Corporate Philosophy and Management Principle of Shimadzu Corporation

Always Conducting Our Business Activities with the Aim of "Contributing to Society through Science and Technology" Ever Since the Foundation

Working on global environmental problems based on the management principle "Realizing Our Wishes for the Well-being of both Mankind and the Earth"

Shimadzu Corporation was founded on March 31, 1875 when Genzo Shimadzu began manufacturing instruments for physics and chemistry at Kiyamachi-Nijo in Kyoto. Back then, Kyoto was depressed from the upheaval of the Meiji Restoration and the fact that Tokyo had become the new capital of Japan. Nevertheless, a sense of recovery was in the air and Kyoto began to modernize through the advancement of school education and business development. Genzo Sr. frequented the Physics and Chemistry Research Institute (similar to the current Institute of Physical and Chemical Research) established in Kiyamachi in 1870 and devoted himself to better understanding the inner workings of the new machines and equipment being imported from the U.S. and Europe for physics and chemistry experiments. Meeting learned individuals from all over the world, he greatly improved his knowledge and techniques. Genzo became convinced that Japan, a country with few natural resources, should work toward becoming a leader in science and aimed to contribute to society by disseminating scientific knowledge.

The aim Genzo had when he started the company eventually became Shimadzu’s corporate philosophy “Contributing to Society through Science and Technology.” Today, all the employees continue to strive to achieve this aim through their everyday work.

In 1992, Shimadzu Corporation created the management principle “Realizing Our Wishes for the Well-being of both Mankind and the Earth.” It was the year that the Earth Summit, an international conference concerning the environment and development, was held just as environmental protection on a global scale was gaining prominent attention. Human health and environmental protection on a global scale are common wishes throughout the world. As a corporate member of society, Shimadzu is keenly aware of global environmental issues and conducts all of its business activities while making efforts to protect the earth and realize a more affluent society.

Shimadzu Corporation after it was just founded

Genzo Shimadzu Sr.

"Science Equipment Catalog List": Catalog of instruments for physics and chemistry that Genzo Sr. published in June 1882

At the back of the catalog was an offer to manufacture whatever equipment the customer desired.

The catalog is evaluated to have historical and academic value because it shows that Shimadzu provided almost all the laboratory equipment and tools necessary for physics and chemistry education in Japan during the early Meiji period (around 1870).
In recent years, cross-border environmental problems have been reported such as climate change, loss of biodiversity, and the negative influence of PM 2.5. Many nations, regions, and companies are making efforts to solve these global problems.

Based on our management principle “Realizing Our Wishes for the Well-being of both Mankind and the Earth,” we provide a wide variety of products and services such as analytical and measuring instruments, medical systems, aircraft equipment, and industrial machinery to customers in Japan and other countries in order to help create a more sustainable society.

In our production activities, we continue to work hard to reduce CO₂ emissions by improving facilities for higher energy efficiency, actively introducing more energy-efficient equipment, and reviewing production processes just like we did last year.

In research and development, we are manufacturing more energy-efficient products and developing environmentally-friendly products through our Save the Energy Project launched in 2010. Through such activities, we have helped guarantee the safety and reliability of rice potentially damaged by the nuclear accident that occurred in Japan in 2011, promoted research and development for the establishment of a low-carbon recycle-based society using biomass, and contributed to creating a more hygienic environment in developing nations. Our technology contributes to the development of a more sustainable society in various situations.

As part of our environmental and social activities, we have decided to continue our assistance in the project “Environmental Monitoring and Analysis in East Asian Regions” by the United Nations University. We will continue to contribute to the improvement of the environment in East Asia.

On January 25, 2013, it was discovered that the Shimadzu Corporation Aircraft Equipment Division overcharged the Japanese Ministry of Defense by reporting more-than-actual labor hours. Consequently, Shimadzu has been suspended from participating in contracts with the Ministry of Defense. We deeply apologize for causing this situation and subjecting our stakeholders to undue worry. Due to the gravity of the situation, we are conducting a thorough investigation to provide full disclosure and determine the causes. Furthermore, we will implement all possible measures to prevent reoccurrence.

This report describes some of Shimadzu’s environmental and social activities, primarily from the 2012 fiscal year. To everyone reading this report, we welcome your frank comments regarding these activities.

Akira Nakamoto
President & CEO
Shimadzu Corporation
The driving force behind Shimadzu is the diversity of accumulated technologies.

Analytical Instruments

Our cutting-edge analysis technologies are contributing to research, technology development, and quality control in a wide variety of fields.

- Spectrophotometers / Chromatographs / Surface analysis & observation systems / Thermal analysis instruments / Biotechnology instruments / Mass spectrometers
- Online gas monitors / Water-quality analyzers / Total organic carbon analyzers

Testing and Measuring Instruments

Our measuring, testing, and inspection technologies are helping to ensure greater urban safety and day-to-day peace of mind.

- Material testing machines / Structure testing machines / Nondestructive inspection machines / High-speed video cameras
- Powder & particle size analyzers / Balances / Other measuring instruments

Universal Testing Machines

From materials such as rubber and plastics to objects such as foods and mobile phones, these machines are widely used to perform material testing on a wide range of samples at facilities involved in product development and quality control.

Medical Systems and Equipment

Our advanced diagnostic imaging equipment is contributing to the early detection and early treatment of disease, opening up a new world of possibilities for medical facilities.

- Fluoroscopy systems / Angiography systems / General radiography systems / Mobile X-ray systems

Angiography System (with 12-inch FPD)

A system friendly to both patients and operators developed with the keywords “highest image quality,” “excellent operability,” and “safety and peace of mind.” Use of the newly developed FPD with a 12-inch field of view enables a single unit to cover the entire body, including the head, heart, abdomen, and four limbs, supporting endovascular treatment (intervention), which is becoming more common.
Overview of Shimadzu Corporation’s Business Operations

Aircraft Equipment

Our wide range of aircraft equipment increases both the safety and comfort of passengers and reduces the stress on passengers during flight.

- **Aircraft Equipment**: Flight control systems / Air management systems / Cockpit display systems / Air data systems / Magnetic detection systems / Other types of aircraft equipment
- **Ground Support Equipment**: Aircraft equipment functional testers / Aircraft medical training equipment
- **Space Equipment**: Propellant valves / Fill/Drain valves

Flight control systems control the lift and attitude of aircraft. Shimadzu develops flap control systems that allow these flight control systems to perform takeoffs and landings more safely. Its high-quality mechanical technology and highly reliable electronic control technology help ensure flight safety.

Industrial Equipment Semiconductor & Flat Panel Display Equipment

By developing advanced manufacturing and testing equipment, we are meeting the needs of next-generation production in cutting-edge industrial fields.

- **Semiconductor & Flat Panel Display Equipment**: Turbomolecular pumps / Helium leak detectors / Layer deposition systems / TFT-array inspection machines / Liquid crystal injection systems
- **Hydraulic Equipment**: Hydraulic gear pumps / Power packages / Manual stack valves
- **Device Components**: Diffraction gratings / Compact monochromators / Off-axis parabolic mirrors / Precision grid plates / Lenses / Precision spectrometers / Precision refractometers / Solid-state lasers

Turbomolecular Pumps

These pumps create the vacuum environment that is indispensable for the manufacturing processes of solar cells and semiconductors. Boasting the highest evacuation capacities in the world, Shimadzu’s product line is designed to meet the layer deposition and fabrication requirements of solar cell modules and silicon wafers, both of which are becoming increasingly large.

Corporate Overview

**Corporate Trade Name**: Shimadzu Corporation
**Founded**: March 1875
**Incorporated**: September 1917
**Capital**: Approx. 26.6 billion yen
**Number of employees**: 3,063 (non-consolidated), 10,395 (consolidated) (as of March 31, 2013)
**Headquarters**: 1, Nishinokyo-Kuwabara-cho, Nakagyo-ku, Kyoto 604-8511, Japan

Sales / Ordinary Income Trends (Consolidated sales)

![Graph showing sales and ordinary income trends from FY 2008 to FY 2012](image)

For IR-related information, dividend policies for shareholders and investors, and activities for promoting information disclosure, please visit our website: [http://www.shimadzu.com/ir/](http://www.shimadzu.com/ir/)
People’s anxiety about radioactivity as a result of the Great East Japan Earthquake had adversely affected agriculture in Fukushima Prefecture directly and indirectly. In order to deal with this problem, Shimadzu developed the FOODSEYE Food Radioactivity Inspection System using all of its technological capabilities. One of our employees that participated in the FOODSEYE development project summarized the history of its development and his thoughts about it.

Even though the staff members seemed to be acting normally, the extreme crisis of radioactivity was heavily clouding their lives. As you know, the Fukushima Daiichi Nuclear Power Station did not experience a worst-case scenario. However, it was only the beginning of the battle against radioactivity for people in the Tohoku area, especially for people in Fukushima. At that time, I did not expect that I would be part of the battle in Fukushima at all.
Starting the Development of a System in the Dark

Radioactive cesium released from the Fukushima Daiichi Nuclear Power Station spread mainly in the eastern half of Fukushima and contaminated the soil. Consumers nationwide became anxious about rice and all types of food grown in Fukushima and began to stop buying them. Farmers were completely helpless to do anything and were mentally worn out. To deal with the situation, the Japanese government discussed the necessity of radioactivity inspection of foods. Because people were aware that we develop and sell analytical instruments, their expectations for us to develop such instruments became greater day by day.

To meet these expectations, we started to develop a food radioactivity inspection system in October 2011 under the direction of Mr. Suzuki, Managing Director of Shimadzu Corporation. He declared that Shimadzu would complete a test model by the end of the year and conduct a verification test in Fukushima in February. We had only three months to develop a system that would satisfy some very demanding conditions. The system needed to have the capability of measuring rice in 30 kg bags without taking it out. Quick and easy high-accuracy measurement, even with high background noise (radioactivity from materials other than the measurement targets) was essential. The system also needed to satisfy the performance specifications determined by law. We also wanted to develop a system that would at least cover its own costs from a viewpoint of business.

