

DOWA Kids Museum

This page shows winning entries of pictures drawn by the children of the employees of DOWA Group for the cover picture contest of the DOWA group's CSR report. This year celebrates the tenth anniversary of this virtual children's museum and the theme is the "Dream Factory."

The futures drawn by the kids are full of imagination and possibilities with their boundless energy and abilities. The DOWA group would like to help these children to realize the dreams of their future.

We have placed the drawings on the special web pages called the "DOWA KID's MUSUEM (<http://www.dowa-csr.jp/en/kids-museum.html>)". Please go to the website and see other drawings.



Sakurako Inomata
(9 years old)

It would be nice if there were a factory where insects grow flowers and birds carry the flowers they grew..



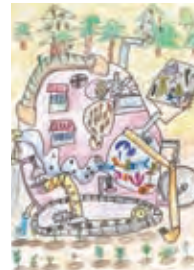
Rina Araki
(9 years old)

I would like to have a factory where garbage would change into food or useful things when it passed through a tunnel. Then I could deliver them to those in needs.



Yuki Okamoto
(6 years old)

I will be baking pastries and bread in the underground factory.



Yamato Yoshida
(8 years old)

Garbage is put into this machine to be plants, etc. This factory would keep producing many things.



Covered Organizations

DOWA ECO-SYSTEM

Eco-System Akita Co., Ltd.
Eco-System Chiba Co., Ltd.
Eco-System Sanyo Co., Ltd.
Meltec Co., Ltd.
Green Fill Kosaka Co., Ltd.
Eco-System Japan Co., Ltd.
Eco-System Hanaoka Co., Ltd.
E & E Solutions Inc.
Geotechnos Co., Ltd.
Eco-System Kosaka Co., Ltd.
Eco-System Okayama Co., Ltd.
Eco-System Recycling Co., Ltd.
Eco-Recycle Co., Ltd.
Act-B recycling Co., Ltd.
Auto Recycle Akita Co., Ltd.
Dowa-Tsuun Co., Ltd.

Dowa Environmental Engineering (Suzhou) Co., Ltd.
Tianjin Dowa Green Angel Summit Recycling Co., Ltd.
BPEC(Bangpoo Environmental Complex Ltd.)
ESBEC(Eastern Seaboard Environmental Complex Co.,Ltd.)
TEC(Technochem Environmental Complex Pte. Ltd.)
PPLI(P.T. Prasadha Pamunah Limbah Industri)

DOWA METALS & MINING

Kosaka Smelting & Refining Co., Ltd.
Akita Zinc Co., Ltd.
Nippon PGM Co., Ltd.
Akita Rare Metals Co., Ltd.
Akita Zinc Solutions Co., Ltd.
Akita Zinc Recycling Co., Ltd.

NIPPON PGM AMERICA, INC.

DOWA ELECTRONICS MATERIALS

Dowa Electronics Materials Okayama Co., Ltd.
Dowa IP Creation Co., Ltd.
Dowa F-Tec Co., Ltd.
Dowa Semiconductor Akita Co., Ltd.

DOWA METALTECH

Dowa Metal Co., Ltd.
Dowa Metanix Co. Ltd.
New Nippon Brass Co., Ltd.
Hoei Shoji Co., Ltd.
Dowa Hightech Co., Ltd.
Dowa Power Device Co., Ltd.

Dowa Advanced Materials (Shanghai) Co., Ltd.
Dowa Metaltech (Thailand) Co., Ltd.

DOWA THERMOTECH

Dowa Thermoengineering Co., Ltd.
Ohta plant
Dowa Thermoengineering Co., Ltd.
Mooka plant
Dowa Thermoengineering Co., Ltd.
Hamamatsu plant
Dowa Thermoengineering Co., Ltd.
Toyota plant
Dowa Thermoengineering Co., Ltd.
Handa plant
Dowa Thermoengineering Co., Ltd.
Shiga plant
CEMM Co., Ltd.

Dowa THT America, Inc.
Dowa Thermotech (Thailand) Co., Ltd.

DOWA HOLDINGS

Dowa group head office
Dowa Techno Engineering Co., Ltd.
Unekura Mining Co., Ltd.



