NSK Group is contributing to local community development and to a safe, comfortable, and sustainable society that has minimal impact on the environment. This is a part of the NSK Group mission.

The NSK Group and its 4,000 employees in China, which has grown to become a major presence in the world today, are working hard together to realize this goal.

The NSK Group has a considerable presence in China: nine plants, 16 sales sites (including Hong Kong), four representative offices, research and development centers, and the managing China Headquarters (CHQ). Together these facilities generate eight percent of the Group's total sales. In the future, the importance of these sites in China to the NSK Group is likely to continue growing.

Establishing a Business Foundation by Utilizing the Best in Both China and Japan

While China's economy has experienced particularly rapid growth since joining the WTO in 2001, the NSK Group had already been focused on the development of Chinese society for a number of years prior to this. In 1995, NSK established the joint manufacturing and sales company Kunshan NSK Hongshan Co., Ltd., in partnership with a Chinese state-owned corporation. (The company became a wholly owned subsidiary in 1999 and is the current Kunshan NSK Co., Ltd.) In just three and a half years from 2002, NSK established seven more manufacturing companies in China. From the outset, Chinese employees were active in establishing these companies, and they are now exercising their skills as senior managers in China.

There are a wide variety of products made by NSK Group companies in China—from ball bearings (Kunshan NSK) to roller bearings (Suzhou NSK), bearings for automobiles (Kunshan NSK and Changshu NSK), steering products (Dongguan NSK), and even the pre-processing of bearing parts (Zhangjiagang NSK).

The NSK Group is incorporating effective practices from both China and Japan in production, sales, technology, and management, and is aiming for further growth.

Also "No. 1 in Total Quality" in China

When the NSK Group expanded into China, the widely held view was that there were problems with the quality of Chinese products. However, the Group put considerable effort into the area of product quality, and from the first stages of manufacturing, it was shipping products of the same quality as those made in Japan. Along the way, the Group earned a solid reputation for product quality through practices like conducting thorough product testing and providing customers with technical explanations. Initially, Japanese employees oversaw product improvement activities, but today Chinese employees largely initiate these activities on their own. At Kunshan NSK, employees understand, resolve, and evaluate production problems through each section's APS activities.*1 Similarly, Suzhou NSK established product quality improvement campaigns aimed at raising all employees' awareness of product quality issues.

*1: APS (Advanced Production System) activities aim to eliminate *muda*, *mura*, and *muri* (waste, unevenness, and overburdening) as well as to improve quality management technology and management practices.

Product quality improvement campaigns in Suzhou NSK

Developing Human Resources

The concept of global human resources undergirds the progress of operating sites in China. The NSK Group had grown by applying the advanced precision manufacturing technology that were cultivated in Japan. In China, however, the Group encountered considerable difficulty due to the high turnover of employees in the early days. With China's remarkable economic growth, many employees changed jobs, seeking positions that better corresponded to their abilities. The company was losing excellent employees that it had spent much time training. In short, the Japanese management view that "patience is a virtue" did not translate well in China.

Earning Trust and Respect

Tan Dilun

Vice-President, NSK (China) Investment Co., Ltd.

President, NSK China Sales Co., Ltd.

Since joining NSK in 1989, I have worked in various positions in different NSK locations, from the plant to the corporate office and to operations outside Japan. In 1995, I took part in the planning of what was then called the NSK China Project. Working on this project, I found myself in a dilemma: I was caught between the corporate cultures of China and Japan, as well as that of the Chinese government. Much to my dismay, my familiarity with these cultures worked to my disadvantage. I remember being asked, "Which side are you on?" by both Chinese and Japanese.

Today, the NSK Group has grown into a large and successful operation in China. We are currently initiating human resources training and development to make NSK China "No.1 in Total Quality" in the marketplace. I would like our customers to have complete confidence in our product quality, its value, and our service. We strive to make the NSK Group a truly global corporation that makes full use of the power of local Chinese in technology, production, sales, and management. Making the Group a respected corporate citizen trusted by both the market and the community is the dream and the goal I have for NSK.

In response to these difficulties with employee turnover, the NSK Group radically changed its approach. It introduced practices that were more appropriate for China, assigned work that corresponded to an employee's actual abilities, and appointed local employees to positions of responsibility. As a result, there were soon many non-Japanese employees in management positions with, for instance, 42 of the 45 management positions at Kunshan NSK being held by Chinese employees. Employee turnover has also fallen, and the staff is highly motivated and working enthusiastically.

The Group has also established manager training sessions, where the knowledge needed for management is disseminated, fostered in-house trainers, and introduced education in such fields as production, sales, and finance for a variety of employees. With these measures, the Group is putting much effort into the systematic development of its human resources.

A Vibrant Workplace

Human resources are crucial for precision manufacturing. High-quality personnel make high-quality products. The NSK Group has initiated various measures to develop excellent personnel who are highly motivated in their work.

Changshu NSK holds regular education and training programs, seminars, and other events at its education center. The company also conducts 3-3-3 training,*2 a "Skills Olympics,"*3 and a "Konichiwa Campaign."*4 The company has introduced a formula for linking results and rewards: bonuses and pay increases are tied to participation in company training and events. Each employee has an incentive to participate and become a better employee, while also having a good time.

Dongguan NSK's education drive includes teaching Japanese and computer literacy with the goal of improving career opportunities. In addition, benefit programs like improving conditions in the company's employee accommodations are being implemented. In February 2008, the local government recognized Dongguan NSK, as a "Satisfied Employee Company." To encourage employees to work with enthusiasm, it is important to ensure a safe and comfortable workplace.

Zhangjiagang NSK's education drive includes safety and disaster response activities, and, in fiscal 2007, the company was selected as a "Safe Producing and Advanced Corporation" by Zhangjiagang City. The company is moving forward with its creation of a corporate culture where local employees can enjoy working and are encouraged to gain even more skills through a company educational system, inspirational activities, and workplace improvement programs.

*2: System of sending production line employees, engineers, and managers to Japan for training periods of 3 days, 3 months, and 3 years. The aim is to increase skill levels and motivation by having personnel engage with Japanese employees, as well as learn the Japanese language and technical skills.

*3: A friendly competition testing employees' speed and accuracy in various skills like inspecting bearings.

*4: A greeting campaign to welcome employees and customers at company facilities.

3-3-3 seminar at Changshu NSK

Changshu NSK employees carrying out a "Konichiwa Campaign"

Computer education for group leaders at Dongguan NSK

Zhangjiagang NSK selected as a "Safe Producing and Advanced Corporation"

Acting on "Harmony Amidst Differences" Changes Thinking at the Worksite

Chen Ming Zhen

Supervisor of 3rd Manufacturing Section, Changshu NSK Needle Bearings Co., Ltd.

In January 2005, I joined Changshu NSK as one of the company's inaugural employees. In September that same year, I became a supervisor overseeing the polishing process.

One of the difficulties at work is the different thinking between Chinese and Japanese and bridging this cultural gap. I noticed this, for instance, when I went to Japan in 2007 for training. The Japanese employees are very diligent: when asked to perform a sampling inspection every ten minutes, they did as instructed. In the case of Chinese employees, though, there is a tendency to try and first understand the reason for or thinking behind an action before following through on it, so a clear explanation is necessary.

My goal right now is to improve my Japanese. If I can speak the language, I will be able to better understand both nationalities' ways of thinking and to explain the Japanese way to Chinese people in the workplace. I think it will also help me grow as a person.

Relief Money Donated to the Victims of the Great Sichuan Earthquake

The NSK Group, as a whole, contributed 30 million yen in funds for relief and reconstruction efforts following the Great Sichuan Earthquake, which occurred in May 2008. The Group's China sites also collected 173 thousand yuan (approximately 2.6 million yen) in employee donations and 113 thousand yuan (approximately 1.7 million yen) from corporations in China. In addition, the NSK Group, the NSK Labor Union, and the NSK Welfare Fund in Japan are engaged in donation activities to collect contributions from company employees.

NSK and its employees feel deep sympathy for the victims of the earthquake and sincerely hope for the swift recovery of the people and areas affected by the disaster.

Technology Transfer and Contributing to China's Development

Production, marketing, and technology are said to be the essential factors of economic development. Technology is important for its influence on the course of the other two factors. The NSK Group is advancing its technology transfer and promoting localization, whereby production, sales, and the development of technology are all conducted within China itself. NSK (China) Research and Development Co., Ltd., which was established in April 2008, is anticipated to be the NSK Group's flag-bearer for this localization. Currently, the basic design of products and related activities occur in Japan. However, the NSK Group is seeking to complete product design, assessment, production, and sales from beginning to end, all in China, in order to meet the needs of the expanding Chinese market more rapidly. In addition, the NSK Group also has high expectations for NSK (China) Research and Development because of the capabilities of the Chinese engineers it has cultivated. The activities of the China operating sites in the NSK Group are positioned as a strategic move to develop businesses that are owned and operated by Chinese people, for Chinese people.

Aiming to Become a Global Corporation with Local Roots

The NSK Group would like local people to understand the activities promoted by the operating sites and to have the Group develop together with local communities. The CSR study session that was held at the Shanghai headquarters in March 2008 was a first step in realizing this aim. At this event, executives at the China operating sites and the CSR managers assembled and engaged in lively discussion about what can be expected in China and what kind of CSR should be pursued.

In sum, the Group promotes the concept of local people making products for local communities. And, while nurturing trusting relationships with the local communities it helps to support, the Group is moving forward with its aim of being a Globally Excellent Company.

CSR study session at the Shanghai headquarters

Japanese language education in CTC

Appreciation for the NSK Group's Efforts to Develop Kunshan City through Community-Based Activities

Guan Aiguo
Mayor, Kunshan City,
Jiangsu Province, China

Kunshan is known as an area that prospered in ancient times as the center of the Kingdom of Wu during the Three Kingdoms Period. Today, Kunshan is home to nearly 6,000 companies from around the world, and even by China's rapid growth standards the city has experienced remarkable development as a leading industrial city.

Since NSK opened NSK Kunshan Co., Ltd., in 1996, the company has played a large role in Kunshan's development.

In appreciation of the company's contribution and sincere management, NSK Kunshan was selected as the Best and Leading Foreign Investment Corporation in Kunshan City for Fiscal 2007.

Kunshan City has developed as a production center for many corporations, but now the city is also attracting highly skilled people from all over China and is expanding as a technological center. Contributing to this expansion is NSK's China Technology Center (CTC), which has been recognized by the national government as a Post-Doctoral Working Station (a research center for doctoral students who have completed their coursework). With this center, the NSK Group is working with the city administration's project to attract top researchers for the future.

From technological development to production and sales, the NSK Group has made an effort to develop Kunshan City by rooting its activities in the local area. I truly appreciate this effort. I hope that the Group will play a large role in the cooperation and communication between China and Japan and in Kunshan City's continued development. Let us together open the way to a bright future.

Response Measures to Large-scale Share Purchases

The following is an explanation of the major points regarding the "Response Measures to Large-scale Purchases of the Company's Shares (Takeover Defense)" approved by shareholders at the June 25, 2008, Annual Shareholders' Meeting. The NSK Group would like to introduce these measures because they are extremely important for NSK shareholders and for all stakeholders.

The NSK Group's Mission

The NSK Group is built upon mutual relationships of trust with all its stakeholders. The NSK Group believes that the Group's mission is to enhance its corporate value by devoting itself to its main business, while fulfilling its social responsibilities to all stakeholders by keeping its operations optimally balanced in all aspects: society, the environment, and the economy.

Toward Achievement of the Mission

In order to achieve this mission, NSK has set out a vision for its three-year mid-term plan (fiscal 2006 to fiscal 2008) "To Become No. 1 in Total Quality." This encompasses the quality of all services in addition to the quality of products, which is the foundation of NSK Group's reputation as a manufacturer. To effectuate this vision, the entire Group is working on a variety of business issues. The NSK Group is aiming for profitability-focused growth and striving to become a company that is competitive, regardless of its scale. This is centered on the two core policies of driving forward with growth strategies and profitability enhancement.

Furthermore, while aiming for sustainable growth, NSK has built a corporate governance structure which aims to increase the transparency and soundness of management—through, for example, the independent director system, which was introduced relatively early in 1999.

Please refer to "Corporate Governance" on page 19 for more details.

NSK's View of Large-scale Share Purchases

NSK intends to fulfill its mission in the aforementioned ways. However, if a large-scale purchaser initiates a sudden purchase without providing sufficient information or time, shareholders may not be able to make accurate judgments on the matter. Furthermore, the NSK cannot rule out the possibility that some of these large-scale share purchasers may have no intention of managing the company in a reasonable way, and this could make it difficult to achieve NSK's mission to enhance its corporate value.

As noted in the 2007 CSR Report, NSK believes that decisions regarding large-scale share purchases should be ultimately left to the judgment of shareholders.

Since its foundation in 1916, the NSK Group has consistently supplied the world with bearings (commonly called "the staple of industry"), automotive products, and precision machinery and parts. NSK is advancing its business by building up abundant experience and a wide range of in-depth expertise based on its long history, and by deepening relationships with stakeholders. NSK believes that management based on a proper understanding of these factors is essential for sustainable growth in the future.

Given these management policies, NSK believes that if a large-scale purchase of NSK's shares is commenced, it is important to prevent damage to NSK's corporate value and its shareholders' common interests. There is a need to ensure that the board of directors can secure sufficient information and time to evaluate and examine the purchaser's proposal, form an opinion, and elaborate alternative proposals. Only then can the shareholders make an appropriate judgment with regard to the purchase, by reaching a sufficient understanding of the proposals and opinions of both NSK's board of directors and the purchaser.

Introduction of Response Measures

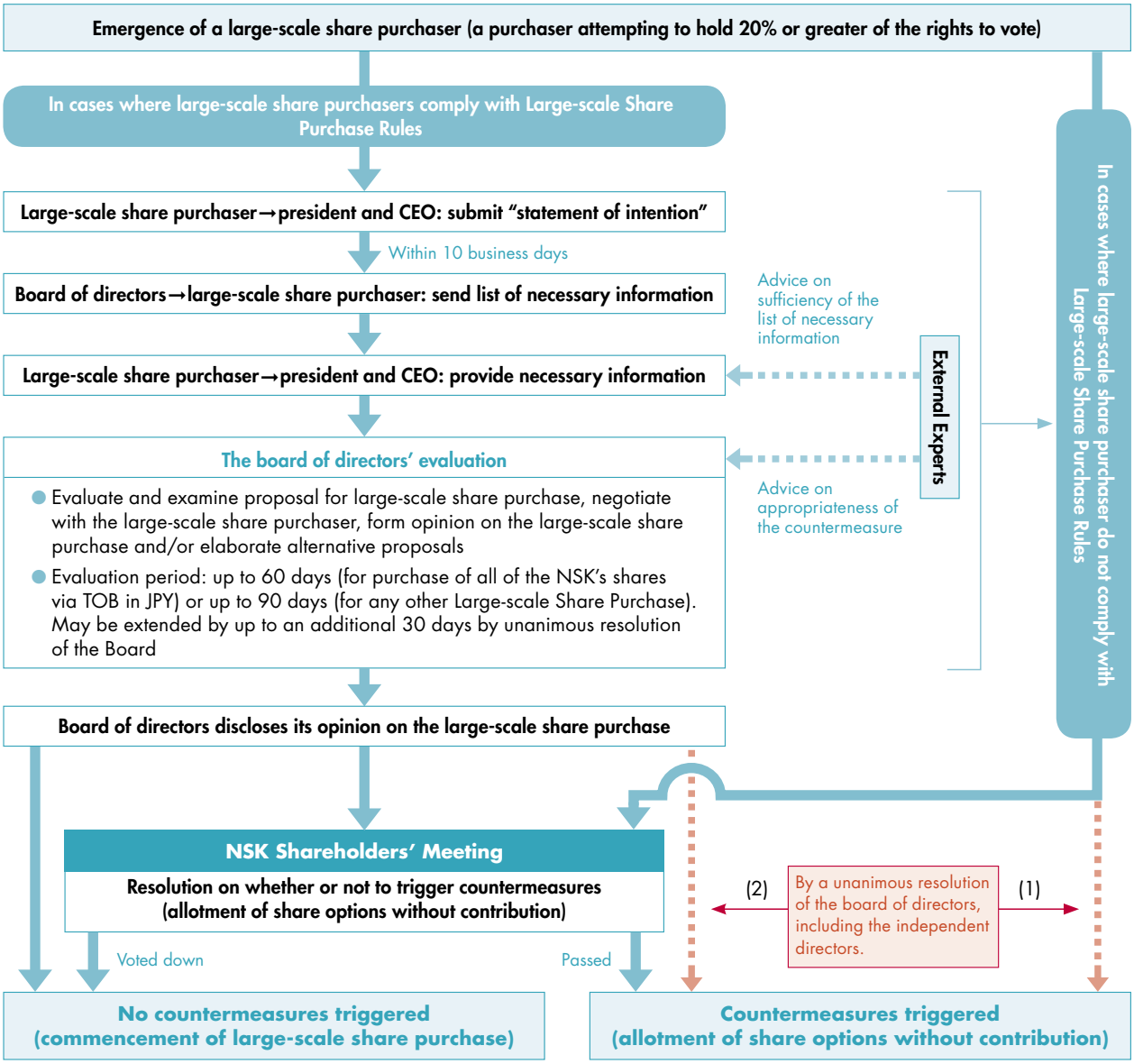
For the above reasons, NSK established the "Basic Policy regarding Persons Controlling the Company's Decisions over Financial and Business Policies" by resolution of the board of directors meeting on April 23, 2008. By obtaining approval from its shareholders at the Annual Shareholders' Meeting, it introduced response measures applicable to a purchase of NSK's shares exceeding a certain scale.

Substance of the Response Measures

NSK's response measures are not intended to block all large-scale share purchases; they stipulate certain rules that apply when a large-scale share purchaser conducts a purchase. For example, NSK will require the purchaser to comply with procedures stipulated in advance. Regarding whether or not NSK should trigger countermeasures, as a general rule, the company will hold a Shareholders' Meeting and ask the shareholders to make that judgment. However, such countermeasures can be triggered by a unanimous resolution of the board of directors, including the independent directors, only in exceptional situations where a large-scale share purchaser does not comply with the Large-scale Share Purchase Rules or when such large-scale purchase falls under certain limited conditions (Figure 1).

NSK believes that these response measures sufficiently respect the will of shareholders and investors as well as satisfy transparent and objective conditions.

Figure 1 **Flow Chart of Response Measures**



The board of directors of NSK may trigger countermeasures in the following cases:
Provided however that, this decision to trigger countermeasures must be made by a unanimous resolution of the board of directors, including the independent directors.
(1) When the large-scale share purchaser does not comply with the Large-scale Share Purchase Rules.
(2) When the large-scale share purchase falls under one of the four categories identified by the High Court in the Nippon Broadcasting System, Inc. takeover case, or a coercive "two-step purchase," and such large-scale share purchase would materially harm the NSK's corporate value and its shareholders' common interests.

Please see the following web page for more information on "Investor Information":
http://www.nsk.com/investors/more-history.html

Corporate Governance

The NSK Group is reforming its management structure in line with its belief that corporate governance is an important management issue and is also the cornerstone of CSR.