Since we manufacture positron emission tomography (PET) systems capable of looking for cancer by detecting radioactivity generated from radioactive diagnostic agents administered to patients, we have advanced technology to detect radioactivity. Our engineers started a technical examination in August and decided to use the radioactivity measurement technology of PET to test rice for radiation.

However, there were so many problems to solve. We did not know if accurate measurement was possible for the standard value for detecting radioactivity, which is 1/60,000 or less of the amount detected by PET (radioactive cesium of 100 Bq/kg or less). Even though measurement was theoretically possible, we were not sure if we could actually manufacture such an instrument. The measurement target was rice, which we had never handled before. We did not know the radiation dose at the installation site or the influence of radioactivity either. We needed to think about an adequate thickness for the lead of the shielding part. The system needed to have a processing capacity to test a huge amount of rice. We did not know if we could obtain an adequate volume of parts and components necessary for the production of the system in such a short time even if these hurdles were all cleared. We literally started the project in the dark.

Development, Product Shipment, and Inspection of All Rice in All Bags as Planned

This project was pushed forward rapidly by many development-related departments, mainly by the Medical Systems Division, which is in charge of the development and selling of PET systems, and the Technology Research Laboratory. All the members involved worked diligently on this project finding spare time and extra energy from their everyday work and many of them made this project their first priority. Many other employees also contacted us asking if they could be of any help. With the positive response and support of so many employees, the project was completed on schedule with the first test product being completed at the end of December 2011, just as declared at the start of the project. The product was named “FOODSEYE,” which means an eye for watching foods.

In February 2012, we installed the system at a rice storage facility in Nihonmatsu City, Fukushima and started a verification test. For about two months until April, we loaded and unloaded 16,000 30 kg rice bags for the test to check the system’s accuracy. Development engineers kept feeding the rice bags on the system and kept gathering data at the site. As a result, we completed a high-accuracy system that can determine 100 Bq/kg or lower, the standard value for general foods determined by Japan’s Food Sanitation Act, in just five seconds.

The Fukushima prefectural government finished preparation for testing all rice bags, and on August 25 it held a ceremony, supported by the FOODSEYE, to commemorate the beginning of the inspection of all rice in all bags produced in 2012, with Governor Sato in attendance. On that day, inspection of 14 bags of the “Gohyakugawa” (the name of a river in Fukushima) brand rice shipped for the first time in 2012 was broadcast on television news programs nationwide. Then, approximately 60 FOODSEYE systems were installed throughout Fukushima by September and all rice in all bags was inspected, just as the Governor of Fukushima Prefecture had declared. By the end of March 2013, approximately 10.3 million bags have been inspected throughout the entire prefecture, including inspections using other companies’ systems.
For the verification test of the system, we borrowed a rice storage facility in Nihonmatsu City, Fukushima from the Michinoku Adachi Japan Agricultural Co-operatives (JA Michinoku Adachi). We could not have developed the FOODSEYE system without the extensive cooperation of people from JA Michinoku Adachi. Special thanks are due to Mr. Bunsaku Takamiya, Executive Director at the time, for teaching the totally inexperienced Shimadzu development staff members about field research, actual situations of rice farmers, and activities carried out by the Fukushima prefectural government, each municipal government, and JA.

I feel that this system development project surely contributed to the agriculture industry of Fukushima. Staff members involved in the development, selling, installation, and follow-up services must have felt a great sense of achievement, which was only natural for them. As a result of the project, we had an opportunity to build a strong relationship with JA Michinoku Adachi. I feel we were able to establish this relationship because we believed it had been achieved by following Shimadzu’s corporate philosophy “Contributing to Society through Science and Technology” through development of the FOODSEYE. However, I wonder if it was really testing equipment like FOODSEYE that saved the agriculture industry in Fukushima.

Executive Director Takamiya spoke of the battle against cesium: “Rice has been Japanese people’s staple food since ancient times. It has been said that people are only able to eat rice after 88 painstaking processes have been accomplished starting with tilling of the soil. This explains why the Chinese character for ‘rice’ is comprised of characters meaning eight, ten, and eight. Over ten more processes were added to grow rice produced in Fukushima this year (especially in areas where cropping was restricted). Therefore, Fukushima rice should be expressed by a Chinese character comprised of characters meaning nine, ten, and eight.” These additional processes include prior soil survey, dose survey, as well as all the processes for minimizing the amount of cesium taken into rice.

As one of the 98 processes, FOODSEYE clearly showed that all of this additional work and effort was worth it. Although there is no doubt that this process was extremely important, what really saved Fukushima rice was the heart of farmers who cherished the land they inherited from their ancestors and their hard work and effort to continue producing rice with pride, even with the additional burden of carrying out processes they should not be responsible for.

By this September, I believe we will see golden rice fields in many places in Fukushima again. However, farmers in Fukushima are still fighting an uphill battle. The time when people can once again see rice fields in Fukushima with total conviction that they are safe (I am not sure I should say this as a person from an equipment manufacturer) would be when the FOODSEYE has fulfilled its mission and been disposed of.

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Manager
ME System Group,
Global Marketing Department,
Medical Systems Division

Note: Departments, job titles, and other information refer to those when the interview was conducted (April 2013).
Special Features 2

Contribution to the Establishment of Low-Carbon and Recycling Societies

Development of a Next-Generation Recycled Fuel "Biocoke" from Biomass

Carbon dioxide and other greenhouse gases and waste keep increasing in our modern societies. Research and development activities for creating a next-generation recycled fuel are being carried out to achieve two goals: "low carbon" and "resource recycling." Shimadzu instruments are used in these activities.

The following is from an interview with Mr. Tamio Ida, Associate Professor and Vice-Director of the Kinki University Research Institute of Biocoke, who is engaged in research and development for the establishment of a more sustainable society.

First of all, please talk about how you were inspired to start this study.

I took a post at Kinki University in 2000. At that time, I thought about carrying out some type of research that would benefit society, different from the basic research I had been involved in until then. Coincidently, the "Biomass-Nippon Strategy," promoted by the Japanese government, was being hotly discussed.

Biomass refers to biological organic substances overall. Back then, biomass research was actively being carried out, producing ethanol from wood and creating gas to generate power, for example. In this light, I started to research about "using a solid material as a solid material," which no one else was researching at the time. After approximately three years, I came up with certain results.

Actually, I did not plan to create a solid fuel at the beginning. I thought compressing and hardening the raw material biomass would improve efficiency in transportation and in turn reduce its energy consumption. However, the effect seemed to be negligible, so I was trying to find another application, when it occurred to me that a compressed biomass might be a good alternative to coal coke. The name "biocoke" came from this idea.

Associate Professor Tamio Ida, Vice-Director of the Kinki University Research Institute of Biocoke
How is biocoke made?

First, the raw material biomass is crushed into several millimeter size particles and dried so that its moisture content value becomes approximately 10%. The material is then put in a cylinder and heated at around 180 °C while a 4-ton force is applied from above. Biocoke is made from a reaction that occurs by the energy from vapor created by heating the material in the cylinder. Whereas bioethanol, a biomass fuel, is made of foods such as corn, biocoke can be made of discarded waste such as used tea leaves and coffee grinds and pomace from making apple juice, which is a great benefit. Since 100 grams of raw material creates 100 grams of biocoke, no material is wasted during production.

We established an experiment facility for mass production in Eniwa City, Hokkaido in 2007 and have been carrying out activities toward the practical use of biocoke. The problem we needed to solve was with the process before production. This process is the most difficult when wood is used as the raw material. We somehow needed to crush wood and remove 50% of its moisture content. Used tea leaves and coffee grinds do not need to be crushed, but they still need to be dried. The more pretreatment processes required, the higher the production costs and the more energy needed to make biocoke. The only raw material that does not require any pretreatment is buckwheat husk. However, we failed to obtain a very large quantity because it is a popular material for making pillows (laughs).

Because biocoke is used in melting furnaces of ion-making factories these days, I have become interested in disposable body warmers. Although disposable body warmers are not biomass, they can be recycled as an iron source because they include oxidized iron powders in addition to the raw material activated charcoal.

How are the benefits of using biocoke evaluated?

Botanical resources used to make biocoke are originally made from photosynthesis. Therefore, as opposed to coal coke, CO2 generated during the combustion of biocoke is not counted as an increase in CO2 emissions. This means that when coal coke is replaced with biocoke, CO2 emissions are reduced for the replaced amount. Coal coke is used in iron-making factories and thermal power stations. We estimate that approximately 20% of coal coke used in these facilities can be replaced with biocoke. In Japan, for example, 30 million tons of coal coke is used in iron-making factories annually. 20% of the amount equals 6 million tons of coal coke. Also, in thermal power stations, 70 million tons of coal is used. If 20% of this (14 million tons) is replaced with biocoke, the total amount replaced reaches 20 million tons. This means a reduction of 60 million tons of CO2 emissions.

Another benefit is an increase in job opportunities. Japan has abundant forest resources, and Osaka Prefecture Forest Owners Association has been conducting a demonstration experiment to generate energy while restoring secondary forests (satoyama) in Takatsuki City, Osaka. In developing nations in the temperate zone where almost no energy is required to dry raw materials, development of BOP*1 business using biocoke is being discussed. By producing biocoke, these countries can generate their own energy and create a commodity for foreign exchange.

*1 BOP: Abbreviation for “Base of the Pyramid,” which means low-income population in developing areas
How are Shimadzu instruments used in this field?

The instrument we currently use is the Autograph Precision Universal Tester*2 equipped with a high-temperature furnace. It is a custom-order testing machine designed to mimic the conditions inside an iron-melting furnace. This instrument allows us to conduct tests to learn the level of strength biocoke can maintain in the melting furnace. Also, in order to analyze "specific surface area," which affects the combustion time of biocoke, we use the TriStar Automatic Surface Area and Porosimetry Analyzer*3. With this instrument, we are studying methods that allow for predictive estimation of quality, such as combustibility, for various types of raw materials.