Feature 1

About DOWA group

The DOWA Group started as a mining, smelting and refining company and has endeavored to improve technologies for more than a century. DOWA has established a unique business model covering investigation of resources, mining and recycling. In the Nonferrous Metals business we extract useful metals from natural resources. In the Metal Processing business we add value to the extracted metals. In the Electronic Materials business

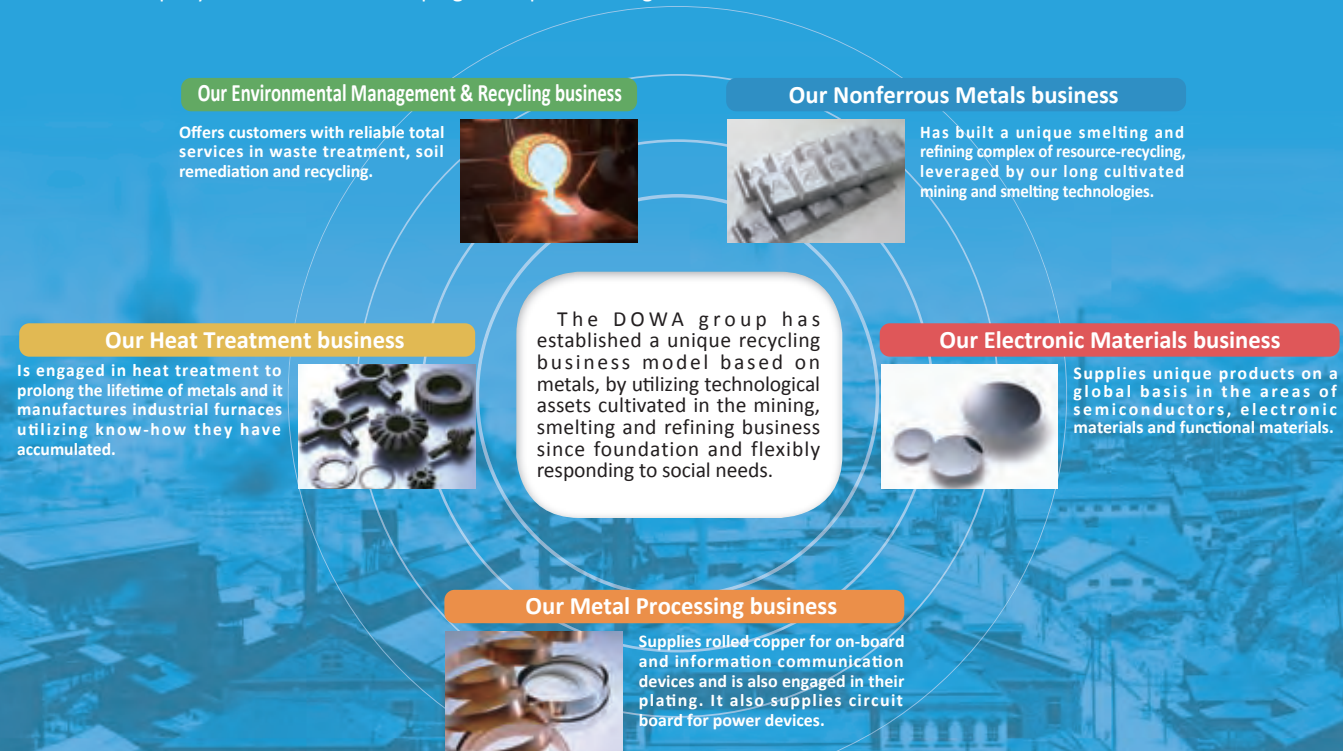
we further improve the functions of metal materials and, in the Environmental Management & Recycling business we detoxify waste, separate and collect metals from waste.

Our present lines of business are connected with each other and operate focusing on metals and based on technologies that we have accumulated and cherished in this growing economy and changing social environment.

Corporate History

Denzaburo Fujita, founder of DOWA group obtained Kosaka Mine from the Government in 1884. This mine is the foundation of the DOWA group. The "black ores" excavated there, included valuable metals such as gold and silver but also many impure substances. Various elements were also intermingled in them in a complex manner, making smelting and refining difficult. In 1902 the company succeeded in developing a unique smelting

and refining method called flash smelting after many failures and finally succeeded in extracting and smelting gold, silver and copper from those ores. By overcoming these ore challenges, the DOWA group has the world leading technologies for collecting, smelting and refining metal elements. Those diversified business activities of DOWA at present is based on these smelting technologies.