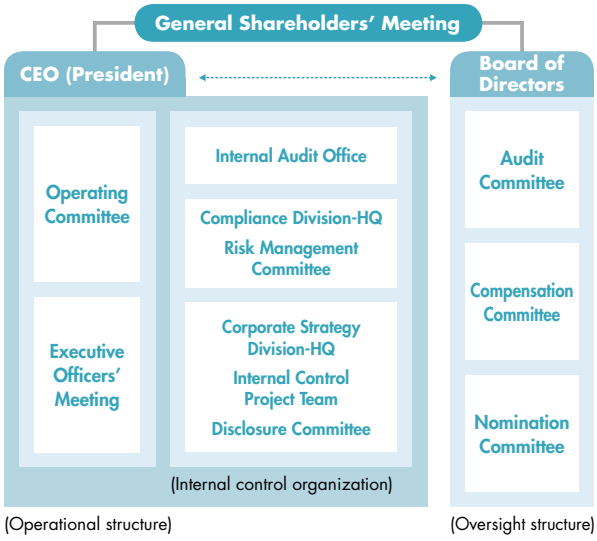
Corporate Governance Approach

The NSK Group defines corporate governance as a structure by which its executive organization can focus on business expansion and profitability improvement under the supervision of the Board of Directors. The Group strives to strengthen its corporate governance to enhance both the flexibility of its management and the effectiveness of management supervisory functions.

Corporate Governance Framework

NSK operates under a "company with committees" system. There are three committees in charge of auditing, compensation, and nomination, and each consists of two independent directors and one internal director. The CEO makes all final decisions following deliberations by the Operating Committee. The Executive Officers' Meeting functions as a forum to share information among management on matters such as the direction of business development (Figure 1).

Figure 1 Governance Framework



Strengthening the Internal Control System

Demand for greater internal control over corporate activities has been increasing, motivated by global concerns. NSK has responded to these demands with the Board of Directors' decision to establish the Basic Policy on Developing Internal Control Systems. The company also established basic principles governing intra-Group internal control in its NSK Group Management Rules (Figure 2). The Internal Audit Office, Compliance Division-Headquarters, and Corporate Strategy Division-Headquarters have been established to reinforce internal control and risk management functions as well as to enhance the NSK Group's internal control system.

Figure 2 NSK Group Management Rules

Responding to Internal Control Report System

In April 2006 NSK established an Internal Control Project Team at its headquarters to reinforce internal control. This project team oversees activities aimed at strengthening the Group's overall internal controls. Sub-teams were set up in regional headquarters and Group companies to promote internal controls related to financial reporting, to stabilize procedures, and to devise assessment schemes on a global scale. (Please see the information below on the internal control report system.)

Enhancing Management Quality

Fiscal 2008 is the first fiscal year of operation of the new reporting system, and the NSK Group's efforts thus far will be put to the test. The Group will standardize and improve the efficiency of management and operations at all Group companies from a global perspective, as an important step in achieving its objective of becoming "No. 1 in Total Quality."

Internal Control Report System

In accordance with the Financial Instruments and Exchange Law passed in 2006, the Internal Control Report System became effective from the fiscal year beginning in April 2008.

This law requires that listed companies establish a system ensuring the accuracy of financial statements and disclosures as well as assess the effectiveness of this system. It also requires that the CEO prepares and submits an annual Internal Control Report with audit certification.

Compliance

The NSK Group works hard to remain deserving of the trust it has earned from its stakeholders and also strives to develop systems and a corporate culture that ensure compliance (observance of corporate ethics and laws).

NSK Code of Corporate Ethics and Compliance Promotion System

In July 2002, NSK established the NSK Code of Corporate Ethics, which stipulates the basic corporate ethics and laws that all directors and employees must observe. Currently, all NSK Group companies in and outside Japan formulate their own ethical codes by incorporating the NSK Code of Corporate Ethics. Additionally, in May 2004, NSK established a Compliance Division-Headquarters to devise regulations based on the NSK Code of Corporate Ethics, provide education and conduct audits of the compliance status for the NSK Group.

Compliance Education

In fiscal 2007, NSK had all employees of its Group companies in Japan, including directors and temporary employees, take either an e-learning course or study an instructional pamphlet about ethical and legal compliance. This education adds to the rank-based compliance education aimed at all new employees and new managers. These activities were designed to familiarize employees with the NSK Code of Corporate Ethics and ensure compliance. NSK also held seminars at offices on individual topics such as insider trading (three seminars) and the anti-trust law (21 seminars).

Compliance Hotlines

In order to uncover illegal conduct as soon as possible and take appropriate action, NSK operates a hotline for reporting compliance concerns. To complement the in-house hotline, a hotline staffed by an outside lawyer was established. Employees and suppliers to Group companies in Japan can also send reports by e-mail or post through this channel. The system allows callers to remain anonymous, and they are protected from any negative repercussions that may arise from the reported information.

Security Export Management

With the goal of maintaining international peace and safety, NSK established the Security Export Control Office and has created a management system based on internal regulations conforming to related legislation. This division rigorously screens and judges products and technology exported from Japan, including products sold by NSK customers, to ensure that they are not diverted for use in weapons of mass destruction or in conventional weapons. Moreover, NSK regularly provides education to parties concerned, including not only members of the NSK Group but also distributing agents, in order to ensure the thoroughness of its activities.

NSK Code of Corporate Ethics

1 NSK Corporate Ethics Policies

1 NSK aims to continue to prosper as a company that can be respected and trusted, by being sincere and fair within international and regional societies.
2 NSK will comply with laws that are related to its various corporate activities. Moreover, as a corporate citizen, NSK will conduct itself in the highest ethical manner.

2 NSK Code of Conduct concerning Legal Compliance (Main Categories)

1 Compliance with anti-trust laws
2 Compliance with export-related laws
3 Prohibitions of commercial bribery
4 Transaction with the public agencies and handling of political donations
5 Accurate recording and processing
6 Prohibitions of insider trading
7 Handling of intellectual property
8 Prohibition of illegal activities and anti-social behavior
9 Protection of company assets
10 Handling of corporate secrets
11 Honest relationships with customers
12 Fair Trading with suppliers
13 Fair competition with competitors
14 Cultivation of a sound workplace

3 Penal Regulations and the Establishment of Liaison Office

Penal Regulations
Establishment of a Liaison Office

NSK Action

Participation in the Seminar on Anti-trust Law

We tend to assume we understand laws, but unfortunately our knowledge is often patchy or ill-informed. The Anti-trust Law is no exception. I thought that I had a good understanding of this law from information in newspapers and from other sources, but the seminar showed me how wrong I was. After the seminar, several branch employees told me they wanted to know more about the law. Those of us in sales who interact with customers will work hard to see ourselves more clearly as the company's representatives and to earn the NSK Group a reputation for thorough compliance.

Seiji Nishinaga
Branch Manager, Shizuoka Branch, NSK Sales Co., Ltd., NSK Precision Co., Ltd.

Information Security/Risk Management

The NSK Group is working to protect information held by the Group and to establish a crisis management system for unforeseen events, in order to minimize its exposure to a wide variety of risks.

Information Security

Information Security Policy

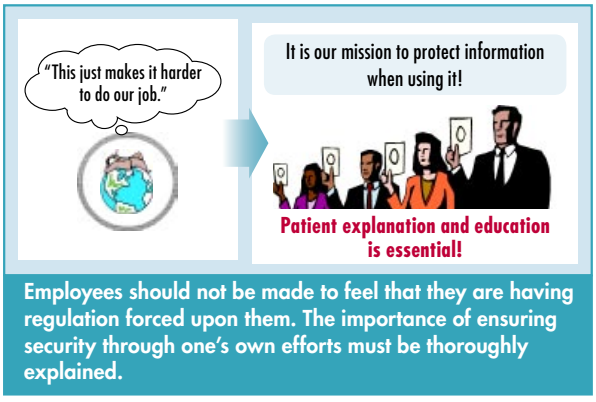
In today's information society, information has a growing impact on companies and society. Accordingly, its value as an asset is increasing. In light of the value of the information that the NSK Group handles, and of the significant impact that it could have on its stakeholders, the Group believes that protecting this information is a major issue for management.

Information must be monitored Group-wide under standardized information security standards to protect from leaks, falsification, loss, and natural disasters. Accordingly, the Group devised information asset management rules laying out the basic concepts behind information security as well as specifying the information that should be protected and the assets related to this information. Beginning in 2003, this was distributed throughout the company as the Information Security Policy.

Fiscal 2007 Measures

Information security measures must encompass technology, processes, and people. In fiscal 2007, the Group focused on strengthening measures related to "people." No matter how rigorous technology measures are, it is ultimately people that are key for security. Accordingly, the NSK Group provides training for all Group employees and group training for managers, as well as creating a system by which individual employees adhere to security measures.

In addition, the NSK Group takes appropriate technology measures with the personal computers and systems used by its employees to create an environment in which information can be used safely and effectively. Processes have been strengthened with the establishment of guidelines and a supervisory body.



Key points in information security education

Risk Management

Risk Management System

The NSK Group establishes measures that prioritize human life in the event of crises such as major natural disasters.

The Risk Management Committee is a layer of management responsible for overseeing crisis management, and reports directly to the president. This committee evaluates and implements preventative measures aimed at counteracting the significant risks posed by large-scale earthquakes, fires, environmental pollution accidents, and widespread outbreaks of infectious diseases that could affect the Group's business. The committee also examines and directs proper action during an actual emergency. The *Risk Management Manual* was prepared to ensure familiarity with the concept of risk management, prevent accidents, and guide appropriate responses in the event of an emergency.

Fiscal 2007 Measures

The NSK Group's efforts in fiscal 2007 were focused on establishing a business continuity plan (BCP).* These efforts include the action guidelines for a major disaster affecting headquarters in the event of a significant disaster in the Tokyo region, where the Group runs its headquarters functions. Based on these guidelines, extensive drills will be planned to corroborate management's leading role in the event of a disaster. The Risk Management Committee also set up a management system for emergency stockpiles of food and other provisions for victims in the headquarters building.

The Committee is also working to counter other anticipated risks by building disaster prevention networks between plants outside Japan and expanding its health and safety activities globally.

*Business continuity plans lay out preparations and steps that would enable the company to maintain office functions or limit the duration of any interruption in operations in the event of a major catastrophe such as a natural disaster or accident.

Initiatives for a BCP

In recent years, large-scale natural disasters have occurred with increasing frequency both in and outside Japan, making it all the more important that the NSK Group strengthens its ability to withstand disasters. The Risk Management Committee takes a central role in establishing a BCP to ensure the safety of its employees and their families, as well as to fulfill its responsibility of rapidly supplying products to customers in the event of a disaster.

Specifically, the Group is devising a system to maintain and back-up head office functions in the event of a major earthquake, carrying out construction work to reinforce the earthquake resistance of production plants and facilities, preparing emergency manuals, and developing communication between offices to share information after large-scale disasters.

Society and NSK

A More Prosperous Society through Motion and Control Technology

The NSK Group's business is supported by a wide range of stakeholders, including customers, suppliers, shareholders and investors, members of local communities, and all Group employees. This section describes the Group's initiatives in relation to these stakeholders.

Throughout the section, items with the Point symbol explain the focus of initiatives undertaken in fiscal 2007.

Executive Message

Working to earn greater trust from stakeholders

Kazuo Matsuda
Executive Vice President
Head, Corporate Strategy Division-Headquarters
Head, Business Development Division-Headquarters
Head, Compliance Division-Headquarters

The NSK Group's products play a role in such a wide range of activities that they seem to appear everywhere. Our products are used in parts in automobiles, in home appliances and in other products around you, or as parts in the machines that create these products.

The manufacturers who use our products and each of you who uses the final product are important customers for the NSK Group. In this sense, the Group's business involves society as a whole. As readers will find in this report's conversation with the president, our corporate philosophy is "to contribute to the well-being and safety of society and to protect the global environment through its innovative technology integrating Motion & Control." We consider ways in which we can realize this corporate philosophy on a daily basis, and believe it is important to translate this philosophy into action.

A key accomplishment in fiscal 2007 was the establishment of the CSR Office (currently IR & CSR Office). This new division works exclusively on CSR issues and is staffed by specialists who constructively promote CSR. We are also making steady progress in creating a vibrant workplace, boasting a sound work-life balance, supported by the adoption of a new system for employees during childcare leave.

Beginning with this report, we have started to clarify the NSK Group's social goals and issues to make our CSR report easier to read and understand. Our activities are not limited to those described in this report, and it is unfortunate that we cannot introduce them all. However, we hope to convey the essence of our efforts through this report.

We will continue to value our relationship with stakeholders and will report our activities as extensively as is feasible with the aim of deepening the trust placed in us.

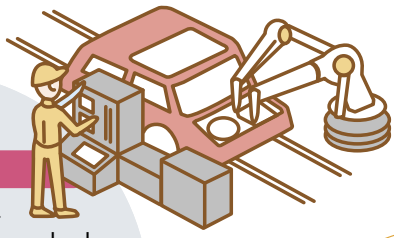
The NSK Group's Stakeholders

The NSK Group's business is built on mutual trust with a variety of stakeholders.* Through active communication, the NSK Group is building better relationships with its stakeholders.

*Stakeholders are all people that have an interest in NSK Group activities.

Targets for Customers and Suppliers and Status of Achievement

Targets to have been achieved by FY2007	Evaluation	Targets to be achieved by FY2008
Expand NPDS (NSK Product Development System) globally	Achieved	Promote activities to improve operation quality Promote socially responsible procurement
Promote initiatives to eliminate defective products	Achieved	
Promote education in quality "knowledge"	Achieved	
Start socially responsible procurement	Achieved	



Customers

pp. 25–26

The NSK Group's customers are companies and also the end-users of the devices and machines that incorporate NSK's products. The Group contributes to a sustainable society by providing high-quality, safe, and reliable products.

Suppliers

pp. 25–26

The NSK Group's business is based on partnerships with a wide array of suppliers—from steel manufacturers to lubricant makers and component manufacturers.

NSK

Targets for Shareholders and Investors and Status of Achievement

Targets to have been achieved by FY2007	Evaluation	Targets to be achieved by FY2008
Regular IR events such as financial conferences	Achieved	Enhance IR events Improve IR tools such as company website and annual report
Improve the content of IR related documents and publications	Achieved	

Shareholders and Investors

p. 33

The NSK Group's mission is to manage its business by balancing social and environmental considerations with the economic need to consistently return a profit. At the same time, the Group must meet the expectations of its shareholders and investors by disclosing appropriate information in a timely manner.

Employees

pp. 27–30

The NSK Group regards it as its responsibility to respect individuality and to create conditions in which all employees, whether full-time, temporary, or part-time, can contribute to their fullest potential.

Targets for Employees and Status of Achievement

Targets to have been achieved by FY2007	Evaluation	Targets to be achieved by FY2008
Enhance educational and training programs	Achieved	Support work-life balance
Fair evaluations and multifaceted back-up	Achieved	Establish subsidiary to provide employment opportunities for people with disabilities
Promote mental health measures	Achieved	
Enhance programs for combating sexual harassment and abuse of authority	Achieved	Expand education and training programs

Local Communities

p. 31

The NSK Group values communication with the residents of communities where it establishes business sites, and endeavors to build good relationships that carefully balance social, environmental, and economic factors.

Targets for Local Communities and Status of Achievement

Targets to have been achieved by FY2007	Evaluation	Targets to be achieved by FY2008
Contribute to the health and safety of children	Achieved	Contribute to development of local communities
Contribute to conservation of the local environment	Achieved	

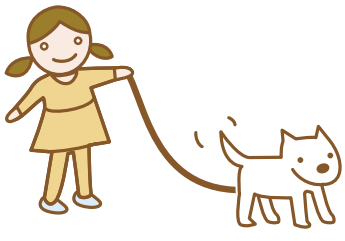
Future Generations

p. 32

The NSK Group sees children and students, the torchbearers of the future, as important stakeholders. The Group hopes to hand over an abundant and sustainable environment and a stable society to future generations.

Targets for Future Generations and Status of Achievement

Targets to have been achieved by FY2007	Evaluation	Targets to be achieved by FY2008
Offer children's science classes	Achieved	Expand children's science classes to other regions
Support university education	Achieved	



Relationships with Customers and Suppliers

**The NSK Group believes that it is important to build on its relationships with customers and suppliers while advancing the level of its manufacturing.
This section provides an overview of these initiatives.**

Main Initiatives in Fiscal 2007

- Point 1 Expand NPDS globally
- Point 2 Promote initiatives to eliminate defective products
- Point 3 Promote education in quality "knowledge"
- Point 4 Start socially responsible procurement

Customer Satisfaction

The NSK Group is working hard to become "No. 1 in Total Quality" by improving the quality of all of its products as well as of the information and services it offers to customers. To realize this goal, the Quality Assurance Division-Headquarters is promoting three initiatives throughout the Group: the NPDS (NSK Product Development System) program, the NQ1 (NSK Quality No.1) program and "Human Development." The Group intends to provide products that are readily selected by customers due to the high quality and satisfaction levels they deliver.

Point 1 NPDS for Prompt and Reliable Service

NPDS ensures that the NSK Group responds promptly and reliably to new orders from customers and maintains stable and efficient production. When a new order is received, members of the relevant departments meet to thoroughly discuss challenges in technology and production, capital investment and relevant patents, in order to clarify problems and determine whether the product can be manufactured to meet the customer's request. Projects are ranked by degree of difficulty, with a multi-disciplinary team formed to undertake difficult projects. At each juncture in the process, from product planning to development and design, prototype manufacture and mass production, the team verifies that issues are being resolved, thus ensuring stable production. In fiscal 2007, the NSK Group expanded the program it had thus far developed in Japan on a global scale (Picture 1).

Point 2 NQ1 Program to Eliminate Defective Products

The NQ1 program is carried out at the Group level with the aim of optimizing the flow of products and information throughout the production process, from procurement of parts and materials to customer delivery. The program emphasizes closer coordination between departments: production, design and development, production technology, quality assurance, marketing and logistics. Based on data and other scientific grounds, this program is intended to eliminate as many defective goods as possible to ensure more efficient and stable production (Picture 2).

Point 3 Human Resource Development Programs

All employees must prioritize "customer first" and "quality first" if the NSK Group is to become "No. 1 in Total Quality." This means that it is very important that employees strive to improve the quality of all operations, and to promote a lively exchange of opinions. The Group strives to raise the ability of its employees through participation in activities to improve operations and through education such as training sessions. Beginning in fiscal 2007, the Group has expanded education programs in quality knowledge to include locations outside Japan (Picture 3).

Picture 1: Meeting of NPDS multidisciplinary team in England

Picture 2: NQ1 programs

Picture 3: Education in quality knowledge in Thailand

Challenges for Fiscal 2008

- Promote activities to improve operation quality
- Promote socially responsible procurement

Quality Management

The NSK Group has obtained ISO 9001 and ISO/TS 16949* certification for quality management systems and produces high-quality products that meet customer demands. As of March 31, 2008, all 51 sites in NSK Group companies located in and outside Japan had obtained the certification.

*ISO/TS 16949 aligns ISO 9001, the criteria for quality management systems set by the ISO (International Organization for Standardization), with the quality system requirements for automotive-related products.

Product Safety

The NSK Group has a system in place to ensure that it responds rapidly in the event that a Group product on the market is determined to have a critical flaw or the possibility of such a defect. An occurrence of this kind would be designated as a serious quality problem, and the Group would promptly contact customers and relevant organizations to arrange for recalls and exchanges. There were no serious quality problems in fiscal 2007.