For the plant in Hokkaido, we requested Shimadzu to customize the Servopulser fatigue tester to make a hydraulic system*4 for continuously feeding raw materials into the production system. I am sure that the testing machine is not usually made to be used like this (laughs).

What are Shimadzu instruments used for?

This instrument performs tensile, bending, and compression tests on materials, such as metals and resins, as well as on products to allow the user to evaluate material strength and other physical properties.

This instrument is for measuring a specific surface area and micropore distribution on the surface of substances such as a powder. The specific surface area is the surface area per unit mass or unit volume of a substance. For powders, the larger the specific surface area, the smaller the particle.

This instrument is for measuring fatigue strength of materials and products. It can measure the durability of the target product by mainly applying hydraulically generated load repeatedly.

Mr. Tamio Ida, Associate Professor, Doctor (engineering) Vice-Director of the Kinki University Research Institute of Biocoke

After earning a doctor's degree in engineering from Toyohashi University of Technology, he became a lecturer in the Department of Mechanical Engineering, Faculty of Science and Engineering, Kinki University in 2000. He was involved in a research project in the Department of Mechanical Engineering, College of Engineering, University of Kentucky in Kentucky State in the U.S. in 2005 and became an associate professor of the department in 2008. He took his present post in December 2012.

Biocoke is currently used as a heat source in PVC greenhouses for farming and as a fuel in furnaces used to manufacture cast components of automotive engines. People will not use biocoke unless its cost is reduced, including the cost of production equipment. From a technical point of view, biocoke needs to be as resistant to heat as coal coke. We also aim to use biocoke as a raw material in addition to using it as fuel. Since the quality of biocoke differs depending on the raw material used, "standardization" will be necessary to put biocoke on the market. I believe that Shimadzu’s instruments will play an integral role in this process.

Thank you so much for talking with us today.
Ghana, located in West Africa, is a Republic with a population of approximately 25 million people. In 1957, it became the first country in Sub-Saharan Africa to gain independence. Although Ghana is one of the world’s leading producers of cocoa beans and its name has become known in Japan as a chocolate brand, the country has never been rich in underground mineral resources and has been striving to rebuild its economy, which deteriorated in response to rising oil prices. In 2011, the country achieved 13.6 percent economic growth due to the expansion of its commercial oil production, which began in 2010, and is now a country that symbolizes “the growing Africa.” At the same time, due to prolonged economic stagnation, the country’s medical facilities have not been upgraded and have become dilapidated.

In 2010, when Ghana’s Ministry of Health embarked on a project to install medical equipment in 24 hospitals in 10 states with aid from the United States, Shimadzu was the first company they turned to for X-ray systems. This was because they already had a high reputation of Shimadzu’s radiography system, which was installed in 1992 with Japanese government aid in Ghana’s largest public hospital, Korle Bu Teaching Hospital (approximately 2,000 beds), and has been operating reliably ever since.

Although a considerable number of European medical systems have been installed in Ghana’s hospitals with aid provided by European countries, many of the systems have malfunctioned and remain unusable due to a lack of after-sales support. Meanwhile, the reliability of Shimadzu’s systems and after-sales service has won the confidence of Ghana’s Ministry of Health. Since this project was funded by the United States, there was some concern that American products would receive priority. However, Ghana’s Ministry of Health showed a strong desire for Shimadzu equipment, and Shimadzu was able to receive a very large order for 31 RADspeed M general radiography systems, 13 OPESCOPE ACTIVO surgical mobile C-arm imaging systems, and 3 FLEXAVISION HB digital fluoroscopy systems. We hope that these systems will make a significant contribution to improving medical standards in the country, and through this, we can maintain a long-term relationship with them.
The Republic of Uzbekistan, located in Central Asia, is steeped in history as it was once a flourishing trading post on the Silk Road. The country became part of the Russian Empire in the 19th century and then gained independence and became the Republic of Uzbekistan in 1919 at the time of the fall of the Soviet Union. Although Uzbekistan has experienced high economic growth of more than 8 percent in recent years, their hospitals and other public facilities were built in the Soviet era and have become decrepit. The aim of the “Health-3 Project” was to upgrade the radiography and fluoroscopy systems at 50 facilities in 12 states across the country using funding from the World Bank, so as to enhance the level of medical care provided to citizens. Shimadzu’s staff based in Germany, Russia, and, on occasion, Uzbekistan’s capital Tashkent have a long record of contributing to the improvement of medical standards in Uzbekistan by supplying high quality products to medical facilities that play a central role in providing local medical care, as well as to reform-minded doctors.

This prolonged contribution has built Shimadzu’s reputation in the country, and has led to orders of 58 units each of our radiography systems and FLEXAVISION SF fluoroscopy systems. High expectations have been placed on Shimadzu by the Ministry of Public Health and by the medical facilities that will be completely upgraded and equipped with the highest quality Shimadzu X-ray systems. Through rapid installation and full product support, we hope to further contribute to the improvement of the country’s medical services.
Control Self Assessment (CSA)

Based on the idea that “the on-site front line understands risk best,” Shimadzu and its group companies in Japan undertake activities using a risk management method called “CSA: Control Self Assessment” as part of on-site operations to prevent and control risks by following the Plan-Do-Check-Action (PDCA) cycle (*See Figure 1). Assessors use patterned risk factors (61 company-wide common risk factors) to self-assess the “impact rate” and “incidence rate” of common risks. Taking the assessment results into account, each department (or group company) identifies major risks, and formulates and implements risk control measures.

Furthermore, the CSA results are not only used by individual departments (or group companies), but are utilized in company-wide risk management. Figure 2 shows the company-wide CSA risk map, which is based on CSA results from activities carried out in February 2013. In this figure, the "Risk of Non-Transfer of Knowledge and Skills" scored highly in terms of both incidence and impact, so awareness of this risk is understandably high within our company, and we are continuously implementing measures to counter this risk. In addition, there are some risks with low incidence rates, such as "Natural Disaster Risk," which would potentially have a major impact on our business if they occurred. In order to address these risks, it is important to undertake anti-seismic reinforcement of buildings and carry out evacuation drills on a regular basis. By doing this, we can objectively measure the significance of risks and take appropriate action, which is important in risk management.

Corporate Ethics Help Desk (system for internal notifications)

Shimadzu has established three contacts for consulting, reporting, and making notifications about issues related to corporate ethics so that corporate ethics-related problems can be prevented, discovered soon after they occur, and dealt with at an early stage. (1: Ethics help desk, 2: Contact for sexual harassment, 3: Legal consultation) The ethics help desk is open for consultations and reports regarding issues related to corporate ethics in general. The ethics help desk provides advice for improvement. When necessary, the desk investigates the problem, implements corrective measures, and takes action to prevent the problem from reoccurring with the cooperation of related departments. In fiscal 2012, the desk dealt with six consultations and reports.
Corporate Ethics Investigation

Shimadzu considers corporate ethics as a broad concept that includes following the laws and regulations, social norms, and in-house rules and responding to the expectations and demands of society. Principles of conduct and conduct guidelines are determined based on a corporate code of ethics and the company makes sure that its employees are informed about them. Moreover, Shimadzu discloses management policies regarding corporate ethics by top executive, holds periodic ethics education programs, and carries out various activities to help employees understand and be more aware about corporate ethics.

In a “corporate ethics awareness survey” conducted every February, Shimadzu checks employees’ awareness about corporate ethics and how corporate ethics are disseminated and uses the results for related activities. The points for “corporate ethics education” were the lowest in the first survey taken in fiscal 2009. Over the past five years this has increased by approximately 10 points because in-house training has been carried out on a continuous basis. In fiscal 2013, points for all other items went down because of the negative influence of the contract violation issue related aircraft equipments to the Japanese Ministry of Defense (decline of 3.6 to 5.7 points).

Guidelines Concerning the Transparency of Relationships with Medical Institutions

On January 6, 2012, the Japan Federation of Medical Devices Association (JFMDA) released “Transparency Guidelines for the Medical Device Industry and its Relationships with Medical Institutions and Other Organization.” Shimadzu is in accordance with the guidelines as a member of the Japan Medical Imaging and Radiological Systems Industries Association (JIRA), Japan Electronics and Information Technology Industries Association (JEIA), and Japan Analytical Instruments Manufacturers’ Association (JAIMA), all of which are members of the JFMDA. Shimadzu will also create its own “guidelines concerning the transparency of relationships with medical institutions” to improve its relationship with the medical institutions that Shimadzu deals with when developing, manufacturing, importing, and selling medical equipment (all of which contribute to the development of life sciences), and to become a company that society can trust. Based on these guidelines, Shimadzu will release information about providing funds to medical institutions and other organizations.

Training to Prepare for an Emergency

Response to an emergency such as a large-scale earthquake and fire are considered to be an important part of the company’s business continuity plan (BCP). Shimadzu conducts an evacuation drill simulating the occurrence of a massive earthquake on a regular basis every year. Shimadzu also carries out periodic training using a system that confirms employees’ safety and whereabouts using cell phones and PCs in order to be prepared for any unexpected contingencies.

On December 18, 2012, training was carried out by personnel in the administrative departments of the Head Office. Personnel were gathered from the General Administration Department, Human Resources Department, Global Environmental Management Department, Manufacturing Support Division, Aircraft Equipment Division, and Public Relations Department in order to improve their capacity to cooperate and respond to an emergency (initial action) and their ability to prepare and make materials to be used in an emergency press conference.

On that day, department-specific group work for initial action, functionality-specific group work to prepare an emergency press conference, and a simulated emergency press conference were all performed assuming that a large-scale fire occurred in the Aircraft Equipment Plant.
Creating a Safe, Employee-Friendly Workplace

Characteristics Expected of Our Employees

(1) Boldly embraces challenges in new fields by aiming high with a long-term view, originality, and a positive and enterprising spirit, not limited by precedent or convention, and without fear of failure.

(2) Acts with speed, faithfully engages in his/her mission with a sense of responsibility once it’s started, never gives it up until it’s finished, and tries to apply learned processes and experiences to the next challenge.