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Efforts to Resolve Social Issues through Business Activities

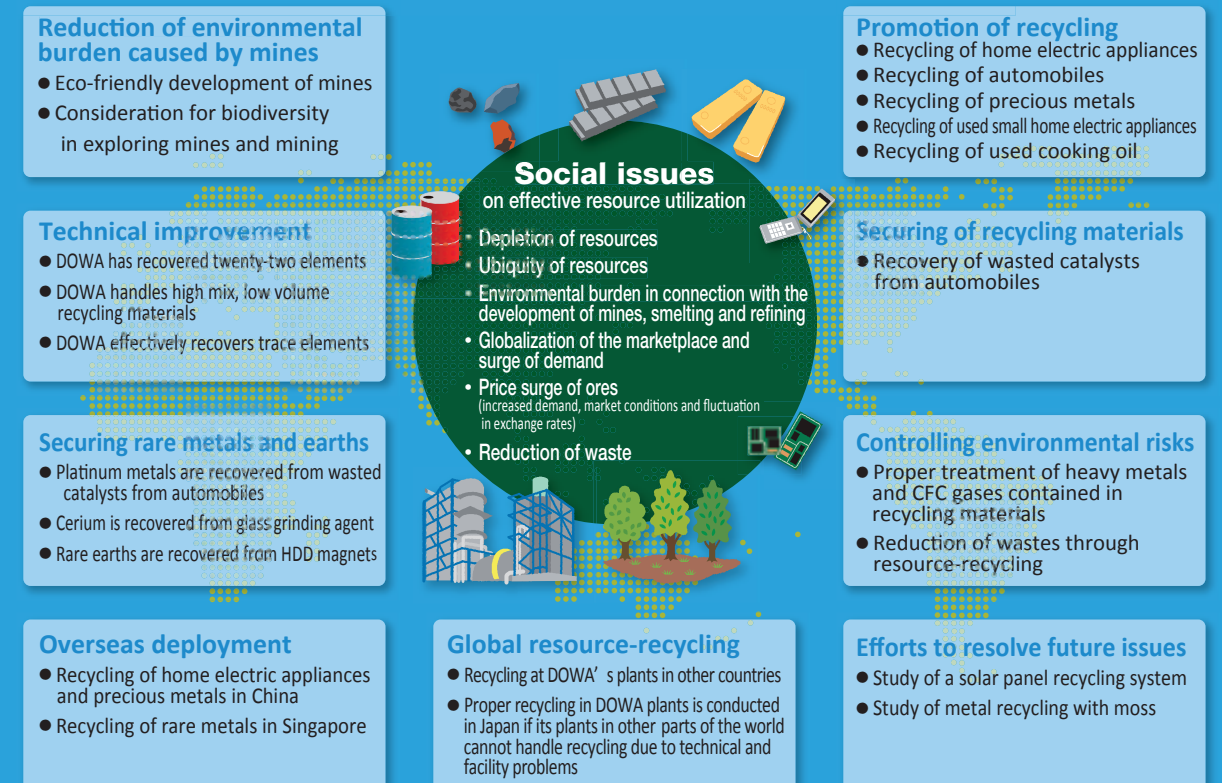
The DOWA group strives to resolve various social issues as part of its regular business activities. The DOWA group regards effective utilization of resources as an important social issue, as utilization of limited metal resources is the basis of DOWA's business.

For example, precious and rare metals are indispensable to automobiles, electronic and electrical appliances that are the backbone of the Japanese industry. However, they are only produced in a limited number of countries. We may not be supplied with sufficient amount of those metals in connection with increasing demands of emerging countries. This issue of depletion of resources is not only related to rare metals but also to familiar metals such as gold, silver and zinc. Mines are forecasted to last for about twenty years for gold, twenty-four for silver and twenty-one for zinc*.

Recycling is one solution to the depletion of resources, but it also requires technologies to effectively recover metals and to safely process hazardous and worthless substances produced in the course of recovery as well as the infrastructure to support them. There are some technical and economical issues to be resolved in recycling, including building a social system to collect recycled materials effectively as well as the time and costs to process various kinds of materials. The DOWA group will continue to work at finding sustainable metal resources through its business activities.