Partnership with Suppliers

The NSK Group's transactions with suppliers are fair, equitable, and transparent. While strengthening communication, the Group works closely with suppliers to reinforce competitiveness and to further both suppliers' and the NSK Group's sustainable development.

Establishment of Supplier Hotline

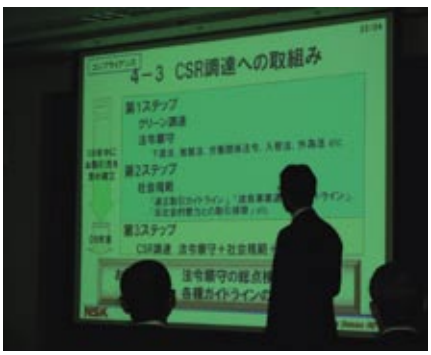
The NSK Group set up a hotline staffed by an outside lawyer to ensure highly transparent transactions and the prevention of illegal acts. The system allows callers to remain anonymous, and they are protected from any negative repercussions that may arise from reporting information.

Compliance Education

The NSK Group believes that it is very important that all employees who interact with suppliers are fair in their transactions and build trusting relationships. To this end, the compliance education given to all employees from February 2008 includes topics on interaction with suppliers as part of the company's efforts to ensure appropriate conduct among its employees.

Point 4 Promoting Socially Responsible Procurement

The NSK Group recognizes the importance of observing the laws governing business activities and of respecting environmental conservation, human rights, and health and safety. These activities must be promoted not only within the Group, but throughout the entire supply chain. At the Procurement Policy Briefing held at NSK headquarters in January 2008 (Picture 4), the company explained the need for such efforts to suppliers and asked for their cooperation.



Picture 4: Procurement policy briefing

Table 1 Major Awards Received from Customers

Name of award	Conferrer	Product or service recognized	Date awarded	Reason for award, comments
"Superior" Quality Performance Award	Toyota Motor Corporation	Bearings, automobile parts	February 29, 2008	Initiatives to improve quality coordinated in and outside Japan
New Technological Cooperation Award	AISIN AW Co., Ltd.	Bearings, NSK-Warner products	April 22, 2008	Comprehensive evaluation of quality and delivery times
Certificate of Recognition	Tokai Rubber Industry Poland	Bearings	May 25, 2007	Comprehensive evaluation of quality and delivery times
Bosch Supplier Award (2007)	Bosch	Products and services	July 4, 2007	Evaluation of product quality, technical upgrades and service reliability
Supplier of the Year	Continental Automotive Systems	Bearings	July 1, 2007	Comprehensive evaluation of quality, delivery times and technical skill

(Scope: Awards received in fiscal 2007 or received for fiscal 2007 programs)

Please see the following web page for information about a list of additional awards:
http://www.jp.nsk.com/jp/csr/society/ (Japanese only)

Relationships with Employees

The NSK Group sees its human resources as the foundation of the company. The Group aims to cultivate the next generation of NSK Group leaders and to create a working environment that will motivate employees to work with a sense of purpose and lead to greater job satisfaction.

Main Initiatives in Fiscal 2007

- Point 1 Enhance educational and training programs
- Point 2 Fair evaluations and multifaceted back-up
- Point 3 Promote mental health measures
- Point 4 Enhance programs for combating sexual harassment and abuse of authority

Point 1 Human Resources Development Initiatives

The NSK Group's fundamental human resources policy is to give employees—particularly those who show initiative in their thoughts and actions—the time and opportunity to improve themselves. In line with this policy, the Group offers a variety of educational and training programs to support the growth and initiative of its employees.

New Employee Training

The first two years in the company are designated as the developmental period during which new employees are trained with a combination of on-the-job training (OJT) and group training sessions. Each employee is assigned an OJT manager and a mentor, who carefully guides them as they acquire work knowledge and skills. Just before the end of the developmental period, new employees go through a "gate check"—an opportunity for them to sound out their potential and discuss their next career step in consultation with supervisors and the Human Resources Department.

Developing the Leaders of the Next Generation (NSK Management College)

The NSK Group has developed the NSK Management College (Picture 1), a year-long program for training the next generation of executives. Participants are recommended by their workplace supervisors, and they obtain the knowledge and skills needed for business leaders by reviewing case studies with top management and taking part in group training sessions. In addition, in the report that makes up the main program of NSK Management College, the participants devise measures to solve management issues currently facing the NSK Group and submit a proposal to top management.

In fiscal 2007, twelve mid-career employees participated in the Manager Course and twelve management-level employees participated in the General Manager Course.

Voluntary Participation Training (Saturday Business College)

The Saturday Business College (Picture 2) is a voluntary training system aimed at improving the business skills of young and mid-career employees. Training sessions cover a wide variety of topics, including business accounting, business correspondence and logical thinking. Participants have been enthusiastic in their praise of this program, particularly for the opportunity to interact with employees from other divisions. A total of 160 employees participated in fiscal 2007.

Dispatch to Study at a University and Other Training Programs

The NSK Group also makes available opportunities for study at universities and graduate schools in and outside Japan, foreign language training, and other specialty training programs in order to foster highly professional human resources and personnel who are competent in the global arena. The NSK English Self-Training Course (NEST), which was first offered in fiscal 1998, has provided a method for independent study of business

Picture 1: NSK Management College

Picture 2: Saturday Business College

Please see the following web page for information on NSK's human resource training system:
http://www.jp.nsk.com/jp/csr/society/ (Japanese only)

NSK Action 1

New Employee Training

In fiscal 2007, I joined the NSK Group and participated in the new employee training. This training taught me about the NSK traditions that have been passed down since the company's inception in 1916, as well as about the company's initiatives for the future. I am willing to work hard so that I can make my mark as an employee as soon as possible.

Satoshi Aizawa
General Affairs & Labor Section, Fujisawa Plant

Challenges for Fiscal 2008

- Support work-life balance
- Establish subsidiary to provide employment opportunities for people with disabilities
- Expand education and training programs

English to 847 students. In fiscal 2008, the NSK Group plans to augment the program by tailoring it to specific business sectors as a specialized training course.

Establishment of NSK Institute of Technology

The NSK Group is faced with the urgent task of training employees who can direct the company's global business expansion and fulfill the Group's customers' wide variety of technical requests. To meet these demands, the NSK Institute of Technology (NIT) was launched in fiscal 2008 as a systematic way to provide training that is standardized across the NSK Group's sites worldwide. This comprehensive technical training encompasses product quality, production, and cost, as well as technology.

Point 2 Human Resources Assessment Initiatives

The NSK Group's human resources system fairly assesses the performance of employees, as well as the approach and processes that each employee takes in trying to achieve goals. As a matter of principle, the Group provides multifaceted support to forward-looking workers willing to take on challenges.

Performance Agreement System

The NSK Group adopted a performance agreement system, which is primarily for main career track employees, in order to conduct efficient business activities by aligning the trajectories of the company's and employees' goals. Employees meet regularly with their supervisors to review every step of the process, from goal-setting to interim verification and results follow-up. This system ensures transparent evaluations and the development of human resources based on active dialog (Table 1).

Table 1 Results of the Fiscal 2007 Performance Agreement System Questionnaire

Questionnaires distributed	3,522
Questionnaire recovery rate	94%
Execution rate for feedback from supervisors	96%
Level of satisfaction in feedback	79%

(excluding managers)

Self-Reporting System

The NSK Group adopted a self-reporting system to enable employees to demonstrate their full abilities. This system gives employees an opportunity to submit a self-report directly to the Human Resources Department once a year, informing it of problems in their current workplace environment, their wishes concerning future interdepartmental transfers and work content, personal information that the company should know, and other concerns. Employees may have an interview with the Human Resources Department if they so desire, and 172 employees were interviewed in fiscal 2007.

Internal Recruiting System

The NSK Group adopted an internal recruiting system to support employees who take the initiative to develop their careers, while also invigorating the company.

The conditions offered and number of people sought is announced through the Human Resources Department, to which applicants can apply directly. The system enables employees to voluntarily and proactively set challenges for themselves and to take on work they are interested in.

NSK Action 2

Participation in Training at the NSK Manufacturing Education and Training Center

The NSK Manufacturing Education and Training Center was established in 2005 to improve technical skills in manufacturing and transfer techniques and technologies on a continuous basis. I participated in the ninth session of the professional maintenance course. The enthusiastic instructors leading this three-month course, which combined lectures with skills practice, made me proud to be involved in manufacturing at the NSK Group. The friendships I made with other trainees from plants around Japan are also very valuable to me, and I am making the most of my experiences at the Center in my current work.

Kazuya Sakurada

No. 212 Group, 1st Section, 2nd Production Department, Ishibe Plant

Initiatives for Labor-Management Relations and the Work Environment

Employees of the NSK Group are represented by a single organization, the NSK Labor Union. Regular labor management consultations are conducted at a company-wide labor-management conference (Central Management Council) three times a year, and at a labor-management conference at individual business sites (Single Unit Management Councils) once a month. These labor-management conferences enable an exchange of opinions on a range of topics, including the improvement of working conditions, the company's management policies, and daily business activities, thereby invigorating labor-management communication.

Point 3 Initiatives for Health, Safety, and Healthcare

In an effort to create surroundings where employees give full rein to their strengths while remaining healthy in mind and body, the NSK Group is working to ensure workplace safety and is actively promoting the health of its employees. Ensuring workplace health and safety is a basic principle of management on the manufacturing floor. To that end, the NSK Central Occupational Health and Safety Council takes the lead in encouraging the creation of a safety-first workplace culture that is embraced by all employees (Table 2).

In addition, the Group provides education on mental health for managers so that they can monitor the mental health of their staff.

Point 4 Human Rights Initiatives

The NSK Group provides education on human rights to employees at all levels, from new employees to managers, to foster a workplace in which all employees can work with peace of mind.

The Group's education on sexual harassment and the abuse of authority for executives and managers is intended to prevent harassment by raising awareness that such acts of harassment are serious infringements of human rights. In fiscal 2007, 567 employees participated in the training.

The Group has established a precautionary harassment help-line that victims can use to seek anonymous consultations. If the victim so desires, help-line personnel will immediately investigate the matter under strict confidentiality. If the facts of the incident can be verified, the company will take the appropriate measures with the victim's consent.

Diversity and Equal Opportunity Initiatives

It is the Group's management policy to respect each employee's individuality and potential, and the NSK Group is dedicated to creating a vibrant workplace in which a wide variety of people can be active.

Senior Re-Employment System

In April 2001 the NSK Group adopted a re-employment system (called "A Seniors") for union members, to offer a place of employment to persons over the age

Table 2 Number of On-the-Job Accidents

	FY2005	FY2006	FY2007
Accidents not resulting in absence from work	26	20	25
Accidents resulting in absence from work	3	6	6
Total	29	26	31

Accidents suffered by temporary employees are included from fiscal 2007.

(As of end of March, 2008)

Table 3 Number of Senior Persons (over 60 years of age) Employed

A Seniors (former union members)	115
M Seniors (former managers)	23
Others (part-time employees, etc.)	78
Total	216

(As of end of March, 2008)

Table 4 Related Employee Data

Average years of employment	18 years
Average age	40 years old
Proportion of female employees	5.49%
Rate of childcare leave taken [People taking childcare leave / (people taking childcare leave + people leaving job due to pregnancy or birth)]	64%

(As of end of March, 2008)

of 60 who have reached the age of retirement. The company also introduced a new re-employment system for managers (called "M Seniors") to comply with the enforcement of the 2006 Revised Law Concerning Stabilization of Employment of Older Persons. The Group attempts to match employees' desires regarding type of work and work location with proposals from the company, thus offering a place where they can utilize the wealth of experience and advanced skills they built up over their career in the Group (Table 3).

Employment System for People with Disabilities

The NSK Group believes that creating employment for people with disabilities who have the will and ability to work, and offering a place in which they can be a part of society and attain professional independence is an important social responsibility for companies. In fiscal 2008, the Group established a subsidiary to provide employment opportunities for people with disabilities as a new initiative, and will continue to encourage their employment.

Activities of Diversity Development Team

NSK set up a Diversity Development Team in 2006. In fiscal 2007, the Team carried out a variety of activities on the basis of an internal survey and benchmark aimed at creating a workplace environment, and the company revised systems so that its employees can balance work and childrearing.

Program Supporting Employees on Childcare Leave

The NSK Group has adopted the "armo program" provided by Work Life Balance Co., Ltd. to create an environment providing work-life balance, facilitate a smooth return to work after childcare leave and support a rich family life.

Employees on childcare leave can use the Internet to access essential childcare information and learn skills needed to return to work while they are still at home. Senior employees who previously took childcare leave post advice on the armo internal message board, thus creating a new internal network.

Free Talk Session and Guidebook on Support for Work-life Balance

In addition to internal surveys on the balance between work and childcare, the NSK Group holds "free talk" sessions (Picture 3) during which female employees can talk freely about their work environment. The views expressed in these sessions form the basis of the *Guidebook on Support for Work-life Balance* (Picture 4). This guidebook deepens understanding of the work-life balance, describing the support systems available for balancing work and childcare as well as issues that supervisors should consider and give advice on.

NSK Action 3

Participating in Free Talk Session

I participated in a "free talk" session hosted by the Diversity Development Team. Participants expressed a wide range of views on what we wanted from the company, so that we could continue working long-term, and on what aspects needed improving from a woman's perspective. I learned that the company has set up support programs such as childcare leave. I realized again the importance of gaining the understanding and cooperation of all workplace members, including those employees who may want to use these support programs, in order to increase the number of both men and women who can utilize these programs.

Kayoko Azuma
IR & CSR Office

Picture 3: "Free talk" session

Picture 4:
Guidebook on Support for Work-life Balance
(Japanese only)

The main Group companies in Japan are covered in the scope of "Relationships with Employees."

Relationships with Local Communities

In its commitment to be a good corporate citizen with roots in the community, the NSK Group ascertains local needs and undertakes corporate activities to further the development of local communities.

Main Initiatives in Fiscal 2007

Point 1 Contribute to the health and safety of children

Point 2 Contribute to conservation of the local environment

Challenges for Fiscal 2008

Contribute to development of local communities

Point 1 Japan Protecting Children's Safety

Employees at NSK's Ishibe Plant have been acting as crossing guards to ensure children's safety on their walks to and from school for 15 years now as part of the plant's safety program (Picture 1). All employees, including temporary employees, take turns participating in this program.

Participant's Voice

It can be really tough to get up early in the morning, particularly in the winter. But my desire to give back to the community has kept me actively involved.
Kaori Murase, Administrative Department

Being around children gives me energy. Traffic is particularly heavy in the morning, making it dangerous for children, so I want to continue participating in this effort to protect children.
Kazuyuki Matsushita, Production Engineering Department

Point 1 Canada Aid for Sick Children

Employees at NSK Canada Inc., have been sponsored for a charity volleyball tournament (Picture 2) hosted by the SickKids Foundation.

Participant's Voice

This volleyball tournament is intended to raise money for juvenile cancer research. My friend started a juvenile cancer research foundation when his own child was diagnosed with cancer. It is tragic when a young life with such potential is lost due to an illness like this. I wanted to help in some way, and decided to support this activity with my company.
David Staples, Industry Segment Manager

Poland Contribution to Community Health

Kielce, where NSK Bearing Polska S.A., is located, has on-going blood-transfusion shortage. This inspired the company to start a blood donation club. The company carries out blood donation campaigns (Picture 3) and presents prizes to employees who donate blood. These efforts support health in the community.

Point 2 Malaysia Cleaning Up the River

In December 2007, employees from NSK Micro Precision (M) Sdn. Bhd., cleaned up a river located about 30 kilometers from the company (Picture 4). About 20 employees volunteered and spent about four hours cleaning the river, which provides drinking water for local residents. This activity was planned by the company's Safe and Healthy Environment Committee. In future, NSK Micro Precision (M) would like to continue to help improve the local environment through similar activities.

Picture 1: Employee holding flag for children going to school in the rain

Picture 2: Employees participating in charity volleyball tournament (David Staples is in the middle of the back row)

Picture 3: Blood donation campaign to contribute to health of local community

Picture 4: Employees cleaning a river

Engaging Future Generations

**The NSK Group contributes to the development of the present generation and always conducts its business activities with future generations in mind.
The Group will strive to provide the next generation with educational and cultural support.**

Main Initiatives in Fiscal 2007

Point 1 Offer children's science classes

Point 2 Support university education

Challenges for Fiscal 2008

Expand children's science classes to other regions

Point 1 Japan Children's Science Classes

NSK began holding children's science classes on friction in fiscal 2006 to show them that science can be fun. In fiscal 2007, NSK presented a different kind of children's science class (Picture 1) at NSK Fujisawa Plant and the Science Museum (Chiyoda Ward, Tokyo). Children handled measuring equipment actually used in NSK's research laboratories and carried out various experiments to find out how many children it would take to pull the bronze statue of the Great Buddha in Kamakura.

USA Support for Local High School Team Entering Robot Contest

NSK Precision America, Inc., supported high school students entering the FIRST Robot Contest, in which almost 40,000 students from North and South America participated (Picture 2). At the request of the local high school team participating in the contest, the company selected and donated the linear guide used in the robot.

Participant's Voice

I actually visited the high school to see the students put their robot together. The scientific and technical skills that the students learned by participating in this activity will stand them in good stead for the future.
Miles Riley, Product Engineering Manager

Point 2 Colombia Endowed Lecture Series at University

NSK Latin America, Inc., endowed a lecture series (Picture 3) to teach students about bearings at ECI University in Bogota, Colombia's capital. NSK Latin America dispatched employees as instructors to these lectures, which teachers and sales people from distributors as well as students attended, and the company also donated materials and equipment. Through this activity, the company contributes to Colombia's machinery industry.

Point 2 Vietnam Bearing Technology Seminars Held at University

Vietnam, which has great potential for economic development, has limited numbers of mid-career engineers and teachers over the age of 30, and the influx of foreign manufacturers has created a chronic shortage of engineers. This has made training engineers an urgent concern for Vietnam's future industrial expansion.

In its desire to help, NSK Vietnam Co., Ltd., holds seminars on bearings at Can Tho University, the central university in the Mekong Delta region, and Ho Chi Minh Technical Teacher Training University, which turns out large numbers of technicians and engineers (Picture 4). These activities support the growth of NSK Vietnam as well as the development of Vietnamese society, and express the company's desire to grow together with Vietnam.

Picture 1: Conducting experiment by pulling adult on a platform

Picture 2: Students and robot entering robot contest (Miles Riley is in the center)

Picture 3: Students practicing assembling bearings

Picture 4: Students holding actual bearings

Relationships with Shareholders and Investors

The NSK Group strives to remain a company that lives up to the expectations of its shareholders and investors by providing stable returns and by disclosing business information in a timely and unbiased manner.

Main Initiatives in Fiscal 2007

- Point 1 Regular IR events such as financial conferences
- Point 2 Improve the content of IR related documents and publications

Challenges for Fiscal 2008

- Enhance IR events
- Improve IR tools such as company website and annual report

Communication with Shareholders and Investors

Shareholders and investors require that companies disclose a wide range of information including business performance, medium to long-term strategies and social responsibility. Through IR*1 events and tools, the IR & CSR Office strives to disclose business information appropriately and in a timely manner.

*1 Investor Relations: The timely, equitable, and continuous provision of information needed by shareholders and investors to make investment decisions.