(3) Maintains a desire for personal growth and a commitment to continuously strengthening and improving the overall capabilities of the organization he/she belongs to, acquires a higher level of knowledge and skills than customers and competitors, and strives to be an expert in their field (the department or organization in their charge, their assigned field or their area of expertise/specialty).

(4) Earnestly strives to meet the expectations of customers and other relevant people inside and outside the company, is committed to building trust, values cooperating with others, and acts unselfishly for the highest good of the whole.

Family and Child Care Support

Shimadzu is committed to providing child care, nursing care, and other systems and policies necessary to help employees balance both their work and home life, according to the lifestyle of each individual. For example, at Shimadzu, in addition to a postnatal leave of eight weeks, a one year leave is generally allowed for child care, and this can be extended up to the point the child is able to enter daycare, which exceeds the period specified by Japanese law.

Shimadzu also has a system to support employees to return to their jobs after a leave of absence. The system allows employees, even during child care leave, to receive information that keeps them up-to-date about their career and to participate in a training course related to the post they will take after returning to work.

In 2009, by offering generous policies such as those described above, Shimadzu received certification from Japanese Ministry of Health, Labour and Welfare as an organization that meets requirements prescribed by the Act on Advancement of Measures to Support Raising Next-Generation Children.

Number of Persons That Used the Support System

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<th></th>
<th>Legal Requirement</th>
<th>Shimadzu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child care leave</td>
<td>12 months after birth or until the child enters daycare (maximum 18 months)</td>
<td>12 months after the end of postnatal leave (not extendable until the child enters daycare)</td>
</tr>
<tr>
<td>Short workday for child care</td>
<td>Until the child enters elementary school</td>
<td>Until the end of third grade</td>
</tr>
<tr>
<td>Pre and postnatal leave</td>
<td>6 weeks before birth and 8 weeks after birth</td>
<td>8 weeks before birth and 8 weeks after birth</td>
</tr>
<tr>
<td>Nursing care leave</td>
<td>3 months</td>
<td>1 year</td>
</tr>
<tr>
<td>Short workday for nursing care</td>
<td>3 months</td>
<td>As long as needed</td>
</tr>
</tbody>
</table>

The Number of Shimadzu Employees That Used the System

<table>
<thead>
<tr>
<th></th>
<th>FY 2009</th>
<th>FY 2010</th>
<th>FY 2011</th>
<th>FY 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child care leave</td>
<td>21(1)</td>
<td>12(1)</td>
<td>21(5)</td>
<td>19(2)</td>
</tr>
<tr>
<td>Short workday for child care</td>
<td>88(5)</td>
<td>94(8)</td>
<td>88(8)</td>
<td>101(11)</td>
</tr>
<tr>
<td>Pre and postnatal leave</td>
<td>22</td>
<td>11</td>
<td>16</td>
<td>18</td>
</tr>
<tr>
<td>Nursing care leave</td>
<td>0</td>
<td>2(1)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Short workday for nursing care</td>
<td>3(1)</td>
<td>2</td>
<td>1</td>
<td>1(1)</td>
</tr>
</tbody>
</table>

Voice of an Employee Who Took Child Care Leave

(Female, gave birth to a child in August 2011 and went back to work in August 2012)

As I struggled to take care of my baby during my child care leave, I was worried that I was becoming less and less associated with the company.

Shimadzu established the system to help employees return to their jobs in February 2012, allowing them to receive training for their job at the company during child care leave.

Because of this system, I was able to receive explanations about the status of my workplace and trends in the company from co-workers. It eliminated my sense of worry about going back to work and helped me to start working again smoothly. I really appreciate the assistance that I received from my co-workers as a result of this system.
Global Employment

Shimadzu currently makes 43% of its sales in countries other than Japan. It has overseas bases in 22 countries and has been highly evaluated as a global company from customers all over the world. Among the approximately 10,400 employees of the entire Shimadzu Group, approximately 3,800 of them are non-Japanese working at overseas bases outside Japan. The Shimadzu Head Office itself has been recruiting non-Japanese graduates of universities in Japan regardless of their nationality, who’re expected to have diversified values and ideas, in order to become a true global business.

Promotion of Health and Local Production for Local Consumption in the Company Cafeteria

Shimadzu is working on creating more healthy menus by considering caloric intake and nutritional value to promote employees’ health. In the company cafeteria, employees can select healthy menus for lunch and dinner. Moreover, Shimadzu held a seminar for employees with weight issues in February 2013. At the seminar, they were introduced to healthy menus with lots of fish and vegetables.

The cafeteria at Sanjo Works offers dishes with vegetables grown in Kyoto (e.g. cucumbers, tomatoes, and Manganji red pepper) in order to promote local production for local consumption. Since 2009, the cafeteria has been certified as a facility that actively uses farm produce from Kyoto by the Kyoto Prefectural Government.

Health Challenge Marathon

A health challenge marathon was held to create a healthier workplace and make health an integral part of employees’ lives*. In fiscal 2012, 765 employees worked to improve their eating and exercise habits for two months and 80% of them achieved their goals. Here are some comments from some of the participants.

- Participating in this project made me even more interested in health and helped me to establish a habit to exercise on a regular basis. I plan to keep watching my lifestyle habits and see if my efforts will improve my health check results.
- I think this project is excellent to make employees more aware about their diet and exercise habits as many people are unable to make changes on their own, even though they are aware of the necessity to do so.
- It was great that I was able to improve my lifestyle habits simply by being more conscious about a few things. Descriptions of the courses I was unable to sign up for also helped a lot.

* Establishing health as a basis in the lifestyles of employees (being aware and thinking about health) through individual employees’ behavior (how they live their everyday lives)

Number of Employees

<table>
<thead>
<tr>
<th>Year</th>
<th>Consolidated</th>
<th>Non-consolidated</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>9,670</td>
<td>3,166</td>
</tr>
<tr>
<td>2010</td>
<td>9,624</td>
<td>3,134</td>
</tr>
<tr>
<td>2011</td>
<td>9,819</td>
<td>3,125</td>
</tr>
<tr>
<td>2012</td>
<td>10,132</td>
<td>3,069</td>
</tr>
<tr>
<td>2013</td>
<td>10,395</td>
<td>3,063</td>
</tr>
</tbody>
</table>

Occupational Accidents (10 years)

- Total Accidents
- Accidents Requiring Days-Off (among all accidents)
- Per Thousand
Product Quality, Safety and Customer Satisfaction

Shimadzu is engaged in a variety of activities to improve product quality, product safety, and customer satisfaction.

Fundamental Quality Assurance Policies and Customer Satisfaction

Shimadzu’s actions are based on our corporate philosophy of Contributing to Society Through Science and Technology, and our management principle of “Realizing Our Wishes for the Well-being of both Mankind and the Earth”. We therefore strive continuously to provide the quality necessary for customer satisfaction throughout all stages of the product life cycle for all products manufactured and sold by the Shimadzu Group. Consequently, our fundamental policy for quality assurance is “At each stage of the product life cycle, all employees shall make every effort to provide quality that satisfies customers internationally.”

Our activities are intended to improve customer satisfaction by establishing systems capable of changing the measures we use in operations at each stage of the product life cycle, so as to accommodate the changing requirements of markets and customers.

* The product life cycle is represented by 12 stages – (1) Marketing and market surveys, (2) Product design and development, (3) Process design and development, (4) Purchasing, (5) Manufacturing or provision of service, (6) Verification, (7) Packaging and storage, (8) Sale and delivery, (9) Installation and initial use, (10) Technical support and supplemental service, (11) Post-sale surveys, and (12) Disposal or recycling at the end of product life.

Quality Control (QC) Examination

To provide quality products that satisfy customers, quality control activities in the manufacturing stage are important. Quality control activities involve a number of factors such as workers’ awareness of quality control and improvement capabilities, individuals’ leadership and motivation, and an organizational system that can draw them out. Knowledge is an especially important factor.

Knowledge related to quality control activities needs to be shared not only by personnel in quality control departments but also by a wide range of personnel involved in manufacturing, including personnel in production and production technology departments. And then such knowledge can be used for activities to improve and increase the skills and capabilities of people working on production sites. From this viewpoint, Shimadzu encourages all of its employees to learn about the concepts and methods of quality control and put them into practice in order to improve their thinking ability and capacity for improvement overall. Specifically, in fiscal 2012 Shimadzu established a personnel system to encourage employees to obtain a QC examination certificate. Financial incentives are given to employees who have passed the test of the most difficult hurdle. In fiscal 2012, the in-house QC examination promotion office submitted the applications for the QC test and an in-house test was conducted. As a result, 126 persons passed the test.

Note 2: Quality control examination (QC examination) is a nation-wide testing program established for objective evaluation of knowledge in quality control by written examinations. The examination is conducted by the Japanese Standards Association (JSA) and the Union of Japanese Scientists and Engineers (JUSE).

Quality Management System

The Shimadzu Sanjo Works facility obtained ISO 14001 certification for its environmental management system in 1997 and has been obtaining ISO 9001 certification, the international standard for quality management systems, in succession for each division, since 1994. We have also obtained ISO 13485 certification for medical device requirements, and JIS Q 9100 certification for aircraft equipment industry requirements.*

Quality management systems are also being successively introduced at relevant subsidiaries in Japan and overseas. As of March 2011, 17 subsidiaries have obtained certification in Japan and 15 subsidiaries overseas.

Based on the fundamental quality assurance policies indicated above, the effectiveness of measures and processes to ensure product quality and safety is assessed under the quality management system, and the PDCA cycle is repeated to achieve further improvements.

In this way, we are increasing customer satisfaction by continuously making improvements at each stage of the product life cycle.

* Status of Shimadzu obtaining quality management system certification

Analytical & Measuring Instruments Division
- ISO9001:2005
- ISO9001:2000
- ISO9001:1998

Medical Systems Division

Aircraft Equipment Division
- ISO9001:2000

Semiconductor Equipment Division

Manufacturing Center
- ISO9001:1998

Device Department
- ISO9001:2000

Activities to Secure Product Safety

The HS-20 headspace sampler is an instrument for keeping the sample to be analyzed heated and injecting it into a gas chromatograph or gas chromatograph mass spectrometer. Shimadzu’s analytical instruments are designed to conform to international safety standards (e.g. IEC 61010-1) and other safety criteria to guarantee product safety. The HS-20 was also being developed to meet safety standards. However, during the development, we received information about a change in the standards. Accordingly, we rechecked all parts related to safety, replaced parts not conforming to the new standards, and redesigned printed circuit boards. The HS-20 now conforms to the latest safety standards and can be used with less worry about safety.