* Extracted from JOGMEC Metal Mining Data Book 2011.

DOWA's Approach to Social Issues



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Message from the Management

Deploying the CSR management on a global basis to help resolve problems of our increasingly international society.

We are deploying our resource-recycling business covering five business fields, focusing on countries in Asia.

We are committed to resolving social issues in the world, including environmental and energy problems through our main business activities such as offering eco-friendly products, waste disposal and recycling.

山田 政雄

President and representative director,
Masao Yamada

Responding Agilely to the Borderless Marketplace

Two years have passed since the Great East Japan Earthquake. Japan's electricity and energy problems still remain, affecting the manufacturing industry as a whole and the market structure is rapidly and significantly changing. National and local governmental and economic trends are increasingly influencing business conditions on a global basis, making us aware that the borderless marketplace is expanding. Even under such unstable

circumstances, the DOWA group is committed to expanding our business, focusing on Asian and emerging markets, based on our basic policy of "Continued Growth" in our mid-term plan V initiated last year. We started our recycling plant of precious metals in Singapore. We also constructed a zinc processing plant in Thailand and a heat treatment plant in Indonesia. Capitalizing on those plants, we will swiftly respond to the trends and needs of marketplaces and client companies in those countries in cooperation with our existing plants in Japan and other countries.

Safety Is the Top Priority as our Social Responsibility

Strengthening of our business base is indispensable for our continued growth. Among other concerns, safety is at the center of our business. "Safety is the top priority" has been our long lasting policy. We strive to make all employees and relevant parties thoroughly aware of this "Safety is the top priority" policy, assuming the proliferation of plants and the increase of employees of DOWA group in Japan and other countries. We started the Safety Activity Project across the Group (More) last year to minimize accidents, prepare for disasters and handle problems in our group. This project focuses on improving the level of safety across the group, with a slogan of "No one is hurt—No one hurts others." We believe that building the safe workplace and conducting safe operations are our social responsibility for our employees, client companies and local communities.

CSR Management that Works Closely across the Supply Chain

The importance of the CSR management in the business management is increasing along with the globalization of business management. We not only comply with universal rules of the UN Global Compact Guidelines in which we participated in 2009, but also endeavor to promote SCR across the whole supply chain, further considering cooperation with procurement sources and suppliers. Last year we obtained EICC certificate* for its conflict-free minerals (more) for gold. We make every effort to promote CSR activities in each business of the DOWA group that is deployed in a wide range of fields from the upstream to downstream resource chain.

* EICC (Electronic Industry Citizenship Coalition) is a group that promotes Code of Conduct in the electronic industry of the U.S.A. and world.

This CSR report is to inform all stakeholders both in Japan and other countries of our various efforts as well as to provide an opportunity for our employees to review their CSR activities. We welcome your suggestions and comments. We will make best use of them to direct our efforts of creating our new corporate standards towards resolution of social problems on a global basis and creation of new principles in our international society.

DOWA group's Network

DOWA HOLDINGS CO.,LTD.

DOWA ECO-SYSTEM CO., LTD.
Environmental Management & Recycling Business

DOWA METALS & MINING CO., LTD.
Nonferrous Metals Business

DOWA ELECTRONICS MATERIALS CO., LTD.
Electronic Materials Business

DOWA METALTECH CO., LTD.
Metal Processing Business

DOWA THERMOTEC CO., LTD.
Heat Treatment Business





President and Representative Director
Kenichi Sasaki

DOWA ECO-SYSTEM is deploying the core business of waste disposal, metal recycling and soil remediation not only in Japan but also in Asian countries, by further improving its unique environmental technologies and accumulating know-how to balance environmental and economic rationales.

We started incineration of the disaster wreckage as part of the Earthquake reconstruction in Southern Sanriku and Kesennuma last year. We also started wet type metal recycling in Singapore. We will further promote overseas deployment of our core business (Waste disposal, metal recycling and soil remediation), low temperature PCB treatment and utilization of green energy, aimed at expanding our role in environmental improvement.

In those environmental and recycling businesses, the driving concepts of "Safety," "Secure and Proper Treatment," and "Coexistence with Local Communities" are indispensable. We are promoting the same type of activities as those with PPLi that is introduced on this page both in Japan and abroad.