Point 1 IR Events

In Japan, the NSK Group holds a Financial Conference and a Mid-term Business Strategy Conference. Outside Japan, representatives from the Group regularly visit shareholders and institutional investors to discuss company policies and medium to long-term strategies. In addition, the Group holds events such as small-group meetings and other conferences, to support its shareholders and investors, and to deepen understanding of its business.

Point 2 Information Tools

The NSK Group issues an annual report to present its performance in a given fiscal year and to describe its business overview, Mid-term Plan progress, R&D and CSR activities. In fiscal 2007, the Group conducted a questionnaire to compile the valuable opinions of its stakeholders. The company strives to provide further improved and succinct reports. The Group also sends the *NSK Group Report* (a business report) to shareholders every six months to provide an outline of its performance and programs during that fiscal period, and its business strategies. These reports and other IR information such as financial results and financial conference briefing materials are available on the Group's website as part of its efforts to ensure timely disclosure.

Dividend Policy

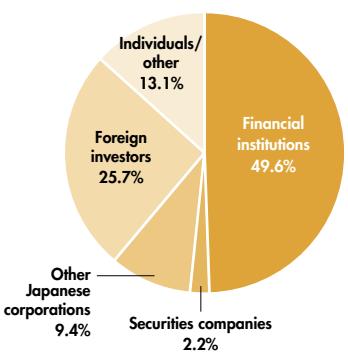
The return of profit to shareholders is an important management policy at NSK. The company's basic policy is to maintain stable dividend payouts, which are based on the payout ratio and business performance on a consolidated basis. The company paid a full year dividend of 19 yen per share in fiscal 2007.

Socially Responsible Investment (SRI)*2

NSK was included in representative SRI indexes in and outside Japan in fiscal 2007. It was also included in the Pension Fund Association's Corporate Governance Fund.

*2 SRI: The concept and method of evaluating social and environmental efforts, and investing in companies that fulfill these responsibilities.

Figure 1 Distribution of Shares by Shareholders (Number of Shares Held)



(As of March 31, 2008)

Figure 2 Inclusion in SRI

Dow Jones Sustainability Indexes	http://www.sustainability-indexes.com
FTSE4Good Global Index	http://www.ftse.com/Indices/FTSE4Good_Index_Series/index.jsp
Ethibel Sustainability Indexes	http://www.ethibel.org/index.html
Morningstar Socially Responsible Investment Index	http://www.morningstar.co.jp/sri/index.htm

(As of March 31, 2008)

NSK Group was selected as one of the Global 100 Most Sustainable Corporations for the second time in January 2008

In January 2008, the NSK Group was selected as one of the Global 100 Most Sustainable Corporations. This was the second time since 2006 that it had been chosen for this honor.
- Rating organization: Corporate Knights Inc. (Canada), Innovest Strategic Value Advisors, Inc. (US)

Please see the following web page for more information:
http://www.nsk.com/investors/index.html

The Environment and NSK

Caring for the Environment through Motion and Control Technology

In order to reduce its impact on the global environment, the NSK Group is embarking on various initiatives encompassing its products, manufacturing, and distribution. This section describes the Group's outlook on the environment, its environmental management system, and the success of the company's initiatives and systems.

Throughout the section, items with the Point symbol explain the focus of initiatives undertaken in fiscal 2007.

Executive Message

We are working with people both in and outside the NSK Group, spearheading initiatives to reduce global environmental impact

Masao Shoji
Director, Executive Vice President
Chairman of Global Environment Protection Committee

I believe that the greatest environmental concern people currently have is how to combat global warming. As a manufacturer and supplier of rolling bearings, automotive products, and precision machinery equipment, the NSK Group and its technology make a significant contribution to the energy conservation of various machines and equipment. We strive to minimize energy loss by reducing friction, and by reducing the size and weight of NSK products. Our products are used in very fuel-efficient hybrid cars and the wind turbines that supply renewable energy. In the future, I am confident that NSK products will play an increasingly important role in combating global warming.

In fiscal 2007, NSK reorganized the Environmental Product Subcommittee to accelerate the development of these high-performance products and launched activities to quantify the environmental efficiency of products. In the past, we focused on extending the life of our products at the end-user stage to contribute to the conservation of natural resources. In order to strengthen initiatives at all stages of the product lifecycle from development to disposal, NSK has established the Resource Conservation Subcommittee that acts as a liaison to both our technical and manufacturing divisions.

Supported by a healthy economy in recent years, the NSK Group's production volume has risen steadily. In past years, manufacturing divisions set goals for reducing CO_2 emissions per production unit, but our goal from now on is to prevent increases in CO_2 emissions even as production increases. For this reason, the Group as whole is strengthening activities like the systematic investment in the adoption of energy-saving devices.

The Group is active in carrying out operations around the world. In June 2007, we also reorganized our Environmental Control Department into the Global Environment Department, in order to attain higher levels of environmental management at sites in various countries. The Global Environment Department lives up to its name, initiating comprehensive and far-reaching activities for the management of the chemical substances used in the company's products.

From here on out, we will maintain our steady and persistent efforts across all our business areas, in order to contribute to the building of a prosperous society and to protect the global environment.

Environmental Management Structure

The NSK Group is implementing various policies to contribute to society's sustainable development and to decrease the company's environmental impact. The following is a report on its systems for promoting environmental management and on the progress of the Environmental Voluntary Action Plan.

Environment Policy

The NSK Group strictly adheres to the principle that global environmental protection, as outlined in the Group's mission statement, must be an ever-present concern in all business activities. As befits a global enterprise, the NSK Environmental Policy is to protect the global environment by developing products that are environmentally friendly and to strive to produce these products with minimal impact on the environment. In addition, the Group has established its Environmental Code of Conduct in order to diffuse NSK Environmental Policy to all employees and throughout the whole organization. This is underpinned by encouraging individuals' awareness of the possible environmental impact of their actions.

NSK Environment Policy

Our commitment to environmental management forms the basis of our existence and our pursuits. We are determined to take independent and assertive actions.

1. **Overall Goals**
   To create harmony between people and the Earth by developing environmentally friendly manufacturing processes and technology, such as our tribology friction control technology, using the full efforts of all employees and all divisions in our company.
2. **Reduction of Negative Environmental Impact**
   To establish and continually improve the environmental management system, comply with regulations, prevent pollution and reduce environmental impact.
3. **Contribution to Societies**
   To be a good global corporate citizen, contributing to the social development of countries and communities where we operate, and also to advance the realization of affluent societies that are in harmony with the environment.

Environmental Code of Conduct

1. To reform environmental management organization by improving operational systems and clarifying chains of responsibility.
2. To develop products and technology that will reduce environmental impact.
3. To tackle environmental protection more aggressively by setting and adhering to high internal standards in addition to complying with laws, ordinances and agreements.
4. To ensure energy and resource conservation, waste reduction, and recycling in all spheres of our business operations.
5. To convert from ozone-depleting and hazardous chemical substances to environmentally friendly alternative substances, and where possible, switch to alternative processes and technologies.
6. To communicate with environmental authorities and local communities in order to receive insightful and constructive options.
7. To contribute to local communities through participation in social environmental activities.
8. To encourage employees to understand our environmental policies and to ensure an environmental mindset in the company through education and internal communications.
9. To disclose the ongoing status of our environmental management activities to the public when necessary.

Originally compiled: December 12, 1997
Last revised: June 27, 2002

Environmental Management Structure

NSK Group Environmental Management Structure

The Global Environment Protection Committee, which is the ultimate decision-making organization for environmental issues and comprises NSK directors, administers the NSK Group's environmental management system. Actual environmental management duties are carried out by the Global Environment Department and several subcommittees (Figure 1).

In June 2007, NSK reorganized its Environmental Control Department into a Global Environment Department, within which it established an Environment Management Office and a Chemical Substance Management Office in an effort to further strengthen its global environmental management and control over the chemical substances contained in products. The Environment Management Office handles a site's waste management and global warming policy, and the Chemical Substance Management Office is responsible for the control of chemical substances in products and green procurement.

Table 1 Subcommittees and their Missions

Subcommittee	Purpose (policy determination and progress confirmation)
Environmental Management Representatives Council	To unify production sites' environmental management systems, ensure concrete action by subcommittees, and promote activities for lowering environmental risk
Energy Conservation Subcommittee	To set policy and confirm progress for energy-saving activities and reducing greenhouse gas emissions
Waste Reduction Subcommittee	To promote application of the 3Rs (reduce, reuse, and recycle)
Environmentally Harmful Substance Reduction Subcommittee	To reduce the quantity of hazardous chemical substances used in manufacturing processes
Environmental Product Subcommittee	To promote product development and design that contributes to the conservation of energy and resources
Resource Conservation Subcommittee	To reduce consumption of primary and secondary materials through more efficient use
Logistics Subcommittee	To ascertain and promote the reduction of energy required for transportation
Green Office Subcommittee	To promote environmental protection activities (e.g., 3R promotion for waste materials, green purchasing, etc.) in the management and sales divisions

Internal and External Auditing

Internal audits are conducted to verify that the Group is properly performing and continually improving its environmental management. In addition, external audits by a certified organization are also carried out to verify whether environmental management is being properly conducted. The findings of the audits for fiscal 2007 revealed no serious problems.

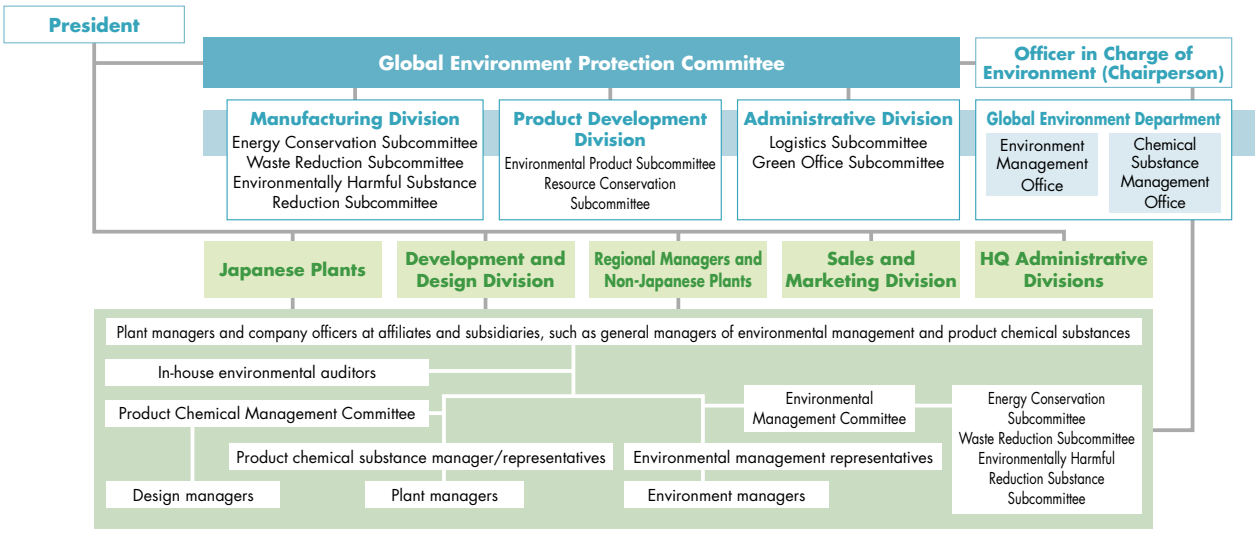
Environmental Information Gathering System

The NSK Group has accelerated the introduction of IT systems for environmental management. In fiscal 2006, the Group sought to improve its strict legal compliance and information management with the adoption of the Environmental Information Sharing System, the Chemical Substances Management System, and the Waste Management System. Through the Environmental Information Sharing System, the Group is striving to reduce the environmental impact caused at company sites by gathering and managing company-wide plant information concerning measurements of energy use, as well as of air emissions and water quality of drainage water. Moreover, with the Chemical Substances Management System, the Group receives a statement from suppliers about the chemical constitution of parts and materials in purchased goods, and the company supports the development and manufacture of products that do not use environmentally harmful substances.

Initiatives for Reducing Environmentally Harmful Substances in Products

The NSK Group considers environmentally harmful substances contained in products to be a product-quality issue and is continuing initiatives to manage and reduce the use of such substances. To promote these activities, in fiscal 2008 Product Chemical Management Committees were formed at each company site. Cooperation between the new Product Chemical Substance Committees and both the preexisting Environmental Management Committees and Global Environment Department realizes a company-wide management system that enables a high-level and sensitive response to the use of environmentally harmful substances.

Figure 1 Organizational Chart for Environmental Management



Progress of the Third Environmental Voluntary Action Plan

The NSK Group has been conducting activities in accord with the Third Environmental Voluntary Action Plan in order to achieve the goals set for fiscal 2010 (Table 2). In fiscal 2007, the Group accomplished all its goals for the year. For the reduction of environmentally harmful substances, the Group is striving to improve environmentally friendly design and green procurement through the operation of its Chemical Substance Management System. The Group is also conducting training with the aim of enhancing the skills of those in charge of waste management and recycling measures. At Group companies outside Japan, the Group is collating data in order to promote efforts in line with the company's environmental guidelines (Table 3). From fiscal 2008, these companies began strengthening their environmental guidelines and environmental activities by increasing their commitment to their Environmental Voluntary Action Plans. The NSK Group will continue to push forward with its activities toward the achievement of its objectives.

Table 2 Third Environmental Voluntary Action Plan (Scope: NSK and Group companies in Japan)

Area		Targets to be achieved by FY2010	Targets to have been achieved by FY2007
Environmental management		Maintain ISO 14001 certification	Maintain ISO 14001 certification for all sites
		Improve environmental education	• Implement waste management education with expanded content • Continue providing education at NSK Manufacturing Education and Training Center
		Establish chemical management system for products	Create in-house system for control of chemical substances in products
Compliance and environmental risk control		Observe laws and regulations (zero legal violations)	Observe laws and regulations (zero legal violations)
		Maintain zero oil-leak accidents	Maintain zero oil-leak accidents
Development and design		Create environmentally friendly products and technologies	Create environmentally friendly products and technologies
		Reduce use of environmentally harmful substances	Reduce use of environmentally harmful substances
Green procurement		• Create chemical substance management framework through green procurement system • Promote green procurement and latest version of manual on standards management • Implement green procurement for secondary materials	Expand operation of green procurement system and enhance data
		Raise applicable green product purchasing rate to over 90%	Raise the applicable green product purchasing rate to at least 90%
Manufacturing	Global warming countermeasures	• Reduce CO_2 emissions per production unit (amount of CO_2 produced per unit of value-added production) by 1% annually from FY1999 • Reduce CO_2 emissions for FY2012 to a level below FY2006 *1	Reduce CO_2 emissions per production unit by 7.7% (base year: FY1999)
	Waste reduction and recycling measures	Maintain zero emissions	Continue to maintain zero emissions
		Maintain waste recycling rate of 98% or more	Improve the waste recycling rate to at least 96%
	Environmentally harmful substance reduction	Reduce purchased number of PRTR-designated products by 70% (base year: FY2000)	Reduce purchased number of PRTR-designated products by 60% (base year: FY2000)
		Reduce purchased number of liquid coolants with chlorine-based additives by 85% (base year: FY2000)	Reduce purchased number of liquid coolants with chlorine-based additives by 77% (base year: FY2000)
Logistics		Reduce energy consumed per production unit by 1% annually for distribution operations	Reduce energy consumed per production unit by 1% (base year: FY2006)
		Promote switch to environmentally friendly packaging	Promote switchover to environmentally friendly packaging
Green office activities		Improve awareness of environmental conservation	Begin operation of environmental information sharing system

Note: Strengthened certain targets for fiscal 2010 in line with current initiatives
*1: Comply with the calculation standards of the Nippon Keidanren (Japan Business Federation) Voluntary Action Plan on the Environment
*2: REACH is the new Regulation of the E

Table 3 Environmental Guidelines (Scope: Group companies outside Japan)

Area		Targets to be achieved by FY2010 (Voluntary Action Plan)	Targets to be achieved by FY2007
Environmental management		Obtain ISO 14001 certification at 33 sites (all production sites outside Japan as of March 31, 2008)	Obtain ISO 14001 certification at two sites
		Create system for control of chemical substances in products	Create system for control of chemical substances in products
Compliance and environmental risk control		Observe laws and regulations	Observe laws and regulations
		Maintain zero oil-leak accidents	Maintain zero oil-leak accidents
Green procurement		Promote green procurement	Consider a global green procurement system
Manufacturing	Global warming countermeasures	Reduce CO_2 emissions per production unit by 1% annually since ISO 14001 certification was obtained	Ascertain data on energy consumption for 28 sites
	Waste reduction and recycling measures	Maintain waste recycling rate of 90% or more	Ascertain data on amount of waste material for 28 sites
	Environmentally harmful substance reduction	Continue reducing use of liquid coolants with chlorine-based additives	Ascertain data

	Performance in FY2007	Evaluation	Targets to be achieved by FY2008
	Maintained ISO 14001 certification for all sites	Achieved	Maintain ISO 14001 certification for all sites
	• Held seminar to strengthen waste management for 33 people • Provided education at NSK Manufacturing Education and Training Center six times for 61 people • Implemented e-learning for 7,061 people and education for 164 new employees	Achieved	Continue providing education at NSK Manufacturing Education and Training Center
	• Completed at 11 plants • Obtain certification for chemical substance management from three customers	Achieved	Establish a product chemical substance committee
	Zero legal violations	Achieved	Observe laws and regulations
	Zero accidents	Achieved	Maintain zero oil-leak accidents
	Created a total of 21 products and technologies	Achieved	• Create environmentally friendly products and conservation technologies • Institute Eco-efficiency indicator
	Completed compliance with ELV directives	Achieved	• Gather 100% data on products for automobiles and electric equipment • Pre-register for REACH regulation*2
	• Began operation of green procurement system • Registered 292 companies to use the green procurement system	Achieved	• Expand operation of green procurement system and enhance data • Make the fifth revision of *Green Procurement Standards* • Implement green procurement for secondary materials
	Green product purchasing rate of 96.3%	Achieved	Raise the applicable green product purchasing rate to at least 90%
	Reduced CO_2 emissions per production unit by 14.3% (base year: FY1999)	Achieved	Reduce CO_2 emissions per production unit by 8.6% (base year: FY1999)
	Maintained zero emissions	Achieved	Continue to maintain zero emissions
	Recycling rate of 96.6%	Achieved	Improve the waste recycling rate to at least 97%
	Reduction of 66%	Achieved	Reduce purchased number of PRTR-designated products by 69% (base year: FY2000)
	Reduction of 78%	Achieved	Reduce purchased number of liquid coolants with chlorine-based additives by 79% (base year: FY2000)
	Reduction of 3%	Achieved	Reduce energy consumed per production unit by 2% (base year: FY2006)
	Switched 50% of applicable products	Achieved	Reduce purchase of wood pallets by 30% (base year: FY2004)
	Started at Technology Development Centers at Fujisawa and Maebashi	Achieved	Ascertain CO_2 emissions for headquarter building and other offices (4 places)

	Performance in FY2007	Evaluation	Targets to be achieved by FY2008 (Voluntary Action Plan)
	Expanded certification to 29 sites with four new sites gaining certification	Achieved	Obtain ISO 14001 certification at one site
	• Completed for two plants • Obtain certification for chemical substance management from one customer	Achieved	Create system for control of chemical substances in products (China and ASEAN)
	Zero legal violations	Achieved	• Observe laws and regulations • Pre-register for REACH regulation
	Zero accidents	Achieved	Maintain zero oil-leak accidents
	Decided to adopt a global green procurement system	Achieved	• Adopt global green procurement system • Hold green procurement seminars (China and ASEAN)
	Obtained data for 29 sites	Achieved	Ascertain data on energy consumption at 30 sites
	Obtained data for 29 sites	Achieved	Ascertain data on amount of waste material at 30 sites
	Obtained data for seven sites	Achieved	Reduce number of liquid coolants with chlorine-based additives by 20% (base year: FY2006)

Acquiring ISO 14001 Certification

The NSK Group strives to regularly review its environmental management activities and make continuous improvements based on the international standard ISO 14001 for environmental management. It is the Group's policy to obtain certification for Group companies manufacturing NSK-brand products as well as Group companies (manufacturing and distribution) in which NSK has at least a 50% equity stake.