Masahiro Kojima, Manager
Electric Design Group 3, Research & Development Department, Analytical & Measuring Instruments Division
Development of a Next-Generation Mass Spectrometry System in the FIRST Program

Under the Funding Program for World-Leading Innovative R&D on Science and Technology (FIRST Program, run by the Japanese Cabinet Office), Shimadzu has been conducting researches to develop the world’s best performance mass spectrometry system with Koichi Tanaka (General Manager, Koichi Tanaka Laboratory of Advanced Science and Technology) as the core researcher since 2010. By utilizing the system, Shimadzu is also searching for the biomarker*1 that leads to a new diagnosis of cancer and Alzheimer’s disease. Shimadzu wants to assist in the early diagnosis and treatment of cancer and Alzheimer’s disease and also help create a society in which people can live longer healthier lives in the future. One of the study results is that the research team clarified the diversity of the structure of the breast cancer-related substance HER2*2 using a method developed through the project, a world first. They also successfully detected an Alzheimer’s-related substance present in the blood in minute amounts.

*1) Biomarker: A substance in the body of varying amounts that indicates a biological state such as a disease
*2) HER2: Abbreviation for "human epidermal growth factor receptor type 2." HER2 is a type of glycoprotein that exists even in normal cells in a small amount and carries the function to adjust cell growth. It is considered to play an important role in the progression of breast cancer.

Tennis Classes for Elementary through High School Students
Interaction with Shimadzu Tennis Team Athletes in World Ranking

In an effort to contribute through sports to the “Well-being of both Mankind and the Earth,” Shimadzu has focused particularly on promoting tennis. As part of this activity, Shimadzu tennis team athletes give junior tennis classes every year for elementary through high school students. Last year, the 21st event was held. This program is held to teach local participants the fun of playing tennis through technical instruction by world ranked Shimadzu athletes and interaction with them. After the class last year, participants said that rallying with Shimadzu tennis players was a great experience and many of them said that they want to participate again. The Shimadzu tennis team members seemed to be motivated by the young players’ enthusiasm and this also made them more aware about their responsibilities as members of Kyoto’s representative corporate team.

Shimadzu Hands-On Analysis School
"Chromatography Course" (Comments by a lecturer)

I was involved in the gas chromatograph business of Shimadzu Corporation for many years. Chromatography is one of the analytical methods used to separate substances. Although it is widely used in the chemical field, the general public is not very familiar with it.

In the "chromatography course" of Shimadzu Hands-On Analysis School, programs are designed focusing on “visualization” of separation of substances using colors to make chromatography more friendly and interesting to children. In a program where handmade column chromatographs are used, children watch breathlessly as a red ink is gradually separated into yellow, pink, and orange in a glass tube.

Creation of a "Magic Picture Book to Make Examinations Less Intimidating"

We created a picture book for children using the illustration from the Mobile Zoo sticker pasted on the MobileDaRt Evolution digital mobile X-ray system. As readers read the picture book, they find heart marks hidden in illustrations of animals. We hope that children can feel more at ease when being examined by realizing that the inspection instrument has the same illustrations of animals as the ones in the picture book.

The first page of this picture book is written in 13 different languages, and it has been delivered to medical institutions in many countries that use Shimadzu’s instruments.

Find more on our website
http://www.first-ms3d.jp/english/
Environmental Report

Organization and Policies of the Environmental Management System

Under the direction of an environmental committee chaired by a person from management, a company-wide organization for promoting environmental management is being established based on ISO14001, an international standard for environmental management systems. In fiscal 2013, Shimadzu altered the organization by integrating manufacturing bases in Japan and Shimadzu Group’s affiliated companies that have separately obtained an ISO14001 certificate and also by expanding the management system to major sales bases. Shimadzu and its group companies are currently promoting company-wide environmental activities based on the purposes and goals determined for the entire company by the environmental technical committee sections established across different departments.

Environmental Policies of Shimadzu Corporation

Head Office and Factories & Related Offices

1. Basic Philosophy
Human health and environmental preservation on a global scale are goals shared throughout the world. As a member of the international community, we at Shimadzu consider global environmental problems as one of our most important concerns, and we conduct our business activities in accordance with the management principle, “Realizing Our Wishes for the Well-being of both Mankind and the Earth.” We strive to achieve an abundant society while preserving and protecting the environment.

2. Basic Policies
Business operations at the Head Office and Factories & Related Offices of Shimadzu Corporation are committed to expanding the development, manufacture, sales and service of scientific equipment. These include analytical instruments; measuring instruments; testing machines; medical equipment; aircraft equipment; hydraulic equipment; industrial equipment; and bio-products and sensor devices, including environmental analysis and measurement instruments. At the same time, these business operations are dedicated to identifying the impact that business activities at the corporate Headquarter Offices district, our products and their manufacturing processes, and related services may be having on the environment. The continual improvement of our environmental management system actively contributes to steadily reducing the burden on the environment, to preventing pollution, and to enhancing the social environment. Such activities are based on the following policies.

(1) Business operations in the Head Office and Factories & Related Offices of Shimadzu Corporation will make harmonizing their business activities with the preservation of the global environment one of the highest priorities.
(2) To promote activism for global environment preservation, an organizational system is provided that allows the opportunity for all business organizations, including employees and all people in the site to participate.
(3) The company will contribute to global environmental preservation by engaging in activities to promote environmental education and to raise awareness that employees and all people in the site should be involved in.
(4) The company will work to accurately identify the effects that the business operations have on the environment (such as environmental pollution, resource depletion, global warming, destruction of the ozone layer, loss of biodiversity) and work to constantly increase environmental preservation activities, as much as technologically and economically possible.
(5) The company will strive to observe not only applicable legally requirements regarding environmental aspects, such as international, national and local environmental laws and regulations, but also any other requirements agreed to by the company. To preserve the environment the company will even establish its own voluntary standards when necessary.
(6) Of the environmental effects that the business activities of our business operation in the Head Office and Factories & Related Offices of Shimadzu Corporation may have, promoting preservation activities with respect to the following effects will be given special priority.
   1) The company will reduce environmental impacts and prevent environmental pollutions by the business operations.
   2) The company will develop products with functionality or applications that are environmentally beneficial to society, and products designed to have a low environmental impacts throughout their lifecycle.
   3) The company will support external environmental activities using the know-how accumulated for preserving the environment.
   4) The company will reduce greenhouse gases emissions, including CO2 emissions, and contribute to prevention of global warming and realization of low carbon society.
   5) The company will make every effort to conserve biodiversity by gaining a deeper understanding of biodiversity.
   7) The company will strive to establish communication with local residents and related government organizations, in order to make contributions to the local community.

Osamu Ando
Environmental Committee Chairperson
Shimadzu Corporation
### Environmental Load Mass Balance [FY 2012]

(Total for all Shimadzu Corporation manufacturing and laboratory locations in Japan)

#### INPUT

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity Usage</td>
<td>48,133 MWh</td>
</tr>
<tr>
<td>Gas Usage</td>
<td>732,000 m³</td>
</tr>
<tr>
<td>Fuel (diesel oil, etc.)</td>
<td>49,362 L</td>
</tr>
<tr>
<td>Water Usage</td>
<td>240,000 m³</td>
</tr>
<tr>
<td>Chemical Substances</td>
<td>114 tons</td>
</tr>
<tr>
<td>Paper</td>
<td>97.7 tons</td>
</tr>
<tr>
<td>Packaging Materials</td>
<td>608.8 tons</td>
</tr>
</tbody>
</table>

Recycling Ratio 99.7%

#### OUTPUT

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO₂ Emissions</td>
<td>22,400 tons</td>
</tr>
<tr>
<td>NOₓ Emissions</td>
<td>1.53 tons</td>
</tr>
<tr>
<td>SO₂ Emissions</td>
<td>0.03 tons</td>
</tr>
<tr>
<td>Effluents</td>
<td>234,000 m³</td>
</tr>
<tr>
<td>Waste Output</td>
<td>2,787 tons</td>
</tr>
<tr>
<td>Amount Recycled</td>
<td>2,778 tons</td>
</tr>
<tr>
<td>Amount Landfilled</td>
<td>9 tons</td>
</tr>
</tbody>
</table>

#### Environmental Conservation Activity Costs (2012 performance)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Primary Measures</th>
<th>Investment</th>
<th>Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Costs Within Business Areas</td>
<td>Pollution Prevention Costs</td>
<td>Noise control, etc.</td>
<td>111</td>
</tr>
<tr>
<td>2 Environmental Management Costs</td>
<td>Global Environment Conservation Costs</td>
<td>Reduction of substances damaging the ozone layer, etc.</td>
<td>150</td>
</tr>
<tr>
<td>3 Social Activity Costs</td>
<td>Waste Reduction and Recycling Costs</td>
<td>Commissioned waste processing, emission reductions, and waste separation</td>
<td>1</td>
</tr>
</tbody>
</table>

Subtotal: 262 363 318 295

#### Research and Development Costs

<table>
<thead>
<tr>
<th>Item</th>
<th>Primary Details</th>
<th>Investment</th>
<th>Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 R&amp;D Costs</td>
<td>Development of environmentally friendly and environmentally beneficial products</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>

Total R&D Expenses: 0 143 141 141

#### Environmental Conservation Activity Results

<table>
<thead>
<tr>
<th>Results</th>
<th>Environmental Load Index (comparison with reference year)</th>
<th>Savings</th>
<th>Year-On-Year Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Savings</td>
<td>Amount saved: -5,070 MWh/year (11.8% increase)</td>
<td>-51.5</td>
<td>-40.0</td>
</tr>
<tr>
<td>Savings from Reduced Waste</td>
<td>Savings: -155 tons/year (5.9% increase)</td>
<td>26.9</td>
<td>5.7</td>
</tr>
<tr>
<td>Water Savings</td>
<td>Water saved: 236,000 tons/year (49.2% decrease)</td>
<td>102.8</td>
<td>0.4</td>
</tr>
</tbody>
</table>

Total: 78.2 -33.9

Calculation conditions

3. Results indicate the extent of environmental load reductions, and expenses saved through environmental conservation activities.