We will continue to foster human resources to resolve environmental issues from a diversity of viewpoints while capitalizing on our advanced technologies and know-how to contribute to environmental improvement in Asia as the top environmental company in the region.



Introduction of Main Plant

PPLi (PT. Prasadha Pamunah Limbah Industri)

Address: Jl. Raya-Narogong Desa Nambo PO Box 18-Cileungsi,
Bogor 16820 Indonesia
Number of Employees: 600 (as of March 31, 2013)

The Only Treatment Facility of Hazardous Substances in Indonesia

PPLi is a waste disposal company that was founded in 1994 financed jointly with Indonesian Government. It joined DOWA ECO-SYSTEM as a member of MAEH (Modern Asia Environmental Holdings) group. The company, located in Cileungsi, Bogor, about 50 km south of the capital city of Jakarta has the permit to treat hazardous substances. PPLi can handle the entire integrated process from transportation to treatment and final disposal of those substances. It also cares for natural environment and actively promoting coexistence with local communities.

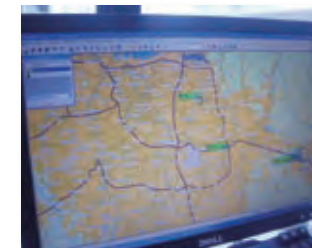
PPLi places top priority on environment in the business management because it is Indonesia's only integrated hazardous substance treatment facility. It is committed to complying with environmental laws and fostering human resources in the fields of waste disposal and environment. Its training center offers educational programs for its employees and also lectures and seminars on proper treatment for local governments and waste disposal companies. PPLi is engaged in a wide range of activities to improve the technology level of waste disposal in Indonesia and raise awareness of proper waste disposal there.



Reliable Waste Disposal

Clients of PPLi are mainly Japanese and European resource-related companies that demand the global standard of quality control in their waste disposal. The most important role of the company is to provide our customers with reliable waste disposal through safe operation and to build an environmentally controlled system.

It is important in waste disposal to transport waste from customers to treatment facilities in a safe and proper manner, select proper treatment methods and then dispose of the waste absolutely correctly in controlled facilities. For this, PPLi has procured its own vehicles and containers, controls operation plans by constantly checking their routes via GPS systems equipped onboard and they give proper feedback to its customers. It also has a laboratory (for analysis) that is certified as an official institution by in government inside its premises. Analysis per incoming lot of waste coming from customers allows it to select the most suitable disposal method. The laboratory also conducts environmental measurement and analysis of water quality inside the plant to ensure proper treatment is done.



VOICE

Technical & Laboratory Manager
in charge of analysis

Mr. Elpido

The laboratory is one of the most important functions in PPLi. We analyze physical properties and behaviors of waste, decide a proper and safe way of disposal and secure safety by complying with laws. The issue at hand is how to promote 3R's when selecting the disposal method. Fortunately PPLi has enough employees who are familiar with chemistry and the processes of manufacturing plants and I believe we are progressing toward implementation.



Coexistence with Local Communities

PPLi has personnel who are dedicated to day-to-day communication with local people. PPLi gathers information on local needs through face-to-face communication and is engaged in a wide range of social developments, including support for education, health, sports culture and social infrastructure. Among other activities, PPLi is actively fostering the next generation of Indonesians by focusing on raising the educational level of local children, including a scholarship system, receiving students on internship and dispatching teachers to elementary schools. It believes that accumulation of such educational support will lead to self-help in the local communities. It started support for local small-scale businesses that are engaged in agriculture or cultivation by providing the micro-credit to help the self-sustainability of local communities and to create jobs. PPLi aims at developing self-sustainable programs for all local people in the future in partnership with local communities.



VOICE

Community Relations Manager
in charge of local community

Mr. Ahmad Miftah Farid

It is very important to communicate with local people when conducting the business of industrial waste disposal. It is a tough job that requires patience. We offer support to local businesses from a wide perspective including management, safety and environment in addition to just financial needs. Of course, our plan does not always work as planned, but I believe it is important to continue patiently.



Topics 2012

Employees' Sports Activities

People in Indonesia are enthusiastic about sports. PPLi has many teams consisting of employees, such as badminton, soccer and bicycling. In-house tournaments are held. In 2012 a marathon race was held using its broad premises covering 53 ha and 50 or more employees participated in it. It is used as an opportunity to promote health of employees through sports and to get to know each other through fun events.