As of October 2005, all 21 applicable sites in Japan had obtained the certification. Outside Japan, four new sites gained certification in fiscal 2007, and a total of 29 sites have acquired certification. Four sites that have just begun operations are expected to obtain certification by 2010 (Table 4).

Table 4 ISO 14001 Achievement

In Japan

	Site name	Date acquired
NSK	NSK Ltd., Fujisawa Plant (including Technology Div.)	Sept. 1999
	NSK Ltd., Ohtsu Plant	Nov. 1999
	NSK Ltd., Ishibe Plant	Oct. 1998
	NSK Ltd., Saitama Plant/ NSK Precision Co., Ltd., Saitama Precision Machinery and Parts Plant	Sept. 1998
	NSK Ltd., Kirihara Branch	Nov. 1999
Group companies	NSK Fukushima Co., Ltd./ NSK Needle Bearing Ltd., Fukushima Plant	July 1998/ Oct. 2005
	NSK Steering Systems Co., Ltd. Soja Plant and Akagi Plant	Dec. 1999
	NSK Precision Co., Ltd., Maebashi Precision Machinery and Parts Plant (including Technology Div.)	Dec. 1999
	NSK Micro Precision Co., Ltd., Fujisawa Plant	June 2001
	NSK Micro Precision Co., Ltd., Matsukawa Plant	Apr. 2004
	NSK Needle Bearing Ltd., Takasaki Plant and Haruna Plant	July 2004/ Jan. 2001
	NSK Kyushu Co., Ltd.	Oct. 2000
	Asahi Seiki Co., Ltd.	Dec. 2003
	Amatsuji Steel Ball Mfg. Co., Ltd., Main Works/Shiga Works	Mar. 2001
	AKS East Japan Co., Ltd.	Sept. 2001
	Shinwa Seiko Co., Ltd. Shin-asahi and Kutsuki plants	Dec. 2002
	NSK Machinery Co., Ltd.	Mar. 2003
	NSK Logistics Co., Ltd. (headquarters; logistics centers in Kanto, Chubu, and Kansai regions)	Oct. 2003
	NSK-Warner K.K.	Mar. 2001
	Chitose Sangyo Co., Ltd.	Nov. 2003
	Inoue Jikuuke Kogyo Co., Ltd.	Feb. 2001

Outside Japan

Region	Site name	Date acquired
The Americas	NSK Corporation, Clarinda Plant	July 2002
	NSK Corporation, Franklin Plant	Nov. 2002
	NSK Corporation, Liberty Plant	June 2007
	NSK Steering Systems America, Inc., Bennington Plant	Dec. 2002
	NSK Steering Systems America, Inc. Dyersburg Plant	Expected FY2009
	NSK Precision America, Inc.	Jan. 2007
	NSK-AKS Precision Ball Company	Nov. 2006
	NSK Brasil LTDA., Suzano Plant	Jan. 2000
Europe	NSK Bearings Europe Ltd., Newark Plant	July 2006
	NSK Bearings Europe Ltd., Peterlee Plant	Feb. 1999
	NSK Steering Systems Europe Ltd., Peterlee Plant	Sept. 2001
	NSK Precision UK Ltd.	May 2000
	AKS Precision Ball Europe Ltd.	Nov. 2006
	Neuweg Fertigung GmbH	Jan. 2001
	NSK Bearings Polska S.A., Kielce Plant	Aug. 2004
	NSK Needle Bearings, Poland SP. ZO.O.	Expected FY2009
	NSK Steering Systems Europe (Polska) SP.ZO.O.	Dec. 2006
	AKS Precision Ball Polska Sp. ZO.O.	Apr. 2005
Asia	P.T. NSK Bearings Mfg. Indonesia	Mar. 2000
	PT. AKS Precision Ball Indonesia	Sept. 2005
	NSK Bearings Mfg. (Thailand) Co., Ltd.	June 2004
	Siam NSK Steering Systems Co., Ltd.	Nov. 2000
	NSK Micro Precision (M) Sdn. Bhd.	Jan. 2002
	ISC Micro Precision Sdn. Bhd.	Dec. 1999
	Kunshan NSK Co., Ltd.	Dec. 2003
	Changshu NSK Needle Bearings Co., Ltd.	Mar. 2007
	Dongguan NSK Steering Systems Co., Ltd.	Aug. 2007
	Zhangjiagang NSK Precision Machinery Co. Ltd.	Expected FY2008
	Suzhou NSK Needle Bearings (Suzhou) Co., Ltd.	Sept. 2007
	AKS Precision Ball (Hangzhou) Co., Ltd.	Nov. 2007
	NSK Korea Co., Ltd., Changwon Plant/ NSK Needle Bearing Korea Co., Ltd.	Dec.1997/ Feb. 2006
	Rane NSK Steering Systems, Ltd.	Nov. 2004
	NSK-ABC Bearings Ltd.	Expected FY2010

Environmental Accounting

From fiscal 1999, the NSK Group has disclosed the results of environmental accounting, a tool for quantitatively ascertaining and evaluating the costs and results of environmental protection activities. The Group also has introduced environmental accounting as an information tool to broaden people's understanding of the Group's activities.

In fiscal 2007, the environmental conservation costs (Table 5) were approximately 3.1 billion yen in investments and approximately 8.5 billion yen in expenses. The economic benefits (Table 6) totaled 1.5 billion yen. Around 60% of environmental protection costs are incurred from research and development of environmentally friendly products and technologies.

Table 5 Environmental Conservation Costs

Category		Investments			Expenses			Main activities
		FY2006*1	FY2007		FY2006*1	FY2007		
		Millions of yen	Millions of yen	(%)	Millions of yen	Millions of yen	(%)	
Business area costs	Pollution prevention costs	703.9	639.4	(20.8)	647.5	748.1	(8.8)	• Maintained and inspected dust collectors and smoke removal units • Deodorized noxious smells • Brought to the surface and repaired underground tanks and pipes • Maintained and inspected facilities affected by environmental impact • Maintained and inspected the handling procedures for discharged water and other fluids
	Global environment conservation costs	602.6	523.6	(17.1)	368.9	463.2	(5.5)	• Followed energy conservation policies including installation of inverters and high energy efficient equipment • Converted to natural gas and other green energies • Took countermeasures to reduce ozone depleting substances
	Resource circulation costs	20.3	93.7	(3.1)	740.0	861.3	(10.2)	• Installed grinding-dust briquette making equipment • Took countermeasures to reduce and recycle waste material • Disposed and handling of general and industrial waste
	Subtotal	1,326.8	1,256.7	(40.9)	1,756.4	2,072.6	(24.5)	
Upstream and downstream costs		0.0	0.5	(0.0)	260.6	201.5	(2.4)	• Practiced green procurement (low polluting vehicles, paper, uniforms, and office equipment and supplies) • Undertook environmental impact reducing measures, including packaging materials
Administration costs		66.6	90.3	(2.9)	592.9	653.8	(7.7)	• Performed landscaping and "greening" work • Maintained and followed procedures for ISO 14001 • Measured and analyzed environmental impact
Research and development costs		1,863.8	1,718.5	(56.0)	4,920.2	5,495.1	(64.8)	• Conducted research and development with the main goal of environmental protection for new product development
Social activity costs		1.0	1.2	(0.0)	51.6	48.4	(0.6)	• Participated in and donated to the Keidanren Nature Conservation Fund and the Electro-Mechanic Technology Advancing Foundation • Participated in environmental protection programs
Environmental remediation costs		0.0	2.0	(0.1)	12.4	3.2	(0.0)	• Maintained discharge treatment facilities
Total		3,258.2	3,069.2	(100.0)	7,594.1	8,474.6	(100.0)	

*1: FY2006 figures are being reevaluated due to expanded scope of coverage.

Table 6 Economic Benefits Associated with Environmental Conservation Activities

Area	Amount (millions of yen)	
	FY2006	FY2007
Cost savings of energy conservation policies	79.3	157.9
Cost savings of waste material reduction policies	41.1	44.3
Sales of recyclable waste material*	671.5	1,336.4
Total	791.9	1,538.6

* Income from sale of reusable waste materials to affiliates and subsidiaries.

Table 7 Physical Benefits Associated with Environmental Conservation Activities

Area		Comparison with earlier FY	
		FY2006	FY2007
Plants	CO_2 emissions/production unit	1.7% improvement	0.6% improvement
	Water use/production unit	6.6% improvement	0.3% improvement
	Landfill waste disposal ratio	0.6% improvement*	±0%*
	Waste recycling ratio	1.4% improvement	1.3% improvement
Distribution	Energy/production unit	——	3.0% improvement

* Calculated by the volume of direct landfill waste disposal.

Method of Calculation

Accounting term: April 2007 to March 2008
Sites included: Table 5: NSK Ltd. (corporate head office, plants, technology divisions); NSK Fukushima Co., Ltd.; NSK Steering Systems Co., Ltd.; NSK Precision Co., Ltd.; NSK Logistics Co., Ltd.; NSK-Warner, K.K.; NSK Kyushu Co., Ltd.; NSK Machinery Co., Ltd.; Inoue Jikuuke Kogyo Co., Ltd. **Table 6 and 7:** All sites in NSK Group companies in Japan

Criteria for environmental protection costs

- Environmental costs and expenses determined in accord with the *Environmental Accounting Guidelines 2005* issued by the Ministry of the Environment in Japan
- Depreciation is entered as a cost using the 5-year straight line depreciation method
- Compound costs are divided in proportion to the relevant environmental objective
- Costs incurred through green procurement are entered as full amounts and not as differential amounts

Criteria for environmental protection benefits

- Includes economic benefits (in monetary units) calculated from tangible evidence and physical benefits gained from environmental policies
- Does not include imputed benefits (risk avoidance benefits, estimated profit contribution benefits, etc.)

Compliance and Environmental Risk Control

The NSK Group has set and thoroughly complies with its own environmental standards. Though based on government laws and regulations, the Group's standards are actually stricter. The Group also puts efforts into the prevention of accidents by conducting education, drills, and environmental risk audits based on its *Risk Management Manual*.

Main Initiatives in Fiscal 2007

- Point 1 Install the latest wastewater treatment facilities at the Fujisawa Plant's Kirihara Branch
- Point 2 Centralized data management and thorough legal compliance

Challenges for Fiscal 2008

- Promote the elimination of underground tanks
- Measures to deal with oil leaks in emergencies

Strict Legal Compliance

Point 1 Installing the Latest Wastewater Treatment Facilities at the Fujisawa Plant's Kirihara Branch

In February 2008, production began at the Fujisawa Plant's Kirihara Branch. Combining biological and coagulating sedimentation processes, sophisticated wastewater treatment decreases the plant's environmental impact (Picture 1).

Point 2 Centralizing Management of Monitored Air and Water Quality Data

The NSK Group regularly measures the air pollutants in gas emissions from boilers and metal furnaces as well as the water pollutants in wastewater entering rivers and sewage systems. At all the Group's sites, the measurements for fiscal 2007 met the legally determined standards. However, at certain plants, pollutant levels exceeded the Group's voluntary standards. The causes were immediately investigated and measures were taken to deal with the issue. Currently, using the Group's environmental information sharing system, measured data is constantly verified and efforts are made for thorough legal compliance and early detection of irregularities.

Environmental Risk Control Measures

Auditing and Reducing Environmental Risks

At each site, in addition to external auditing by certified organizations and internal auditing based on ISO 14001, the NSK Group has added regular environmental audits by full-time staff and strives to reduce environmental risks (Picture 2).

Oil Leak Prevention Measures and Emergency Response Drills

Regular air-tightness testing is performed on underground tanks and buried pipes to prevent accidents, as they are difficult to inspect visually and a leak immediately contaminates the soil and groundwater with oil. At the 71 facilities tested in fiscal 2007 no problems were detected. Also, in an effort to eliminate underground tanks, eight such facilities were discontinued in fiscal 2007.

Furthermore, the NSK Group regularly carried out training sessions using mock oil leaks and other emergencies and verified the Group's reporting system and response procedures. In fiscal 2007, the Group as a whole conducted 141 of these training sessions.

Clean-up of Soil and Groundwater Contamination

As of fiscal 2003, the NSK Group had completely eliminated its use of chlorinated organic solvents. Nevertheless, testing since 1997 has revealed soil and groundwater contamination at five sites. The Group notified local authorities and undertook immediate steps to clean up the affected areas. At present, remediation has been completed at one site and is on-going at four sites. Regular monitoring is carried out at all five sites to ensure there is no impact outside Group property.

Picture 1: Latest wastewater treatment facilities at the Fujisawa Plant's Kirihara Branch

Picture 2: Full-time staff monitor environmental risks

Response to Inquiries

Most NSK Group sites are located in industrial areas. However, residential areas have expanded into these areas and the Group has received comments and inquiries from nearby residents. In fiscal 2007, there were six inquiries about noise and smell. As a result, the Group improved equipment and strengthened surveillance systems at the sites concerned and at other plants.

Sound absorbing windows in consideration of residential neighbors

Please see the following web page for information about the results of measurements of air and water pollutants at each plant:
http://www.nsk.com/company/environment/2008.html

Environmental Education

**In order to advance environmental protection initiatives, it is important to raise the awareness of every single employee.
The NSK Group is continually implementing environmental and awareness-raising education programs.**

Main Initiatives in Fiscal 2007

- Point 1 Advance awareness-raising activities
- Point 2 Carry out education that deepens knowledge at each organizational level

Challenges for Fiscal 2008

- Raise environmental protection awareness

Approach and Policies for Environmental Education

In order to further strengthen environmental protection initiatives and increase their effectiveness, the most important tasks are to raise the awareness of every single employee and to implement measures based on sound knowledge. The NSK Group is continuing to promote employee awareness-raising activities and to deepen understanding at every level of the organization.

Point 1 Advancing Awareness-Raising Activities

The NSK Group raises awareness by providing information on its environmental initiatives on the NSK website and in newsletters for employees and their families.

In fiscal 2007, the Group distributed its *CSR Report 2007* to all employees. In issue No. 422 (Picture 1) of *NSK Group News*, there was an article designed to encourage an understanding of the NSK Group's environmental activities and their implementation. Moreover, the Group used e-learning modules about environmental compliance, including test questions about chemical and waste management. These modules were given to 7,061 employees to increase their knowledge and awareness.

Publication of the *Monthly Environmental Report*

Each manufacturing site publishes a *Monthly Environmental Report* and distributes it to all departments. This publication reports on changes made in such areas as energy consumption and recycling rates as well as comments on the progress of environmental activities. Besides the activities of each subcommittee, the publication also frequently covers topics such as emergency training on grinding-coolant leaks, and provides explanations on matters such as new waste-storage facilities, and the use of returnable plastic boxes. This coverage encourages employees' active engagement and raises their level of environmental awareness.

Point 2 Education for Each Organizational Level

The NSK Group provides environmental education at every level of the organization, from new employees to management executives. The goal is to provide employees and directors with environment-related information and to equip them with the knowledge and skills they need for their individual positions and roles.

At each site, the Group carries out regular environmental education for employees and on-site suppliers. In order to develop initiative, they are encouraged to consider the effect their work has on the environment.

At the Saitama Plant, it is mandated that management receive environmental education every two years. In November 2007, the Global Environment Department manager from NSK headquarters gave a lecture to participants. To raise environmental awareness, he talked to 20 managers about environment management policies, such as reducing CO_2 emissions, initiatives for managing chemical substances, and the green procurement of secondary materials (Table 1).

Picture 1: Article in *NSK Group News*, No. 422

Table 1 Number of Environmental Education Courses and Participants in Fiscal 2007

Course type	Number of participants	Number of sessions
Compliance with environmental laws and regulations	1,473	57
Raising environmental awareness	15,829	161
Acquisition of environmental qualifications	128	34
Environmentally friendly design, green purchasing and procurement	1,102	57

Environmental Impact Review

The NSK Group considers it important to reduce its environmental impact at all stages of its business activities. By tracing a product's lifecycle, the following diagram shows the effect of the Group's business activities on the environment.

Suppliers

Development and Design, Primary and Secondary Materials, and Parts Manufacturing

The NSK Group's products are made with high-quality materials and parts from the Group's suppliers. The products deliver high performance and quality, with a low environmental impact. Manufacturing those materials and parts, however, consumes considerable energy and resources. Beginning from the development and design stages, the NSK Group together with its suppliers aims to reduce environmental impact, to develop even better materials and parts, and to continue to improve the manufacturing process.

Design support, technical support, information provision

NSK Group

Development & Design

pp. 45–48

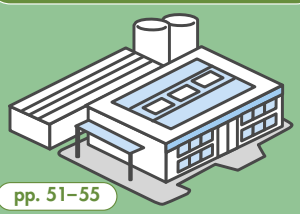
From the raw materials to post-use product recycling, the NSK Group considers the lifecycle of its products and promotes initiatives to reduce environmental impact.

Procurement

pp. 49–50

The Group procures materials and parts from its suppliers that do not include environmentally harmful substances, and is working to reduce the environmental impact of the entire supply chain.

Manufacturing



pp. 51–55

In addition to introducing more efficient manufacturing processes that use less energy and resources, the Group is implementing initiatives to recycle waste and reduce the quantity of environmentally harmful substances.

INPUT

Primary and Secondary Materials

Steel	412,918 t
Oils and greases	10,389 t

Energy

Electricity	603,617 MWh
Fuel	$1{,}970 \times 10^3$ gigajoules (GJ)

Environmentally Harmful Substances

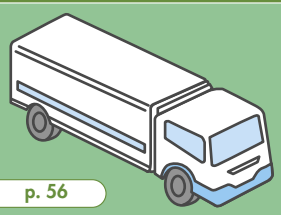
PRTR-designated substances	347 t

Water

Water	2.591 million m^3
• Groundwater	1.754 million m^3
• General water supply	0.706 million m^3
• Industrial water supply	0.131 million m^3

Design support, technical support, information provision

Distribution

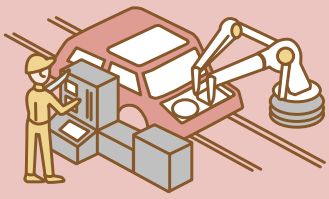


p. 56

By optimizing transportation methods and improving loading efficiency, the Group is actively promoting the "3Rs" of reducing, reusing, and recycling packaging and wrapping materials.