4. Expenses related to education, conferences, and social activities: Calculated by multiplying the total number of man-hours expended by personnel involved in these activities by an hourly labor cost of 5,000 yen.
Environmental Impact Assessment

Based on the policy to integrate and expand the environmental management system, we assessed environmental impacts to create 2013 environmental management programs at worksites including offices and affiliated companies that have obtained an ISO14001 certificate on their own. We assessed hazardous chemical substances handled by the company while considering the amounts used and stored, their potential impact on the environment, and the possibility of such events actually occurring. In fiscal 2012, we reviewed assessment standards for hazardous chemical substances in order to strengthen the management of substances that are regulated or controlled by multiple environmental laws and regulations and ones that have a strongly negative impact on biodiversity.

Environmental Management Programs

(Abstract of major targets of environmental technical committee sections)

<table>
<thead>
<tr>
<th>Environmental Aspect</th>
<th>FY 2012 Targets and Results</th>
<th>Self-Assessment</th>
<th>FY 2013 Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CO₂ Emissions</strong></td>
<td>• Reduced CO₂ emissions from energy usage in the Headquarter Offices district to 18,190 tons, which exceeded the target of 19,518 tons (98.6 %) or less of the level in fiscal 1990.</td>
<td>○</td>
<td>• Reduce CO₂ emissions from energy usage below 31,340 tons, 89.1 % of the 2010 level or less. (Note: The nominal total emissions increased in fiscal 2013 because of the expansion of the target range and change of the conversion factor.)</td>
</tr>
<tr>
<td><strong>Waste</strong></td>
<td>• Proposed and tested plans to reduce the amount of waste outflow (excluding valuable materials) in each department. (Some departments could not propose a plan.) • Maintained zero-emission status (at least 99 % recycling ratio) with a 99.6 % recycling ratio.</td>
<td>△</td>
<td>• Propose and implement plans to reduce the amount of waste outflow (excluding valuable materials) in each department. • Maintain zero-emission status (at least 99 % recycling ratio).</td>
</tr>
<tr>
<td><strong>Hazardous Chemical Substances</strong></td>
<td>• Conducted a current situation survey about the management of chemical substances in 96 departments (including affiliated companies in Japan and their sales bases that handle chemical substances) to be prepared for an emergency such as an earthquake. • Introduced the Chemical Registration Information System (CRIS) to five departments that had not previously used the system. • Reduced use of CFC substitutes to 89 kg in real terms, achieving the target of 90 kg or less. (The target was revised during the business term.) • Properly managed PCB wastes and collected information about them.</td>
<td>○</td>
<td>• Review measures to be prepared for emergencies such as an earthquake. • Conduct a current situation survey for the reduction of the use of CFC substitutes. (The number of departments using CFC substitutes increased due to the integration and expansion of the environmental management system to include offices that have obtained an ISO14001 certificate.) • Manage PCB wastes properly, process high-concentration PCB wastes, and collect information about processing of low-concentration PCB wastes.</td>
</tr>
<tr>
<td><strong>Products</strong></td>
<td>• Developed 34 Eco-labeled products in the year, exceeding the annual target of 30. • Performed trial of LCA1) and examined the establishment of in-house rules. • Calculated energy-saving ratio, recycling ratio, and reuse ratio for 12 new products. • Created sorting guidelines for 13 new products. • Assessed environmental regulatory trends in the EU and other areas, and disseminated this information throughout the company as planned.</td>
<td>○</td>
<td>• Develop more Eco-labeled products. (Target: 35 products for the year) • Establish in-house rules based on the results of the trial of LCA1) carried out in fiscal 2012 and continuously conduct related activities. • Calculate energy-saving ratio, recycling ratio, and reuse ratio for new products. • Create sorting guidelines for new products. • Assess environmental regulatory trends in the EU and other areas, and disseminate this information throughout the company.</td>
</tr>
<tr>
<td><strong>Green Procurement</strong></td>
<td>• Audited 44 suppliers to eliminate hazardous chemicals contained in products, exceeding the target of 40 suppliers. • Promoted green procurement of in-house consumables by adopting 167 items out of the 176 items proposed. As a result, the green procurement rate was improved from 91.5 % to 96.5 %. • Conducted workshops on conserving biodiversity at 53 suppliers that have not yet taken measures to do so, and followed the subsequent progress of such activities at the respective suppliers. This exceeded the target of 51 suppliers.</td>
<td>○</td>
<td>• Audit suppliers to eliminate hazardous chemicals contained in products. (Target: 40 suppliers in the year) • Promote green procurement of in-house consumables by switching non-green products purchased in fiscal 2012 to green products. (Target: 128 items) • Conduct training sessions on conserving biodiversity at suppliers that have not yet taken measures to do so and follow the subsequent progress of such activities at the respective suppliers. (Target: 52 suppliers)</td>
</tr>
</tbody>
</table>

Note: For more information about results in fiscal 2012, see pages 24 to 27.

1) LCA: Life Cycle Assessment. LCA is a technique to assess environmental impacts associated with all the stages of a product’s life-cycle and to reduce environmental impacts from a comprehensive viewpoint.
Medium and Long-Term Programs

<table>
<thead>
<tr>
<th>Item</th>
<th>Results of Activities (FY 2012)</th>
<th>Mid-Term Goals (to March 2015)</th>
<th>Long-Term Goals (to March 2030)</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| Products | • Developed ECO-label compliant products: 34 items  
• Created policies for the introduction of LCA\(^1\) techniques  
• Identified and reported on environmental regulatory trends in the EU and elsewhere overseas | • Reduce energy consumption by at least 25%: main products  
• Introduce LCA\(^1\) techniques and increase visibility of the environmental impact of products: main products  
• Comply with regulations for specific hazardous substances: all new products | • Develop energy efficient products based on new concepts  
• Supply products based on life cycle thinking: all products  
• Develop our environmental restoration business | • Design space- and energy-efficient products using MEMS\(^2\)/NEMS\(^3\) technology  
• Promote environmentally friendly design  
• Comply with regulations for hazardous substances |
| Management of Chemical Substances | • Reduced use of CFC substitutes (HCFC-225): an annual use of 89 kg, about 99% reduction from the 1998 level.  
• Increased the number of departments using the Chemical Registration Information System (CRIS\(^4\)): The system was introduced to five departments that had not previously used the system. | • Eliminate the use of CFC substitutes  
• Achieve chemical substance management throughout entire life cycle  
• Decide on policies for chemical substances with environmental risks | • Eliminate all chemical substances with a negative impact on human health and the environment | • Comply with new chemical substance regulations  
• Implement measures based on SAICM\(^5\) |

\(1\) LCA: Life Cycle Assessment. LCA is a technique to assess environmental impacts associated with all the stages of a product’s life cycle and to reduce environmental impacts from a comprehensive viewpoint.

\(2\) MEMS: (Micro-electro-mechanical systems) Devices with mechanical elements, sensors, actuators, and electronic circuits integrated on a single circuit board

\(3\) NEMS: (Nano-electro-mechanical systems) A further development of MEMS, NEMS are devices having mechanical structures built on a nano scale using manufacturing technology for integrated circuit semiconductor devices.

\(4\) CRIS: Chemical Registration Information System.

\(5\) SAICM: Strategic Approach to International Chemicals Management.

\(6\) The target value was changed in April 2013 according to the current world trends and social conditions.

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**Development of High-Accuracy Material Discrimination Technology That Automates Purity Testing for Recycled Plastics**

In conjunction with a major electric appliance manufacturer, Shimadzu developed a high-accuracy material discrimination technology for recycled plastics. This technology automates the purity test for recycled plastics, which was previously performed manually. This significantly improves work efficiency. Shimadzu plans to apply this technology to develop equipment that can be used for recycling electric appliances and also recycling plastics used in other industries such as the automotive industry in the future.

Shimadzu uses mid-infrared light, which is conventionally used to identify plastics. Plastics are identified using the light reflected from them.

- Mid-infrared light: Light with a wavelength longer than that of near-infrared light, which is conventionally used to identify plastics.
- The newly developed technology enables types of plastics with deep color, for which discrimination was previously difficult, to be quickly identified at a high accuracy of at least 99% by using mid-infrared light*. Moreover, plastic flakes shredded into various sizes can automatically be moved to a position where they are continuously identified and then automatically sorted by type.
Preventing Global Warming and Saving Energy

CO₂ Emission Results

The graphs show the energy usage (crude oil equivalent) from business activities at Shimadzu’s production sites and research laboratories in Japan and the resulting CO₂ emissions. This year, Shimadzu started to use the actual emission factors of each fiscal year announced by the Ministry of Economy, Trade and Industry and the Ministry of the Environment for the power conversion factor. (For the actual emission factor for fiscal 2011 and later, the actual emission factor for 2011 is used.) Shimadzu made continuous company-wide efforts to save electricity and renovated its buildings to improve energy efficiency (such as updating air conditioner and lighting equipment and improving insulation efficiency).

As a result, energy usage was reduced by 15 % of the level in fiscal 2010 and by 5 % of the level in fiscal 2011. The reduction was 19 % of the level in fiscal 2010 in terms of emission intensity based on consolidated sales. However, CO₂ emissions increased by 20 % of the level in fiscal 2010 because the actual emission factor increased in areas where Shimadzu’s manufacturing and sales bases are located, while CO₂ emissions still reduced by 5 % of the level in fiscal 2011.