President and Representative Director
Akira Sekiguchi

DOWA Metals & Mining takes a central role in mining and smelting which is the core of the DOWA group. Metals & Mining has established a unique environmental and recycling complex and a world unprecedented business model, based on a long cultivated cutting-edge technologies for smelting and refining.

Our major plants of Kosaka Smelting & Refining as well as Akita Zinc are positioned as the core of the group. Each company in the group processes various materials from their core business of mining to recycling materials safely and efficiently. These major plants can recover twenty different substances in partnership with one another, utilizing each unique technology.

In the zinc business, we started full operation of the zinc recycling business from steel waste dust last year and it is working successfully. In Kosaka Smelting & Refining we have developed a low cost, lead-free electric plating technology and placed it into mass production seeking the world's top quality. We will continue to promote recovery of diverse kinds of substances, by securing resources through investment in and financing to mines outside Japan. Kosaka Smelting & Refining also has enhancing the function of its smelting and refining complex. They strive for technical development in partnership with governmental agencies and universities to establish efficient recycling processes; safely supply high quality materials; and contribute to building a resource-recycling society.



Introduction of Main Plant

Akita Zinc Co., Ltd.

Address: 217-9 Shimokawabata, Furumichi, Iijima,
Akita Prefecture, Japan 011-0911
Number of Employees: 216 (as of March 31, 2013)

Zinc Smelting and Refining Plant Playing the Central Role of Environmental and Recycling Complex

Zinc is an important material to support industries and lives of people. That is, zinc is used for corrosion resistant plating for automobiles, construction materials and home electric appliances as well as corrosion resistant parts for ships and bridges. Akita Zinc is the largest smelting and refining plant of zinc in Japan, producing approximately 20 million tons. The company achieved the world's top metal recovery ratio of useful metals from raw materials.

Concentrates and recycling materials from which zinc is recovered contain various other metal components. Akita Zinc manufactures cadmium and sulfuric acid as byproduct. Akita Zinc has established a resource network with other business establishments of the DOWA group in Akita to extract more resources without much waste and supply them to society. It is possible to recover various kinds of rare metals including gold, silver, indium and gallium more efficiently if companies in the group cooperate with one another and combine technologies and processes of each company. Akita Zinc is committed to realizing the resource-recycling society as the core company of this environmental and recycling complex.



Aimed at Being No. 1 in Quality in the World

Akita Zinc is the largest zinc smelting and refining plant in Japan, aiming to produce the world's top quality zinc. Lead is a trace component contained in zinc ore and the purest unwrought zinc product according to JIS (Japan Industrial Standard) contains 30 ppm of lead. Our company succeeded in the technical development to reduce lead to one tenth in zinc ore compared to traditional methods, and we have produced high quality unwrought zinc products containing 1 ppm or less of lead. We developed the world first technology to produce the purest zinc only through the smelting and refining process. We have already established a stable production system of 200 tons per month.

Zinc is used for many applications. This safer manufacturing method of zinc will widen the scope of its application, including medical and food fields. Zinc is also used for metal plating; therefore disposed metal products contain trace lead component. In the future, from the viewpoint of preventing environmental pollution and hazard to health, zinc with low lead content will be the standard in addition to proper treatment of wastes. Akita Zinc not only responds to the market needs but also would like to continue to be a smelting and refining plant that could offer new value to society by focusing on quality.



Zinc Recycled from Steel Dust in Partnership with Steel Makers

Zinc is mainly used in the steel industry and iron is recovered from the scrap. Steel dust is produced in that scrap process and the dust contains a large quantity of zinc. The steel dust used to be waste but steel makers succeeded in developing treatment technologies to separate zinc (recover iron) from steel dust. This means that nowadays we can recover high quality zinc dust and recycled iron.

Akita Zinc Recycling Co., Ltd started operation in 2010 with the aim at recovering zinc from high quality zinc dust in the premises of Akita Zinc. The company produces approximately 20,000 tons of zinc annually using the first technology in Japan on an industrial basis that lets zinc seep and then extracts it. It has put the system in place for more stable operation by constructing an automated high-rise warehouse to store 1,000 tons of steel dust (corresponding to 600 freight conveyors).