Customers

Assembly



In customer plants, NSK Group products are incorporated into end-use products such as automobiles and home appliances. Working closely with customers, the Group strives to provide products that reduce the environmental impact of these assembly plants.

Society

Use

The consumers who buy products such as automobiles and home appliances containing NSK Group products also have an environmental impact when they use these mechanical devices. The Group is working to develop products that are more energy efficient and thus reduce this impact.

OUTPUT

*1: Amount of CO_2 emissions is calculated according to the Law Concerning the Promotion of Measures to Cope with Global Warming.
*2: River discharge

Atmospheric Gases

CO_2*1	451,424 t
NOx	91 t
SOx	5.3 t

Water Quality*2

Wastewater	1.751 million m^3
• Rivers	1.338 million m^3
• Sewage system	0.413 million m^3
Biochemical Oxygen Demand	4.1 t

Environmentally Harmful Substances

Discharge/transfer of PRTR-designated substances	97 t

Waste

Total waste	100,092 t
• Landfill waste	532 t
• Incinerated waste	1,134 t
• Intermediate treatment	1,730 t
Recycled	96,696 t

Environmental Initiatives in the Development and Design Stages

The NSK Group's products affect the environmental impact of the machines and devices in which they are used. This section provides an overview of the NSK Group's initiatives for reducing environmental impact during the product development and design stages.

Main Initiatives in Fiscal 2007

- Point 1 Create environmentally friendly products
- Point 2 Examine indicators to evaluate the Eco-efficiency of products
- Point 3 Enhance systems for managing environmentally harmful substances

Approach and Basic Policy for Development and Design

With its Environmental Code of Conduct, the NSK Group aims to develop technology and create products that reduce environmental impact. NSK Group products are incorporated into various machines and devices and have the ability to control friction and reduce the amount of energy consumed. In designing new products and upgrading previous models, the NSK Group emphasizes two goals: (1) reduce the environmental impact of the manufacturing process and (2) provide comfort, conserve energy, and save natural resources at the end-user stage. In fiscal 2001, the Basic Policy for the Development of Environmentally Friendly Products affecting all technical departments was established in order to ensure steady progress toward the attainment of these goals.

Basic Policy for the Development of Environmentally Friendly Products

The NSK Group minimizes the environmental impact of its products at every stage—from R&D and design, to production, usage, and disposal—by upholding the following standards:

1. Each product should contribute toward the energy and resource conservation of the machine in which it is installed.
2. The amount of energy and resources required during product manufacturing should be minimal.
3. Environmentally harmful substances should not be used in products or manufacturing processes.
4. Products should contribute to the health and safety of end-users by having low emissions of vibration, noise, and dust.

Point 1 Creating Environmentally Friendly Products

The NSK Linear Guides Roller Guide RA Series and the compact, light, quiet high-output column-type electric power steering (EPS) system are both good examples of products designed with the environment in mind.

Case Study 1: NSK Linear Guides Roller Guide RA Series

A linear guide maintains the linear motion of parts and tools inside a machine. Conventional linear guides use balls in the load-bearing section as their rolling element, but the RA series (Picture 1) uses rollers. By employing the latest analytic technology and optimal designs, the NSK Group has been able to optimize the roller's efficiency. Thus, compared to guides of a similar size, NSK linear guides can carry larger loads, and they also have a longer service life. Moreover, thanks to their high-rigidity, these linear guides facilitate precise motion and the compactness of machines. These attributes help reduce the environmental impact of NSK customers' machines.

Case Study 2: High-Output Column-Type EPS Systems

The use of EPS systems, which consume less energy and are kind to the environment, has expanded to large passenger vehicles, including minivans and sports utility vehicles. To further improve automobile fuel efficiency, there is demand for light, compact, and high-output EPS systems. In addition, there have recently been increasing calls for reduced engine noise to meet the need for silence in luxury cars.

Picture 1: Linear Guides Roller Guide RA Series

Picture 2: High-output column-type EPS system

Picture 3: Ball-screw shift actuator for outboard engines

Challenges for Fiscal 2008

- Create environmentally friendly products
- Promote development of Eco-efficiency indicators for products

In light of this, the NSK Group developed a high-output column-type EPS system (Picture 2). This comprises a compact, highly efficient, and low-noise brushless motor that utilizes unique motor control technologies. Thanks to this technology, environmentally friendly EPS systems can even be used with the 3.5 liter engines in large luxury cars.

Case Study 3: Ball-Screw Shift Actuator for Outboard Engines

In recent years, systems that use electric signals to control outboard rudders and gearshifts to improve boat safety and control have become practicable. The actuator (Picture 3) the NSK Group developed for use in these engine's gearshifts is now used in outboard engines that have the world's highest output at 350 horsepower. Applying the Group expertise in ball-screw technologies, this actuator reduces energy loss by 50 percent, realizes high speeds, high output, and smooth and assured gear shifting in any situation. Moreover, the actuator uses no environmentally harmful substances and has a sealed design that does not leak oil.

Case Study 4: Highly Functional Thin-Section Angular Contact Ball Bearings for Robotic Applications

In the manufacturing sector for automobiles and semiconductors, demand for industrial robots is increasing worldwide. For fast, accurate motion, robots are constructed with numerous joints, whose revolving supports use bearings. The recently developed bearing (Picture 4) is an assembled ball bearing with a better design than conventional crossed roller bearings.*1 The new bearing achieves lower torque, is more compact, lighter, has higher moment rigidity,*2 and contributes to energy and natural resource savings in industrial robots.

Picture 4: Highly Functional Thin-Section Angular Contact Ball Bearings for Robotic Applications

*1: A bearing that alternately orients a cylinder roller to intersect with a rolling element. It is compact and can carry loads from various directions.

*2: Indicates resistance to deformity from a force (moment load) bending the axis.

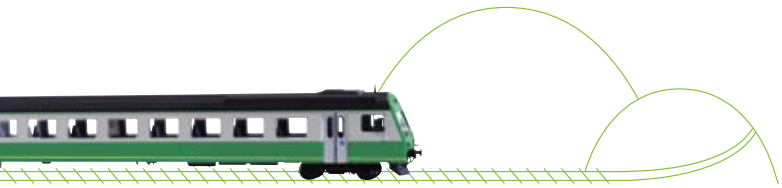
Development of Low-Torque Bearing Transmissions for Use in Hybrid Cars

Today, in many parts of the world, a range of technologies are being developed to improve automobile fuel efficiency. Of these endeavors, hybrid technologies are eagerly anticipated. The NSK Group has been developing bearings for the transmissions of our customers' hybrid cars, but with each subsequent year there are further demands to reduce bearing torque loss.

In transmissions, lubricant oil is used to lubricate gears, bearings, and other parts, but it is known that bearing torque loss is greatly influenced by the amount of lubricant oil supplied and the method by which it is applied. We have used technologies to analyze the flow of oils and other methods like the visualization of lubricant agitating. Based on these results and the steps we have taken after discussions with our customers, we have achieved a 30 to 45 percent decrease in bearing torque loss when compared to the levels of previous pressed-cage products.

For the future, beginning with low torque bearings, we are doing our best to play a part in improving the fuel economy of automobiles worldwide. Many of these vehicles are being equipped with NSK products that satisfy the performance requirements of hybrid cars.

Susumu Tanaka
Group Manager,
Drive Train Bearing
Technology Department,
Automotive Bearing
Technology Center



Case Study 5: Split Roller Bearing Unit with Longer Service Life

The bearing units for the continuous casting machines used at steel mills discharge water and oxidized scale,*3 along with lubricant from the unit, as they are operated in steamy environments containing oxidized scale. There was a problem disposing of the lubricant-contaminated wastewater that was discharged from the bearing unit and had polluted the area surrounding the machinery. The new bearing unit that the NSK Group has developed employs a new seal design that prevents steam and oxidized scale from entering the unit, and prevents the discharge of lubricants (Picture 5). In addition, an oil-air lubrication*4 is applied to further reduce the environmental impact. Moreover, the Group has made these bearings more compact and lengthened their service life by raising their load capacity by approximately 30 percent.

*3: Ferrous oxide that forms on the surface of iron at high temperatures. Because it is solid and brittle, fallen oxidized scale contaminates the bearings and reduces their service life.

*4: Method of supplying small amounts of lubricant to a bearing using compressed air.

Point 2 Environmental Product Subcommittee and Eco-efficiency Indicator

The Environmental Product Subcommittee (Picture 6) comprises engineers chosen from each of the product technology centers. The subcommittee supports the development of products that contributes to energy and resource savings. It also works to present the products that are developed in a manner that is easily understood to people both inside and outside the NSK Group.

Moreover, to accelerate these activities, from fiscal 2007 the Environmental Product Subcommittee has examined Eco-efficiency indicators that quantitatively evaluate a product's degree of environmental friendliness. Indicators are calculated by dividing a product's value by its environmental impact. Use of these kinds of indicators is being introduced by some manufacturers. While guaranteeing the reliability of the evaluation, the subcommittee is developing guidelines that provide a simpler explanation of the data that are used and the methods of calculation to make it possible for even more engineers to make evaluations.

In the fiscal 2009 CSR Report, the Group will present the results of the evaluation of Eco-efficiency indicators for representative products like bearings, automobile parts, and precision machinery and parts. The Group intends to further facilitate the development of environmentally friendly products by introducing an Eco-efficiency indicator.

Point 3 Management of Environmentally Harmful Substances

The NSK Group meets customer requirements, while its production adheres to laws and regulations relating to environmentally harmful substances, such as those stipulated in the EU RoHS*5 and ELV directives.*6 During the development and design and manufacturing processes, the Group is upgrading its various corporate technology standards, enhancing its management system for environmentally harmful substances, and striving to create products that use no environmentally harmful substances.

In fiscal 2007, the Group received audits related to environmentally harmful substances from customers for the manufacture of electronic and IT-related equipment. Moreover, the Group's management levels are improving through the performance of internal audits. The Group is also putting its full effort into the enhancement of its management system for environmentally harmful substances.

*5: A European Union regulation that sets the maximum concentration limits on hazardous substances used in electrical and electronic equipment.

*6: A European Union regulation that aims to reduce the amount of waste from vehicles, ensure proper disposal, and restrict the use of hazardous substances in vehicles.

Reduction of Environmentally Harmful Substances

As planned, in fiscal 2007 the NSK Group reduced its use of environmentally harmful substances (Table 1). The following are two case studies of this initiative.

Picture 5: Split roller bearing unit with longer service life

Picture 6: Members of the Environmental Product Committee

Picture 7: Clutch pack

Picture 8: Lead-free dry bearings

Case Study 1: Lead-Free Dry Bearings for Clutch Packs

Automatic transmissions of automobiles have multiple clutch and brake packs as well as revolving supports that use many dry and roller bearings. Copper alloys are widely used in dry bearings. Although these alloys are excellent for lubricating, they contain more than 20 percent lead. Since lead is an environmentally harmful substance, the NSK Group's customers have requested the elimination of all lead without a reduction in bearing performance. The clutch packs (Picture 7) produced by the Group apply a lead-free dry bearing (Picture 8) that substitutes the copper alloy with bismuth.*7 The changeover has been completed ahead of the EU's July 2008 ELV directive.

*7: The atomic number for bismuth (Bi) is 83. Because bismuth has similar properties to lead (Pb: 82), it is a metallic element that is in wide demand as a substitute for lead.

Case Study 2: Low Profile MEGATORQUEMOTOR PN2012

The equipment for semiconductors and liquid crystal panels as well as that used to monitor the assembly of electronic parts requires very precise and rapid positioning. Therefore, there is strong demand for a compact motor with high-rotational accuracy. In response to these demands, the NSK Group developed the Low Profile MEGATORQUEMOTOR PN2012, which is thinner than the YS-series low profile motor and offers increases in efficiency and performance. This environmentally friendly product conforms to both EU RoHS directives and U.S. and EU safety regulations. As a safe and environmentally friendly product, this motor contributes to miniaturization, weight reduction, and energy conservation in equipment used to manufacture semiconductors, electronic parts, and liquid crystal panels.

Picture 9: Low Profile MEGATORQUEMOTOR PN2012

Table 1 Progress on Eliminating Environmentally Harmful Substances

Product category	Specified substance	Specified part/product	Alternative introduced
Bearings	Hexavalent chromium	(Surface treatments) • Bearing shield • Core plate for bearing seals • Pulley units • Bolts for hub unit bearings	 Mar. 2003 Mar. 2004 Mar. 2005 (excluding prior customer specifications) Dec. 2004
	Lead	• Grease additives • Pulley unit coating	Mar. 2003 Dec. 2004
Automotive components	Hexavalent chromium	(Surface treatments) • Steering column joints • EPS parts (electronic) • EPS parts • Manual steering gear parts	 Dec. 2006 Dec. 2004 Dec. 2006 Mar. 2007
	Lead	• Cation coating for steering components • End bearings for one-way clutches • Lead-free sliding bearings for clutch packs • Electroless nickel plating for EPS parts	June 2004 Alternative currently being phased in Nov. 2007 Feb.2008
Precision parts	Hexavalent chromium	(Surface treatments) • Small screw processing for general precision instruments • Linear guide seal cored bar • Linear guide seal collar • Ball screw • Mono-carriers K1 protective cover	 June 2005 July 2005 Mar. 2004 Mar. 2006 Apr. 2006
	Lead	• Linear guide under seal adhesive • Support unit surface treatment • Ball small screw, pin, brass part	May 2005 Dec. 2005 Feb. 2006
	Cadmium	• Brass parts for general precision instruments	Feb. 2006
Mechatronic products	Lead	• Solder*	Alternative currently being phased in
	Hexavalent chromium	• Surface treatment for metal panels and connecting components	Alternative currently being phased in
	Polybrominated biphenyl (PBB), polybrominated diphenyl ether (PBDE)	• Wiring covering material	Mar. 2004
	Cadmium	• Nickel-cadmium batteries	June 2006

* Excluding high-melting-point solder with 85% or more lead content

Environmental Initiatives in the Procurement Stage

Procurement is an important activity influencing the environmental impact of NSK products. The Group is working toward green procurement to reduce the environmental impact along

Main Initiatives in Fiscal 2007

Point 1 Ensure both self-auditing and onsite auditing of suppliers

Point 2 Upgrade green procurement system information

Green Procurement

The NSK Group cooperates with suppliers to procure environmentally friendly parts and materials. The Group is also making efforts to strengthen its system for guaranteeing the careful management of chemical substances and the environmental quality of products.

Advancing Green Procurement

The NSK Group established the Master Purchase Agreement and the *Green Procurement Standards* for the procurement of environmentally friendly parts and materials in order to supply safe and reliable products and conform to environmental laws and customers' regulations.

In addition to the Japanese language edition, the *Green Procurement Standards* have been translated into English, Chinese, Korean, Thai, Portuguese, and Polish for suppliers outside Japan (Picture 1). Based on these standards, the Group evaluates suppliers' environmental initiatives and the environmental friendliness of the products it purchases and then determines whether to procure the products or not. Suppliers are asked to agree to the requirements of the *Green Procurement Standards*.

Reflecting recent changes to environmental laws and regulations, the Group is planning a fifth revision of the *Green Procurement Standards* for fiscal 2008. The Group will also hold green procurement seminars at six locations in Japan as well as in China and the ASEAN region.

Point 1 Auditing Suppliers

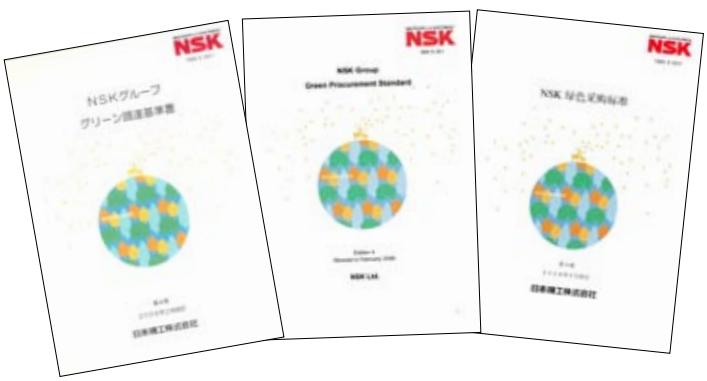
All suppliers likely to use environmentally harmful substances are urged to implement a self-audit using check sheets from the NSK Group.

The check sheets are prepared to assess each supplier's understanding of the supply chain, clarification of the Group's requirements to suppliers, their management of purchased goods, their management system for environmentally harmful substances, and to verify the absence of these substances.

If, as a result of these self-audits, the supplier is assessed as needing an onsite audit, auditors from the Group visit and audit the relevant plants (Picture 2). The supplier will solve the problems identified during the onsite audit and rectify the situation with support from the Group. Efforts toward improvement will be ongoing and follow-up evaluations will be made.

Green Purchasing

Having established its *Guidelines for Green Purchasing*, the NSK Group pursues green purchasing by selecting environmentally friendly products for general needs such as stationery, office equipment, and vehicles.



Picture 1: *Green Procurement Standards* in multiple languages

Picture 2: Management system verification based on check sheets for suppliers

the entire supply chain. One example of this procurement is buying parts and materials that do not contain environmentally harmful substances.

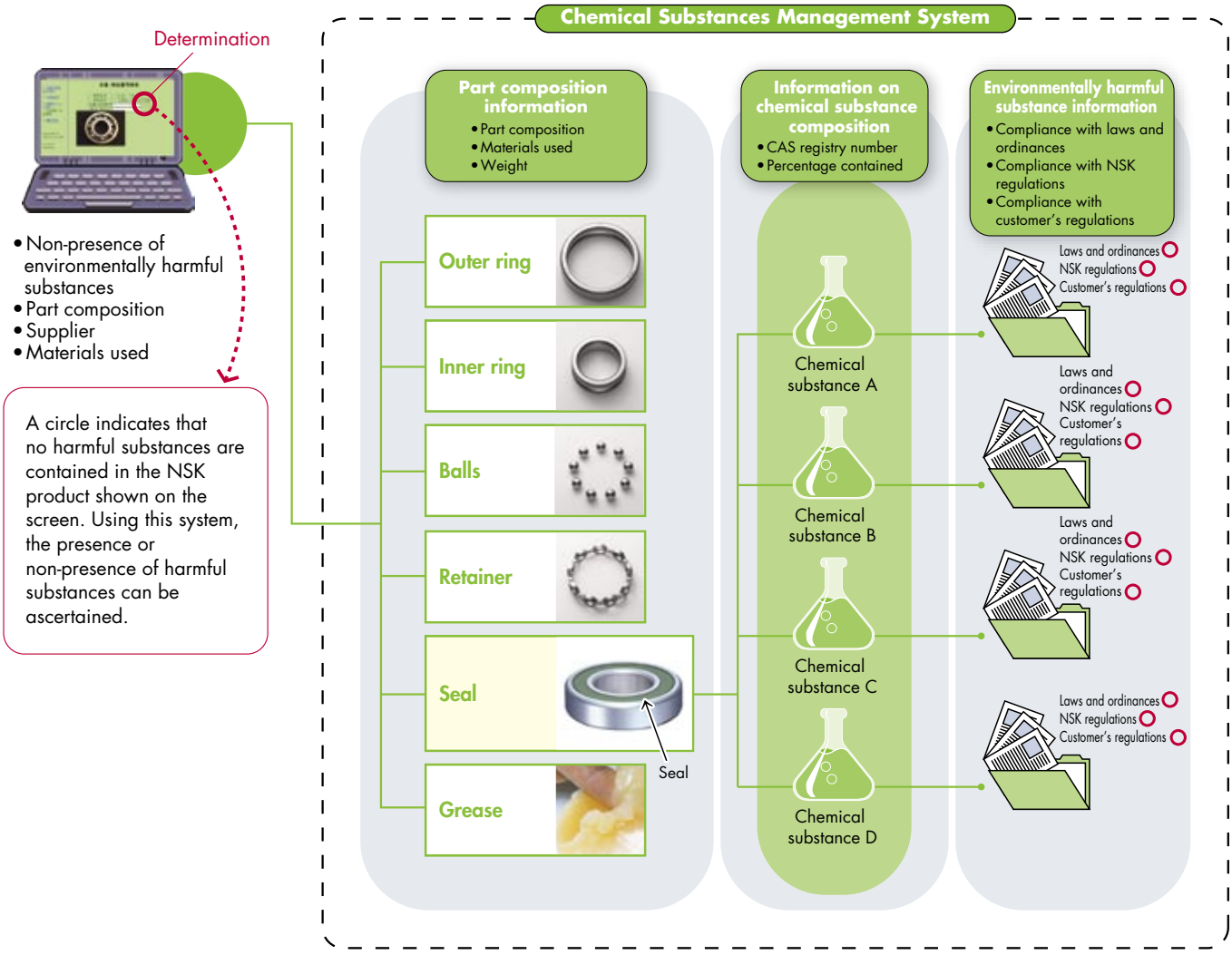
Challenges for Fiscal 2008

- Complete green procurement of secondary materials
- Intensify green procurement at plants outside Japan

Point 2 Chemical Substances Management System

The NSK Group has initiated its Chemical Substances Management System to facilitate environmentally friendly design and green procurement. Currently, the Group has issued user IDs to 292 suppliers, so that these suppliers can provide information through the Internet on the chemical substances contained in the parts and materials that are to be delivered to NSK. The Group has also created a database of the environmental laws and ordinances in Japan and other countries and of the environmental regulations of 39 customers. This allows the suppliers to verify online the degree to which NSK products conform to the laws of various countries. In fiscal 2008, the coverage of this system will be expanded from Japan to Group companies in China and the ASEAN region (Figure 1).