CO₂ Emissions by the Shimadzu Group

Results for CO₂ emissions from energy usage by the Shimadzu Group in Japan and other countries are shown to the right, broken down by region. Results for Japan are from all Shimadzu sites as well as group companies’ production sites and contracted analytical subsidiaries that consume relatively large amounts of energy. Results for other countries are from 9 subsidiaries in Asia, 2 in Europe, and 2 in the Americas that consume relatively large amounts of energy, including all the production sites in countries outside Japan.

CO₂ emissions in fiscal 2012 by the Shimadzu Group reduced 1.0 % (approx. 350 t-CO₂) from fiscal 2011. A major factor influencing this result is the reduction of CO₂ emissions in Japan.

Energy Usage (Crude Oil Equivalent) and Emission Intensity Based on Consolidated Sales (Total for manufacturing sites and research laboratories in Japan)

CO₂ Emissions (Total for manufacturing sites and research laboratories in Japan)

CO₂ Emissions from Energy Usage by the Shimadzu Group

Development of the MCXS Anti-Reflective Coating System

Shimadzu has developed an anti-reflective coating system for the crystalline silicon solar cell production process. The system forms anti-reflective coating with high resistance to potential induced degradation (PID)*, which is considered a major problem in solar power systems. The system suppresses the reflection of sunlight and enhances energy absorption to contribute to enhanced power generation efficiency.

Additionally, MCXS is designed to save energy. It helps to reduce energy costs for manufacturing solar cell and improves the use efficiency of the source gas used as the raw material for coating. As well as high-speed operation and compact system design, the system also reduces running cost and maintenance expenses through longer maintenance periods, one-third the power consumption of previous systems, and half the running costs.

Note: When a high voltage is applied under high-temperature and high-humidity conditions, current leakage occurs in the module circuit of solar panels, causing the output (power generation amount) to decline.
Measures for Waste and Chemical Substances

Waste Management

Starting in fiscal 2012, Shimadzu’s each department has been formulating waste reduction plans and testing them in order to reduce waste generated from manufacturing, R&D, and other business activities.

In manufacturing departments, in addition to thoroughly sorting waste as we did in previous years, we have been reviewing processes and investigating numerical figures that we did not previously grasp, in order to reduce manufacturing and disposal costs.

In fiscal 2012, however, the total amount of waste increased because cutting oil was replaced more frequently for higher quality of precision machining and a large amount of waste was discharged from renovation and transfer of buildings.

We will continue to search for more effective activities so that we can reduce the amount of waste.

Activity to Reduce Waste Metal

We reduced the amount of waste metal generated in metal-cutting processes at machining sites. We began by extracting 12 parts based on the amount of waste metal generated after machining, raw material unit price, machining methods, and other conditions, and then discussed remedial plans for them. The result is that the amount of waste metal generated from the target parts was reduced by 8% to 70% by decreasing the amount to cut from raw materials and changing the shape at delivery. The activity also caused secondary effects, such as reduced expenses for purchasing raw materials, shorter time required for cutting, and enhanced workability and safety, leading to the grand prize of the 2012 environmental improvement awards in Shimadzu Group.

Shinya Matsuura,
Machining Group, Manufacturing Center, Manufacturing Support Division

Chemical Substances Management

Shimadzu uses a wide variety of chemical substances for manufacturing, R&D, and application development. The Chemical Registration Information System (CRIS) developed by Shimadzu System Development Corporation is used to manage individual chemical agents entering and leaving the company. Shimadzu also improves the management of chemicals by creating procedures for users and carrying out training sessions.

In fiscal 2012, Shimadzu conducted investigations on departments handling chemical substances to find out if they follow applicable laws and how prepared they are for emergencies such as an earthquake, and started to examine measures for them. Shimadzu also reports the use of hazardous chemical substances based on PRTR (pollutant release and transfer register) laws. In fiscal 2012, the usage of the substances reported for PRTR was the least ever, mainly because the cleaning facility that used the CFC substitute HCFC-225 was replaced.

Use of an Air Dust Blower That Uses No CFC Substitutes

Air dust blowers are used to remove debris and dust from instruments in instrument manufacturing, R&D and after-maintenance stages and many of them use CFC substitutes. Since CFC substitutes have an extremely high global warming potential, use of a specified amount of them needs to be reported to the government in Japan.

We are currently trying to use air dust blowers that contain carbon dioxide gas, instead of CFC substitutes, with a relatively smaller impact on the environment, especially at affiliated companies that often use air dust blowers for maintenance of instruments.

Use of this type of air dust blower also helps to reduce gas cylinder waste because cylinders can be reused by adding carbon dioxide repeatedly.
Environmental Measures for Products / Green Procurement

At Shimadzu, we believe that product-related environmental concerns must encompass the entire product life cycle, from procuring materials and parts to disposal. This is also of utmost importance as a management issue in terms of implementing our management principle, “Realizing Our Wishes for the Well-being of both Mankind and the Earth.” To reduce the environmental impact of products over their entire life cycle, products are designed based on a policy of designing low environmental impact.

ECO-Label System Measures

Shimadzu operates an ECO-label system that permits the application of ECO labels to products that meet Shimadzu standards for environmentally friendly products. The following shows some of the main products that have earned the ECO label so far.

ECO-Label Standards (Must satisfy 1 or 2)

1. Energy consumption is at least 25% lower than the previous Shimadzu model
2. Does not contain specified hazardous substances*

*Specified Hazardous Substances: Mercury, cadmium, lead, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE), the use of which is restricted under the European RoHS directive

Products with at Least 25% Lower Energy Consumption

Note: All values indicate comparison to previous Shimadzu models.

Free from Specified Hazardous Substances

X-Ray Tubes for Medical Systems:
Six series of products including the 0.7/1.2JG326D-265 series

Hydraulic Gear Pumps:
EGP1 series hydraulic gear pumps
DDG440 series hydraulic gear pumps

Optical Devices and Lasers:
High-power laser mirrors & laser windows
Laser mirrors: 36 types
Laser windows: 12 types

Promoting Life Cycle Assessment (LCA)

Shimadzu is promoting LCA measures, which are techniques for quantitative assessment of the environmental impact of products over their entire life cycle, from procurement of raw materials and parts to disposal.

In fiscal 2012, we conducted a trial comparison of the life-cycle CO2 emissions between the LC-20AP Preparative LC Pump with an Eco label and the previous model (LC-8A). As a result, we confirmed that the amount of CO2 emissions for the entire life cycle of the LC-20AP is significantly less because of the instrument's energy-saving performance, a change in the power supply configuration system, and its lighter and space-saving design.

Shimadzu plans to create specific procedures to use LCA in the company so that LCA can be used more actively.

Promoting Life Cycle Assessment (LCA)
Compliance with the RoHS Directive

Starting in July 2014, the RoHS Directive will be applied to Shimadzu’s main products. For compliance with the directive, potential problems must be identified and improved in each process, including design, procurement, and manufacturing. Each department also needs to create their policies and standardized procedures to be compliant. For this reason, a cross-departmental working group, including not only manufacturing and quality assurance departments, but also departments involved in sales in countries other than Japan, has been established to review how to respond to various issues. In addition, a new specialized system was built in April 2012 and is currently used by all Shimadzu Group companies in Japan and other countries.

- Audits of suppliers
Shimadzu visits and audits its suppliers to check and assess the status of hazardous chemical controls at their sites.

- Exchange of products in stock
Products in stock are controlled by a dedicated system, which checks all the parts for compliance with the RoHS Directive and keeps track of exchanged parts to ensure the manufacture of RoHS-compliant products.

- Self-directed analysis
For items with a high risk of containing substances restricted by the RoHS Directive, screening analysis is performed using an X-ray fluorescence spectrometer or precision analysis is performed when necessary in order to confirm that RoHS-compliant parts are used.

Measures for Conflict Minerals

The Shimadzu Group consults with suppliers about the regulation of the use of conflict minerals* from a viewpoint of social responsibility of a company. If parts and materials used in Shimadzu’s products have been confirmed to include conflict minerals, Shimadzu will immediately stop using them and takes other appropriate measures.

*: In the US, the Dodd-Frank Wall Street Reform and Consumer Protection Act was established on July 21, 2010 in order to prevent sales of such minerals from becoming a capital source for armed groups that commit inhumane acts. According to the restrictions provided by Article 1502, companies listed in the US must report to the Securities and Exchange Commission (SEC) about the use of gold, tin, tantalum, and tungsten mined in the Democratic Republic of the Congo and nine surrounding countries for achieving products’ functions or manufacturing them. The law stipulated that the SEC shall determine specific procedures for the report, and the procedures were adopted in a public session of the SEC on August 22, 2012.

Reducing Hazardous Chemicals in the Supply Chain

A partnership with suppliers is essential for promoting green procurement. To ask suppliers to cooperate with green procurement, Shimadzu Corporation Green Procurement Standards were established as an index and posted* on Shimadzu’s website in three languages, Japanese, English, and Chinese. To support measures to reduce the environmental impact of suppliers in Japan and overseas, presentations are being conducted for suppliers, as necessary, to explain the requirements.

Receiving a Technology Award of the 2012 Contract Research Awards

Shimadzu employees Hidehumi Saito (Research & Development Department, Aircraft Equipment Division, right in the photo) and Tetsuo Taniguchi (Production Engineering Section, Aircraft Equipment Plant, left in the photo) received a technology award as part of the 2012 Contract Research Awards, held by the Society of Japanese Aerospace Companies. The theme of their research was the “research on alternative processes of cadmium plating / development of Zn-Ni plating.” They carried out this research with the aim of contributing to society through science and technology. They received the award because their research became practical enough to make a contribution to society and also helped to advance technology throughout the industry by promoting development and establishing a strong team relationship.
Shimadzu's Measures to Preserve Biodiversity

We have been striving to preserve biodiversity through our environmental policies. One of Shimadzu’s major activities for fiscal 2012 was to summarize the Japanese Invasive Alien Species Act and establish procedures for what to do if invasive alien species are found in incoming shipments and to familiarize all engaged personnel with the procedures, as a countermeasure against these species entering Japan. In addition, we held several seminars for suppliers who have not yet taken measures to preserve biodiversity and encouraged them to develop measures at their companies.