Figure 1 Chemical Substances Management System



NSK Group Initiatives in the Manufacturing Stage

Global Warming Countermeasures

Promoting efficient use of energy and conversion to cleaner energies, the Group is combating global warming through the reduction of CO_2 emissions.

Main Initiatives in Fiscal 2007

- Point 1 Promote conversion to cleaner energy
- Point 2 Promote energy conservation activities
- Point 3 Promote conversion to energy-efficient equipment

Initiatives to Combat Global Warming

Reduce CO_2 Emissions per Production Unit and Overall CO_2 Emissions

At plants in Japan, CO_2 emissions per production unit were reduced by 14.3 percent from 1999 levels, exceeding the target of a 7.7 percent reduction. Total CO_2 emissions remained at about fiscal 2006's level of 451,000 tons (Figure 1). At plants outside Japan, CO_2 emissions were 418,000 tons, a slight increase from fiscal 2006. Although energy conservation activities are progressing, increases in production have more than offset that progress. Consequently, efforts to further reduce CO_2 emissions will be stepped up in the future.

The NSK Group has been making progress on its goal of reducing per-unit emissions. To make further contributions to combating global warming, the company is introducing a new goal: reducing total CO_2 emissions. In order to achieve this, the NSK Group is actively promoting the introduction of energy conserving equipment and the conversion to cleaner energy, in addition to stepping up its energy conservation efforts (Figure 2).

Point 1 Conversion to Cleaner Energy

The NSK Group is promoting the conversion to low-CO_2 emitting natural gas in order to reduce the use of fuels that emit large amounts of CO_2, a factor in global warming.

At the NSK Fujisawa Plant, energy-inefficient cooling equipment for air conditioning has been successively replaced. Furthermore, in fiscal 2007, the kerosene-heated boiler for plant heating was replaced with an energy-efficient boiler that uses natural gas (municipal gas). As a result, there has been a reduction of about 900 tons of CO_2 per year.

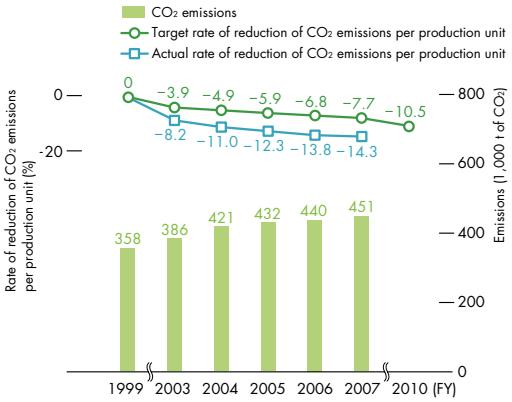
Point 2 Promotion of Energy Conservation Activities

The NSK Group is increasing the efficiency of its production lines by improving maintenance and by reducing waste and energy use.

With the objective of becoming "No. 1 in Total Quality," the Maebashi Precision Machinery & Parts Plant of NSK Precision Co., Ltd., has set out to integrate its production, sales, and technology departments and to shorten total lead-times from the moment customer's orders are received to the time products are delivered. Similarly, management at the plant is working on streamlining* production and reducing waste. In fiscal 2007, streamlining of the heat treatment process (Picture 1) was begun. This reduced total CO_2 emissions by 700 tons per year. These streamlining efforts are expected to be completed in fiscal 2009.

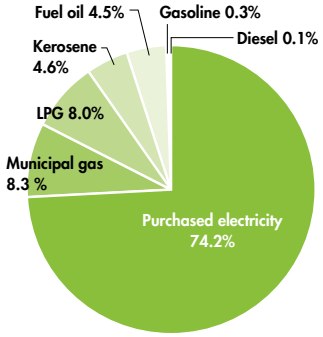
* Working toward a smooth, continuous flow of materials and information, with the effect of reducing lead times

Figure 1 CO_2 Emissions per Production Unit and Total in Japan



Notes: CO_2 emissions per production unit are defined as the amount of CO_2 emissions per one million yen value-added production unit. CO_2 emissions are estimated based on the coefficients provided by the Japanese Ministry of the Environment.

Figure 2 CO_2 Emission Rates by Energy Source in Japan



Picture 1: Streamlined heat treatment process at the Maebashi Precision Machinery & Parts Plant

Challenges for Fiscal 2008

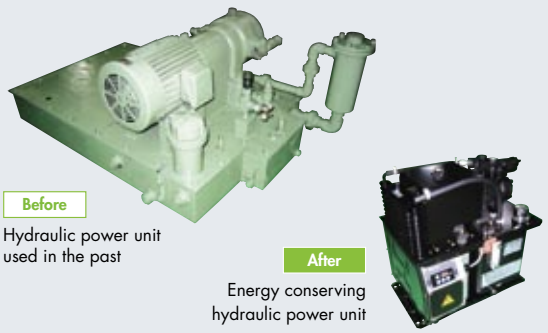
- Establish goals for the reduction of CO_2 emissions
- Promote working group activities for different environmental issues

Point 3 Conversion to Cleaner Energy

The NSK Group is actively promoting initiatives for efficient energy use.

Since fiscal 2003, the NSK Ohtsu Plant has made systematic progress on changing the hydraulic units powering machine tools to models which conserve more space and energy. For each unit replaced, CO_2 emissions decrease by three tons annually. In fiscal 2007, 18 units were replaced, bringing the total to 70. Although not a high-profile activity, it is an important and ongoing task (Figure 3).

Figure 3 Use of Highly Efficient Equipment at the Ohtsu Plant



Establishing Working Groups to Improve Activities

Working groups have been established and activities initiated to find solutions to problems shared by all the NSK Group plants. Such solutions include energy conservation for facilities such as air conditioners and air compressors. (Picture 2). Information about the initiatives implemented at each plant is shared, and effective solutions are then extended to other plants. This collaboration between plants deepens communication and develops synergy. In the future, the NSK Group aims to establish guidelines for energy conservation to standardize the procurement and replacement of facilities and tools, and further reduce total CO_2 emissions.

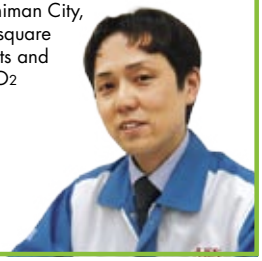
Picture 2: Working group activities

NSK Action

Photovoltaic generation system at Amatsuji Steel Ball Mfg. Co., Ltd.

Installation of Photovoltaic Generation Systems at Amatsuji Steel Ball Mfg.

At Amatsuji Steel Ball Mfg., 98 percent of the CO_2 emissions come from the use of electric power. Consequently, reduction of this usage is a major issue. The largest initiative carried out in fiscal 2007 was the installation of photovoltaic generation systems at the main works in Kadoma City, Osaka Prefecture, and the Shiga Works in Omihachiman City, Shiga Prefecture. At each plant, the roughly 1,000 square meter solar panels generate up to 130–135 kilowatts and both plants together are expected to reduce total CO_2 emissions by 150 tons per year.



Naoto Arima

Manager, Environmental Management Section, Amatsuji Steel Ball Mfg. Co., Ltd.

Please see the following web page for more information on changes in CO_2 emissions per production unit at each NSK worksite in Japan and total CO_2 emissions in each country:
http://www.nsk.com/company/environment/2008.html

Many resources are used in the process of manufacturing products. The NSK Group aims to protect the global environment by further reducing its total consumption of resources through the pursuit of more efficient use in the production process.

Main Initiatives in Fiscal 2007

- Point 1 Efficient use of resources
- Point 2 Develop a system to strengthen initiatives

Challenges for Fiscal 2008

- Eliminate waste through efficient steel cutting
- Eliminate waste of materials

Point 1 Efficient Use of Resources

The NSK Group is making progress on the efficient use of materials and on reducing resource waste. Here is an overview of three examples of such initiatives.

Case Study 1: Reducing Waste Frictional Material by 50 Percent

Frictional material is used in the lock-up clutches in the automatic transmissions of automobiles. In the past, the rings were cut from sheet material. By improving forming and assembly technologies, the amount of waste frictional material has been reduced by 50 percent by cutting the rings out in several pieces (Figure 1).

Case Study 2: Reducing the Number of Parts in Steering Columns

The NSK Group has successfully applied a technology called hydrofoaming* to the manufacture of parts for automobile steering columns. Using this method, a single unit is made instead of welding several parts together. This means 10 percent less steel is used (Figure 2).

* Hydrofoaming technology: Placing a tube in a mold and then applying water pressure to its internal surfaces until it takes the shape of the mold.

Case Study 3: Reducing Materials in Joint Shafts

In the past, the joint shafts in steering columns were made from solid rods. The NSK Group developed a manufacturing technology that uses tubes and brought it to mass production. Using this new technology, the shaft weighs 30 to 50 percent less and there has been a reduction in the amount of steel used (Picture 2).

Point 2 Strengthening Organizational Initiatives

For the past five years, the purchase cost of primary (steel) and secondary (packaging, etc.) materials per production unit has remained steady (Figure 3).

In November 2007, the NSK Group established the Resource Conservation Subcommittee within the Global Environment Protection Committee. The Subcommittee ensures that the challenges that must be faced for the conservation of resources are handled more efficiently through the organized effort of the entire NSK Group. This is achieved by enhanced cooperation between the R&D Division and plants rather than just being tackled within each plant.

Figure 3 Amount of Material Used per Production Cost

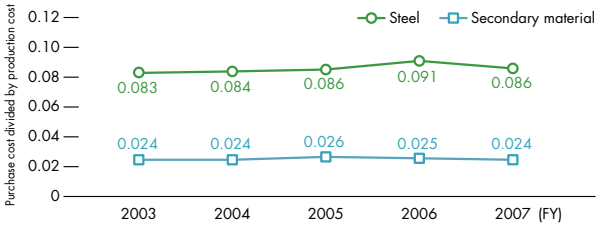


Figure 1 Reducing the Amount of Frictional Material for Lock-up Clutches

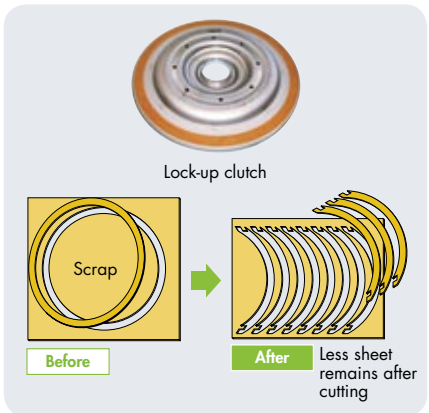
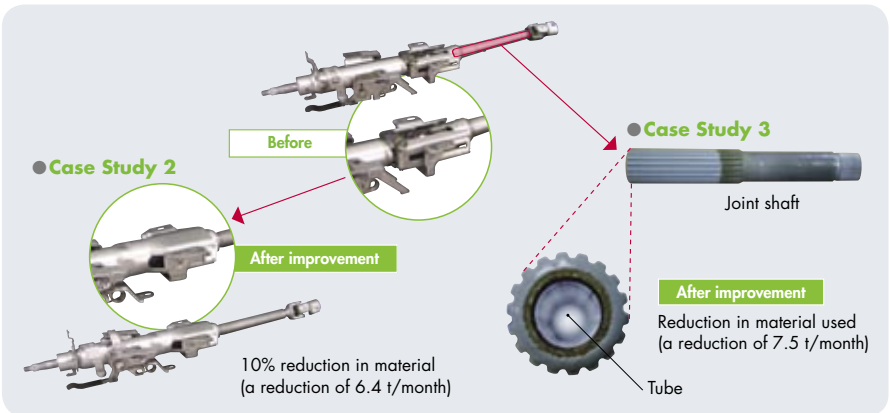


Figure 2 Fewer Parts for Steering Columns and Less Material for Joint Shafts



Waste Reduction and Recycling Measures

The NSK Group helps create a recycling-oriented society by reducing, reusing and recycling (the 3Rs) whenever possible. The Group is working aggressively to reduce its landfill disposal to zero.

Main Initiatives in Fiscal 2007

- Point 1 Achieve a recycling rate of 96%
- Point 2 Hold a seminar for strengthening management against waste risks

Challenges for Fiscal 2008

- Achieve a recycling rate of at least 97%
- Maintain zero emissions

Point 1 Zero Emissions and Recycling Status

The NSK Group defines zero emissions* as having a "landfill disposal amount that is equal to, or less than, 1 percent of total waste emissions." From fiscal 2007, the NSK Group includes in this calculation both waste directly disposed of in landfills and waste that is partially disposed of, such as ash that remains after incineration and also ends up in landfills. In fiscal 2007, the NSK Group achieved zero emissions, as defined above, with 532 tons of waste disposed of in landfills, which was 0.5 percent of the total waste emitted. The Group also achieved its target of a 96 percent recycle rate (Figures 1 and 2).

* A concept of the new recycling-oriented society in which waste is not disposed of, but used instead as a raw material by other industries.

Point 2 Strengthening Waste Management

In Japan, in response to the large-scale illegal dumping that has become a social problem, the Waste Disposal and Public Cleansing Law requires that businesses discharging waste manage and verify the adequacy of the whole disposal process, not allowing unsatisfactory conduct such as illegal dumping. To meet this requirement, as well as internal guidelines, it is important for the NSK Group to assess the waste management of the contractors entrusted with the company's waste disposal. In the past, each worksite in the NSK Group independently certified its waste disposal, but in fiscal 2007 NSK created a unified Group standard and formulated a check sheet that reflected these exchanges. To pave the way for this initiative, the NSK Group held a seminar and established an apparatus that allows all worksites to learn about the auditing points of contractors' practices and how to complete the check sheet (Picture 1). In the future, the NSK Group will continue to promote initiatives aimed at even higher levels of management, while deepening cooperation with waste contractors.

Picture 1: Seminar on strengthening waste disposal management, including practical exercises

Initiatives Outside Japan

Having introduced its Environmental Information Sharing System (Global Version), the NSK Group can now quickly assess waste generation and changes in recycling rates at worksites outside Japan. The Group is promoting initiatives and setting goals to achieve a recycling rate of at least 90 percent by fiscal 2010 at worksites outside Japan. In fiscal 2007, the Group examined the performance of 29 plants outside Japan where total emissions amounted to 64,514 tons and the recycling rate was 89.4 percent.

Figure 1 Volume of Landfill Waste and Recycling Rates

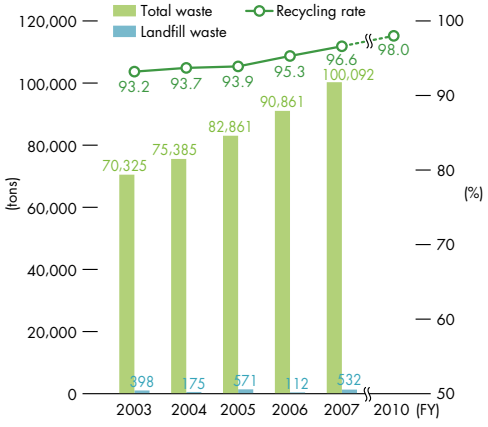
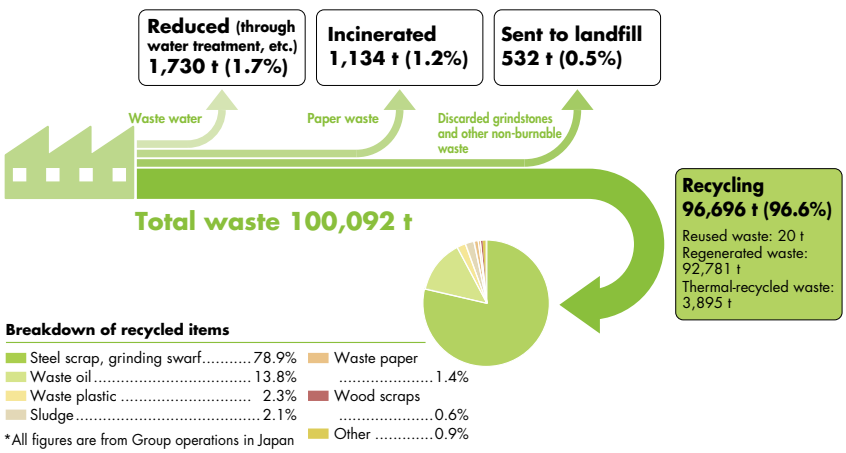


Figure 2 Waste Treatment Flow



*All figures are from Group operations in Japan

Please visit the following web page for detailed data on different plants: http://www.nsk.com/company/environment/2008.html

In addition to appropriately managing the use of environmentally harmful substances at its plants, the NSK Group promotes conversion of these substances to other materials, as well as an overall reduction in the use of harmful substances. The aim is to achieve production that is completely free of environmentally harmful substances.

Main Initiatives in Fiscal 2007

- Point 1 Reduce liquid coolants containing chlorine additives
- Point 2 Reduce liquid coolants containing PRTR-designated substances

Challenges for Fiscal 2008

- Further reduce the use of liquid coolants containing chlorine additives

Set Targets for Reduced Use of Environmentally Harmful Substances

The NSK Group is promoting initiatives for the reduction and appropriate management of environmentally harmful substances handled during the manufacturing process.

Point 1 Reducing Liquid Coolants Containing Chlorine Additives

The NSK Group is moving ahead with initiatives to stop using liquid coolants that contain chlorine additives because the incineration of these coolants can be accompanied by the release of dioxins. The number of these coolants has been reduced to 21 varieties (Figure 1).

The Group has steadily reduced the use of these liquid coolants in the cutting and grinding processes. However, because of the coolants beneficial effects on product quality, finding substitutes for the liquid coolants used in press work has been difficult. In response, the NSK Group established a new working group in September 2007 that will collaborate with the Manufacturing Engineering Center to strengthen initiatives in this area.

Point 2 Reducing Liquid Coolants Containing PRTR-Designated Substances

In fiscal 2007, xylene and toluene accounted for most (62%) of the PRTR-designated substances* used by the NSK Group. Much of this use was due to these two chemical substances being contained in the kerosene used as fuel for air conditioning and in the gasoline used to fuel forklifts. Another such substance, phenol, is used at plants manufacturing frictional material for the automatic transmissions of automobiles. However, by installing equipment to incinerate the gas emitted during the manufacturing process (Picture 1), the NSK Group controls the amount of phenol emitted into the atmosphere.

In addition, the number of liquid coolants containing PRTR-designated substances has been reduced by 66 percent (base year: fiscal 2000) by continuing to switch over to grinding coolants that do not contain 2-aminoethanol (Figure 2, Table 1).

* The Pollutant Release and Transfer Register Law, a law to facilitate improved environmental management by determining the amount of chemical substances emitted into the environment.

Complete Elimination of Ozone-Depleting Substances

The NSK Group has replaced all air-conditioning equipment using specified CFC-based refrigerants with equipment using CFC substitutes. In addition, all halon-based fire extinguishers have been replaced by CO_2-based fire extinguishers.

Table 1 Survey of PRTR-Designated Substances (Fiscal 2007)

(kg/year)

Substance name	Volume handled	Released into atmosphere	Released into water	Transferred as waste	Consumed	Recycled
2-aminoethanol	4,387	0	1,754	2,633	0	0
Ethylbenzene	2,380	241	0	134	2,005	0
Xylene	131,186	24,743	0	4,501	93,389	8,553
Cresol	2,544	2,341	0	165	38	0
1,1-Dichloro-1-fluoroethane	2,376	2,340	0	36	0	0
Dichloropentafluoro propane	4,689	4,619	0	70	0	0
1,3,5-trimethylbenzene	1,839	1,212	0	0	627	0
Toluene	85,675	37,744	0	4,040	43,891	0
Barium	1,247	0	0	1,247	0	0
Phenol	111,066	2,251	0	7,215	101,600	0

Figure 1 Change in the Number of Liquid Coolants Containing Chlorine Additives

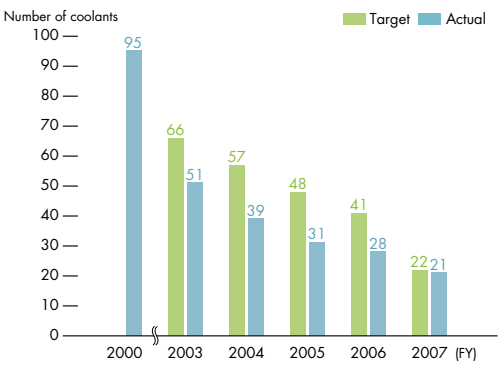


Figure 2 Change in the Number of Liquid Coolants Containing PRTR-Designated Substances

Picture 1: Regenerative thermal oxidizer for gas emissions

Please visit the following web page for more information about the current stock of specified CFC-based refrigerants and halon-based fire extinguishers:
http://www.nsk.com/company/environment/2008.html

Environmental Initiatives in Distribution

The NSK Group is actively promoting a reduction in the environmental impact of its logistics. In particular, the Group is striving to optimize methods of transportation, carry loads more efficiently, and implement the 3Rs (reduce, reuse, recycle) for packaging materials.

Main Initiatives in Fiscal 2007

- Point 1 Switch to transport by ship
- Point 2 Switch to plastic pallets

Challenges for Fiscal 2008

- Reduce energy consumed per production unit by two percent for distribution operations in Japan (base year: FY2006)
- Design and promote recycling plan for packaging materials

Reducing the Impact of Logistics on the Environment

In order to reduce the CO_2 emissions resulting from its distribution processes, the Group is promoting three changes: a modal shift*1 in transportation, more efficient loading, and more efficient transportation. For these efforts, the Group is receiving cooperation from NSK Logistics Co., Ltd., which oversees the Group's logistics. As a result of these activities, in fiscal 2007 CO_2 emissions attributable to logistics in Japan decreased to 20,000 metric tons and the energy consumed per production unit was three percent lower than in fiscal 2006.

*1: Changing the mode of freight transport from truck and air carriers to trains, ships, and other modes that generate less CO_2 emissions.

Point 1 Promoting a Modal Shift

For medium and long-distance transportation, there has been a recent worldwide trend away from using trucks, to methods such as trains and ocean shipping, which generate less CO_2 emissions. In November 2007 NSK Steering Systems in Gunma Prefecture began transporting products to customers in Kyushu by car ferry, rather than by truck. This change resulted in a 50 percent reduction in CO_2 emissions.

The NSK Group has also worked to improve the configuration of the pallets used for transporting products. Increasing the carrying capacity of a pallet from twelve to sixteen products has resulted in greater efficiency (Figure 1).

Promotion of Joint Transportation

The NSK Group is improving logistical efficiency and making progress on reducing CO_2 emissions through "joint transportation": combining the transport of products and parts on one trip. Specifically, the Group is making joint use of its main distribution routes. The Group is also introducing "milk runs"*2 going to several suppliers and customers in a particular region, and delivering to customers and then returning with procured items on the return journey.

By fiscal 2007, about 30 percent of suppliers (168 companies) were a part of the joint transportation system.

*2: A transportation method that resembles a milk-delivery and bottle-collection route. A transport vehicle operates a circular delivery route including multiple destinations, bringing procured items back to the company. This reduces driving distances and numbers of runs.

Point 2 Initiatives toward Reduced Packaging

The NSK Group is vigorously promoting the 3Rs for the packaging used in logistics. The Group carefully categorizes used packaging materials for reuse in packaging. The plastic bands and containers used to fix products to their pallets are already being recycled.

The Group is also continuing to switch from wood to plastic pallets in order to reduce the amount of wood used. In fiscal 2007, the Group reduced the number of wood pallets purchased by 19 percent from fiscal 2006 (Figure 2).

Figure 1 Modal Shift in Transportation

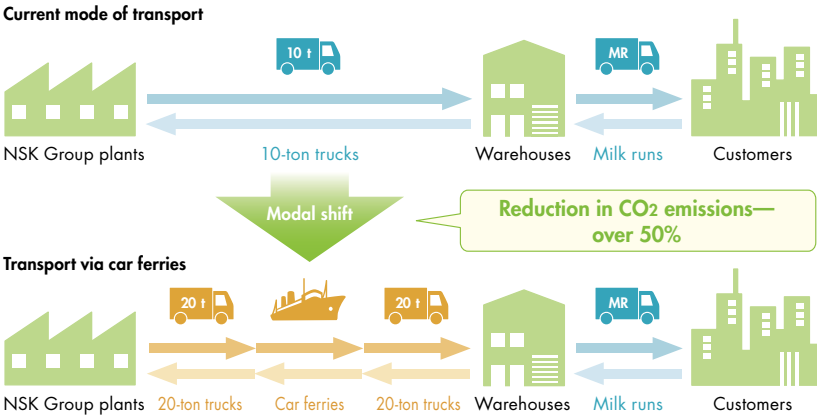
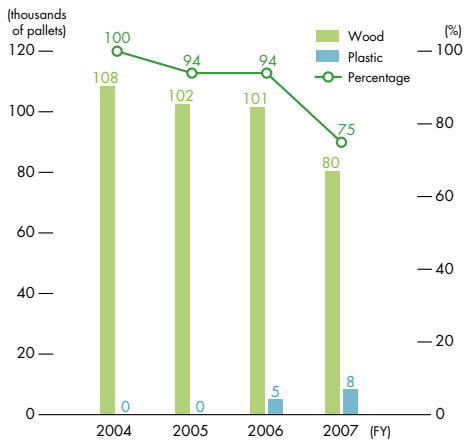


Figure 2 Changes in the Number of Wood Pallets Purchased



On-Site Initiatives

The NSK Group is expanding its environmental conservation activities globally. This section provides an overview of initiatives at four major sites in Japan, Europe, the Americas, and Asia.

Japan NSK Fukushima Co., Ltd.

Address: 180-1 Nikaki, Tsutsumi, Tanagura-machi, Higashishirakawa-gun, Fukushima
Number of employees: 427 (as of March 31, 2008)
Operations: Manufacturing bearings
ISO 14001 certification obtained: July 31, 1998

Hiroyuki Kato
Environmental Representative

From the time it began operations, NSK Fukushima has aimed to conduct business with careful concern for the environment and it was the first NSK Group site in Japan to obtain ISO 14001 certification. The company is moving forward with efforts to leave an even better environment for future generations through proactive conservation activities in the following areas.

Waste: Striving to recycle all waste. NSK Fukushima can now recycle plastic filters that used to be disposed of in landfills. This is due to the company's efforts to secure the services of disposal contractors who can carry out this recycling.

Chemical Substances: Reducing the use of PRTR-designated substances. The company has reduced its usage of oils and other materials that contain PRTR-designated substances every year according to plan. Since fiscal 2000, there has been a 70 percent reduction in the use of these substances.

Energy Conservation: Using energy efficiently through consolidation of production lines to reflect the product mix.

Contributions to the Local Community: The company invited elementary school students for plant tours and explained its environmental initiatives.

As production of large bearings has increased, grinding swarf has also increased. In fiscal 2008, NSK Fukushima is striving to recycle the swarf, using it as raw material for steelmaking. The company has also switched to an energy-saving air conditioning system to reduce CO_2 emissions.

Student tour of the plant

Europe NSK Bearings Europe Ltd., Peterlee Plant

Address: 3 Brindley Road, South West Industrial Estate, Peterlee, Co. Durham, SR8 2JD, U.K.
Number of employees: 386 (as of March 31, 2008)
Operations: Manufacturing automotive bearings and medium-sized bearings
ISO 14001 certification obtained: February 16, 1999

Malcolm Waites
Environmental Representative

NSK Bearings Europe Peterlee Plant was opened in 1976, and was the first NSK Group plant in Europe. Located near both England's east coast and a number of waterways, the plant is committed to fulfilling its responsibility for environmental preservation and has undertaken several activities. Those activities include, for example, improving rates of recycling.

In fiscal 2007, the plant began recycling the filtration waste that is produced while grinding during the manufacturing process. For many years, this waste had been disposed of in landfills because it contains large amounts of water and oil, which made it difficult to recycle. With the adoption of new equipment, however, the plant can now recycle this waste.

By introducing this new recycling system, harmful wastes are rendered harmless and there is a reduction in the amount of waste that ends up in landfills. In the future, the plant intends to continue pursuing activities to raise its rates of recycling and be a more environmentally conscious corporate citizen.

Container used especially for collecting filtration waste

The Americas NSK Corporation, Franklin Plant

Address: 3450 Bearing Drive, Franklin, Indiana 46131, USA
Number of employees: 351 (as of March 31, 2008)
Operations: Manufacturing automotive bearings
ISO 14001 certification obtained: November 15, 2002

Kevin Dodds
Environmental Representative

The NSK Corporation Franklin Plant lies in a pleasant environment of farms and fields. A number of conservation activities have been initiated to protect this wonderful natural environment.

One of these initiatives is the trial substitution of the kerosene used at the plant with a low VOC* product. Kerosene is currently used as a cleanser during the assembly and final grinding processes. Unfortunately, it may cause photochemical smog when the kerosene evaporates so the Franklin Plant is examining substitute products that are more friendly to the environment.

There are ongoing efforts to improve recycling rates at the plant. In fiscal 2007, a rate of 96 percent was attained. This includes recycling materials ranging from cardboard, paper, and plastics to discharged water and toner cartridges. Used grindstones and the mop-heads used to clean the facilities are now also recycled.

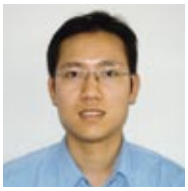
Even more effort is being put into protecting the global environment and using sustainable resources.

Separation and pressure-packing of cardboard, paper, and plastic for recycling

*VOC stands for volatile organic compound.

Asia Changshu NSK Needle Bearings Co., Ltd.

Address: 66 Dongnan Road, Changshu Southeast Economic Development Zone, Changshu City, Jiangsu, 215500, P.R.C.
Number of employees: 425 (as of March 31, 2008)
Operations: Manufacturing automotive needle bearings
ISO 14001 certification obtained: March 12, 2007



Wei Zhang
Environmental Representative

Since its establishment, Changshu NSK Needle Bearing and its employees have been highly conscious of environmental conservation and several initiatives have been undertaken. In 2006, the company was recognized as a "Suzhou City Clean Manufacturer," and again in 2007 it was designated as an "Advanced Corporation for Environmental Protection" for the Changshu Southeast Economic Development Zone of Jiangsu.

The company is focusing its environmental conservation activities on improving its recycling rate. This rate has improved through recycling a variety of wastes, such as steel scraps, grinding swarf, sludge, paper, and pallets to create reusable resources. In the future, the company aims to further raise its recycling rate.

The company is actively promoting safety initiatives and has made the provision of employee safety an important issue. One initiative is annual fire and emergency training in which all employees must participate. The company is intent on ensuring workplace safety through training that prepares employees for every possible situation.

In the future, the company will actively advance initiatives that maintain safety and the environment as well as foster employees' environmental awareness.

Fire and emergency training

Other Environmental Activities

Initiatives for Ecological Conservation

Mangrove Afforestation

NSK Bearings Manufacturing (Thailand) Co., Ltd., is participating in mangrove afforestation activities. The aim of these activities is to stabilize the shoreline and to absorb CO_2 by planting trees. In November 2007, 25 employees planted 300 mangrove trees in a swampy area at the mouth of the Bang Pakong River near Bangkok.

Employees planting mangrove trees in a swamp

Donations to the Keidanren Nature Conservation Fund

Founded in 1992, the Nippon Keidanren Committee on Nature Conservation seeks to foster an economy and society that prosper in harmony with the natural world. The Committee facilitates education about the environment, and encourages corporations' nature conservation activities, as well as supporting nature conservation projects in Japan and the Asia-Pacific region through its Nippon Keidanren Nature Conservation Fund.

Since 1993, NSK has been supporting efforts to conserve biodiversity through its donations to the Fund.

Project to protect and improve the habitat of orangutans

Office Initiatives

NSK's headquarter divisions are actively striving to reduce paper use, separate garbage, conserve energy, and efficiently use resources.

Reducing Paper Use

Headquarter divisions are promoting double-sided copying, the reuse of single-sided paper, and the reduction and digitalization of paper materials distributed at meetings. In addition, divisions are initiating paperless office measures that use IT such as the use of digital forms and electronic media for inter-office communication and reports.

Promoting Garbage Separation and Energy Conservation

Headquarter divisions separate and recycle waste by preparing different containers for the following five categories of garbage: recyclable waste, burnable garbage, non-burnable garbage, food waste, and drink containers, cans, glass bottles, and PET bottles.

The divisions have also adopted the government's Cool Biz and Warm Biz measures to help prevent global warming through energy conservation. Accordingly, office buildings' air conditioning is set at 28 degrees Celsius during the summer season between June and August, and office heating is set at 20 degrees Celsius during the winter season between December and March. In addition, employees are encouraged to save energy by turning off computers when not in use and lights during lunchtime.

Furthermore, these divisions are implementing green purchasing measures by buying and using office goods, such as stationery with a low environmental impact.

Bins for separating garbage

Third-Party Opinion

Eiichiro Adachi

Chief Researcher,
Japan Research Institute Limited

Profile

After graduating from Hitotsubashi University's Department of Economics, Mr. Adachi joined the Japan Research Institute. He worked in the Management Consulting Division and the Technology Research Division, and is currently the head of the ESG Research Center. His main responsibilities are conducting research regarding various industries and assessing companies in terms of their corporate social responsibility. He has also written a book entitled "*Businesses that Prosper in the Age of Global Warming*" (published by Toyo Keizai Inc.).

As I have given financial institutions information on companies so that they can make socially responsible investments, I am providing a third-party opinion of the NSK Group's CSR activities, based on the understanding I have gained from this Report.

The NSK Group's vision of contributing to the global society through its proficiency in "Motion and Control" technology is very clear. I would like to see the Group calculate the actual reduction in greenhouse gases that can be achieved worldwide by switching to low-friction bearings. I would also like to see an annual report on the actual results achieved through this technological innovation.

I am also very interested in the description of NSK's takeover defense plan. I was impressed that the CSR Report described these measures in detail. NSK is evidently aware that a growing number of such large-scale share acquisitions are apparently motivated by individual and institutional investors' desire for short-term gain, while ignoring the needs of the stakeholders who make up the very basis of the targeted company's corporate value.

One problem with the Report is that, even though a majority of the NSK Group's employees live and work outside Japan, the section entitled "Relationships with Employees" only covers NSK Group's sites in Japan. The "Business Risk" section in NSK's annual security report for the 146th fiscal year stated, "in countries and regions outside Japan, there are differences in labor practices, and there is a possibility that labor relations could worsen due to unforeseen events such as changes in the legal, economic and social environments. This could impede the NSK Group in carrying out its business." Given this, I would really like the Group to disclose more information about its CSR initiatives for employees at sites outside Japan.

In addition, I believe that chemical substance management, soil contamination countermeasures and export management pose material risks to the NSK Group's business in terms of CSR. I would like the NSK Group to disclose its progress in systematically phasing out the use of any environmentally harmful substances and its plans for introducing alternative substances. The Group should also provide information on the outlook and the estimated costs required for ongoing soil and groundwater contamination clean-ups. The results of rigorous screening and assessment in export management, as well as examples of which products were not exported should be provided where possible.

I support the NSK Group's commitment to replace its previous targets for reduction of CO_2 emission per production unit with a target for total emissions reduction as a means of tackling global warming. I hope to see even more impressive initiatives from the NSK Group in the future.

These comments do not offer any conclusion as to whether the data in this Report was accurately ascertained and calculated in accordance with generally recognized criteria for preparing environmental reports, or whether all important issues have been addressed without omission.

Response to Mr. Adachi's Third-Party Opinion

Kazuo Matsuda
Executive Vice President
Head, Corporate Strategy Division-Headquarters
Head, Business Development Division-Headquarters
Head, Compliance Division-Headquarters

Thank you for your valuable opinion.

The NSK Group strives to contribute to society by building better relationships with the community while pursuing its core business of manufacturing. To do this, it is important that all Group employees enhance the quality of our daily operations, as well as the quality of the information we offer stakeholders. We will reflect on the opinions that Mr. Adachi has generously shared with us in our next CSR Report.

We hope to report on the results of our technological innovation using Eco-efficiency indicator for our products. While this Report does include a special article on our activities for employees in China, next year we will include more information on our CSR initiatives aimed at employees at sites outside Japan. We take Mr. Adachi's opinions on material risk factors seriously and will work hard to address these issues.

NSK used environmentally friendly paper and printing methods for this publication.
CAT.No.E8008 2008 E-9 Printed in Japan ©NSK Ltd. 2008