Furthermore, in relation to the environmental impact assessment required under ISO14001, we added the impact on biodiversity as one of our evaluation criteria for hazardous chemical substances we use. This will help to strengthen our self-management of substances that cause a major impact on biodiversity when they are mined, for example minerals like rare metals, or chemical substances regulated by environmental standards due to their impact on aquatic life.

We have been conducting the “Shimadzu Corporation Reforestation Activities” (Nantan City, Kyoto Prefecture) regularly since fiscal 2008. In fiscal 2012, with participation from our employees and new recruits, we carried out activities such as thinning trees and injecting spawn into logs to grow Shiitake mushrooms in the forest. We also organized nature observation walks guided by experts and studied the biology of the animals and plants and the condition of our “Shimadzu Forest.”

My Thoughts on Shimadzu Forest

When I first heard of “Shimadzu Forest,” which was being fixed up, I imagined an artificial and poorly-maintained forest. When I visited the place, however, I was pleased to discover I was wrong. In the water catchment area on a gentle slope, there was a surprisingly huge variety of deciduous broadleaf trees such as Japanese beautyberry, Japanese bird cherry, and Lindera praecox.

The “Shimadzu Forest” is well-maintained and I find it more beautiful every time I visit. It is quite a pleasure to imagine how the forest will look in ten years.

Shigeru Matsutani
Visiting Professor, Kyoto Prefectural University

United Nations University Project

Shimadzu has been continuously supporting the United Nations University’s “Environmental Monitoring and Analysis in East Asian Regions—Transfer of Technologies and Environmental Management” project, which started in 1996. The project, which has already been carried out over five three-year phases, is monitoring chemical pollutants in the coastal environments of ten Asian countries so as to create a sustainable global environment.

Since Phase 6 involves the analysis of PFOS (perfluorooctane sulfonate) and PFOA (perfluorooctanoic acid) in environmental water, Shimadzu will provide the most advanced high-performance liquid chromatograph mass spectrometers. Shimadzu is also committed to continuing to train local engineers by utilizing our specialized technology and expertise with regard to environmental analysis.
External Support

Shimadzu proactively supports various environmental activities outside the company, including sending staff to teach lessons at educational institutions from elementary schools to universities and conducting factory tours for universities and industry associations. The comments below are from people who participated in these activities.

Reports from Students of Kyoto City Shimogyo Shosei Elementary School (sixth grade when they participated in the course)

We would like to thank Shimadzu for conducting a study tour that forms part of JICA’s “Air Quality Management Policy” training course. The training course began in 1984 with the aim of improving air quality management in developing nations by providing information about Japan’s air pollution experiences and countermeasure technologies for air pollution. To date, 251 trainees have participated in the course, and they have all been amazed at Shimadzu’s state-of-the-art technologies and have shown a deep interest in the company’s meticulous manufacturing processes. I believe observing your facilities significantly helps the trainees to understand the technologies and serves as a useful reference for them. We hope trainees will continue to enjoy this privilege in the future.

Takashi Miyagawa
Japan Environmental Sanitation Center (JESC)

Our school was designated as a Super Science High School (SSH) by the Ministry of Education, Culture, Sports, Science and Technology in Japan. As part of this, four of our students had the privilege of visiting Shimadzu Corporation in August 2012 to conduct their science fieldwork. They listened to lectures about Shimadzu’s business operations and environmental activities, were taken on tours of the analytical instruments showroom, the wastewater treatment facility, and the analytical and measuring instruments plant, and then had the chance to use a chromatograph at the Shimadzu Analytical and Measuring Center. The students were able to use equipment that is not available at high schools, so they were really interested and enjoyed themselves, putting a lot of effort into analyzing the amount of caffeine contained in a soft drink using a high-performance liquid chromatograph. They were impressed that Shimadzu values its connections with local communities, conducts environmentally conscious activities, and places importance on its bonds with people when manufacturing products. The experiment, factory tours, and everything else seemed to provide them with a good opportunity to think about their futures and broaden their career options.

In September 2012, Shimadzu kindly accepted 30 students from Singapore who visited Japan as part of our school’s international exchange program. Since water is a precious resource in Singapore, the students were very interested in water usage, and enthusiastically observed Shimadzu’s facilities and listened to lectures in English about wastewater pools and monitoring systems.

Hana Murakami, Teacher
Kyoto Prefectural Sagano High School

External Support

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Environmental Report

Measures by Affiliated Companies

Development of a Helium Gas Saving Unit

Helium gas can be produced in only several countries in the world. In 2012, the supply of helium gas significantly dropped due to the problem with production equipment in the USA, the largest producer of the gas. Saving helium gas consumption has become global demand of society. In light of this issue, Shimadzu Access Corporation developed a helium gas saving unit to reduce the consumption of precious helium gas and prolong the use of helium carrier gas on gas chromatographs.

The helium gas saving unit automatically switches between the analysis mode and standby mode by a timer and supplies the minimum necessary amount of helium gas during the analysis standby time of gas chromatographs.

By using the helium gas saving unit, the consumption of helium gas can be reduced by up to 75 % (when a 47 L cylinder is used).

Shimadzu Access Corporation: Corporate Overview

Shimadzu Access Corporation was established in April 2011 by integrating five group companies involved in after-sales service for instruments developed and sold by Shimadzu Corporation and two operating divisions. The company provides after-sales services, including installation, maintenance and inspections, repair, and analysis instruction for various analytical and testing instruments.

Report from Shimadzu Europa GmbH (SEG)

- Activities on European environmental laws (REACH, CLP and RoHS)

REACH*1 and CLP*2 are two important regulations on chemical substances and mixtures among the environmental laws of the EU. It is not well-known that SEG imports many kinds of chemicals together with analytic and medical devices. REACH requires registration of chemicals if the amount placed on the EU market exceeds a certain threshold. Therefore, SEG tries to procure chemicals within the EU. Furthermore, labeling is required for substances or mixtures that are categorized as hazardous. When Shimadzu Japan sends a small tube of hazardous grease or glue together with devices in the same package, the whole package must be labeled "hazardous" and stored in the chemical warehouse. We are also looking for alternatives available in Europe. In cases where no acceptable alternative is found, we ask Japan to send such substances separately.

The RoHS*3 Directive restricts the use of six substances (lead, mercury, cadmium, hexavalent chromium, PBB, and PBDE) in electrical and electronic equipment. Since the maximum allowed concentration of such substances is defined on the basis of weight/weight % in homogeneous materials, we need to pay attention to very small parts as well. For example, a multi-channel plate (MCP), which is part of the detector of a high-performance mass spectrometer, contains a small amount of lead. Although it is a very small amount, the lead concentration exceeds 0.1 % in homogeneous material. At the moment no substitute for lead is available for this purpose. Therefore, SEG submitted an exemption for the use of lead in MCPs to the EU commission through the JBCE (Japan Business Council in Europe). After more than half a year of discussions, the use of lead for this purpose was finally accepted. We plan to continue this kind of activity in future.

Dr. Kinko Tsuji
Dr. Keiko Nagase-Reimer
(Shimadzu Europa GmbH)

*1 REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) is a Union Regulation on chemical substances.
*2 CLP is a European Union Regulation on classification, labeling and packaging of chemical substances and mixtures.
*3 RoHS is a Directive of the European Union on the restrictions of the use of certain hazardous substances in electrical and electronic equipment.

Shimadzu Europa GmbH: Corporate Overview

The company is located in Germany and serves as the base for controlling businesses in Europe. It has located sales companies in Britain, France, and some other countries to establish a local sales system in Europe. At the same time, the company is aggressively marketing analytical and medical equipment in order to expand the market in Russia and CIS nations, which are rapidly growing. In April 2013, the company significantly expanded its demonstration laboratory to improve the ability to develop applications of Shimadzu analytical and measuring instruments and better support customers in the entire Europe and Russia.
Shimadzu conducted its first dialogue with stakeholders using the Environmental and Social Report 2012 with the cooperation of the Kyoto CSR Conference (representative: Professor Shimamoto, Kyoto Bunkyo University).

Valuable comments from the participants were taken into account when editing the Shimadzu Environmental and Social Report 2013.

**Outline of the Dialogue**

**Date:** November 30, 2012  
**Place of meeting:** Conference room of Campus Plaza Kyoto  
**Participants:** 26 persons  
(Breakdown is shown on the right.)

### Comments from Participants (abstract)

**Good points of Shimadzu’s report**
- Environmental information is disclosed in details for each plant and data is covered over a long period of time.
- Though compact, the report covers a wide range of subjects and is very informative.
- The “Special Features” sections showcase Shimadzu’s materiality (importance).
- The report is full of substance even though it is not made by any production company.
- A sincere effort to convey information to readers in an understandable way is apparent.
- The report is reader-friendly because it uses many pictures and has a warm feeling to it.

**Points to be improved upon regarding Shimadzu’s report**
- The report does not contain sufficient information and data concerning the company’s sociality.
- The company should consider disclosing data on countries other than Japan and consolidated-basis data.
- Because many of the products are traded on a business-to-business (B2B) basis and are not very well known to the general public, the report could contain more explanations about the products and businesses.
- Company profile and corporate philosophy could be highlighted more.
- The report could include evaluations from people outside the company.
- Negative information needs to be disclosed.
- The report could have more information about what the company has been doing for the 2011 earthquake and how it is involved in the recovery process.

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Seiichiro Shimamoto, Professor  
Faculty of Social Relations, Department of Social Design Studies, Kyoto Bunkyo University

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**After Receiving Comments from People Outside the Company**

I would like to express our sincere gratitude to Professor Shimamoto and the people from the Kyoto CSR Conference for sharing their frank comments about the Shimadzu Environmental and Social Report. We will make efforts to create an even better report by making use of the comments.

Hiroyuki Fujii, Director Shimadzu Corporation
Although this report was issued in June 2013, departments, job titles, and other information related to the stakeholders and Shimadzu Group employees refer to those when the report was edited (April 2013).

Shimadzu's principles concerning environmental issues are available on its home site.