Japan lacks in natural resources; therefore, effective utilization of waste is very important to secure stable supply of materials. Akita Zinc and Akita Zinc Recycling are always aware of their important roles in resource recycling and strive to return more resources to society.

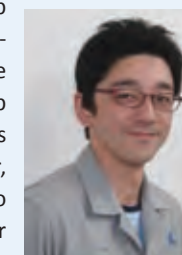


VOICE

Electroanalysis Dept, Akita Zinc Co., Ltd.

Hirobumi Nakamura

When the project to realize "lead of 1 ppm or less" started four years ago, the quality of zinc was very unstable, and most people felt it impossible to achieve such a high goal. We made many discoveries in the lab. Then we proceeded to a scaled-up test and managed to start the on-site test two years after this. These ambitious goals caused some hardship to the workers in the field as it was completely a new project; however, we finally established a system to stably manufacture zinc with 1 ppm or less of lead last year.



VOICE

Director and Plant Superintendent
Akita Zinc Recycling Co., Ltd.

Tadashi Sasaki

We started operation in December 2010 and the Great East Japan Earthquake hit us in March the following year. Despite the hardship, we achieved the planned output of production for 2012. We endeavor to achieve the goal to implement our corporate philosophy of "To contribute to building sustainable society through resource-recycling and realize the world top recycling" day and night together with all employees. We are a young company and the employees are also young. We are trying hard to be close to the ideal for a company, leveraging on our youthfulness.



Topics 2012

Observation-tour for Employees' Family Members

Akita Zinc held an observation tour for the employees' family members in March 2013. The purposes of the tour are: to offer an opportunity for them to get to know the workplace and the production processes and ask them to check the safety conditions and measures within the premises with their own eyes. A wide range of family members from small children to parents totaling 170 people participated in the event on two buses, divided into eight groups. They were lectured on the business, visited the plant and attended the luncheon meeting.

Lecturers, receptionists, car park attendants and bus drivers were all our employees. A kids' space was opened in the gymnasium. Quiz sessions were provided in the lecture sessions. We did our best for them to enjoy the day. We will continue this event aimed at being a company that is understood and supported by the family members of employees.





President and Representative Director
Akira Otsuka

DOWA Electronics Materials responds to the market needs by developing materials for semiconductors, conductive and magnetic materials and battery materials. DOWA capitalizes on its long-cultivated, hi-tech technologies for producing thin film, crystal growth, manufacturing fine particles and particle shape control.

One of our products with the world's top share is LEDs (light-emitting diode). Having a long life, less power consumption and high response speed, these LEDs, are used for various applications such as displays, transmission and sensors. As a proximity sensor for smart phones, the demand for LEDs is increasing. We are enhancing our production to respond to this increasing demand.

The market for solar cells also remain strong. We are planning to increase the production capacity of spherical silver powders that are used for the electrodes of solar cells. We are also considering increasing the capacity of facilities by closely watching the demand trends.

We aim at being the top company in a wide variety of fields, building on our product families that are backed up by our cutting-edge technologies. We also strive to develop new businesses for those newly developed products through active investment in order to contribute to building an eco-friendly society through energy saving and reduction of CO₂.



Introduction of Main Plant of Dowa Semiconductor Akita

Address: 1 Aza Sunada, Iijima, Akita City, Akita Prefecture,
Japan 011-0911
Number of Employees: 266 (as of March 31, 2013)

Resource-recycling Plant for Semiconductor Production

DOWA Semiconductor Akita was founded in 1993 to manufacture semiconductor products. It produces highly pure gallium, gallium arsenide wafers, LEDs and nitride-based HEMT epitaxial substrates.

Highly pure gallium is produced from the byproduct of zinc smelting and refining by Akita Zinc or recycled and refined within our company. Gallium arsenide wafers are produced using highly pure gallium that is refined in the gallium plant. LEDs are produced by making chips from the wafers we manufacture in our substrate plant. In this respect, our company is resource-recycling facility where products are manufactured and processed all in-house.

Our LED products are applied to the promising growth fields in the future, including blood sensors, cutting-edge medical instruments for cancer treatment and sensors for the latest ink jet printers. Our nitride plant that started operation in 2007 manufactures nitride-based HEMT epitaxial substrates that are promising as a new semiconductor material.

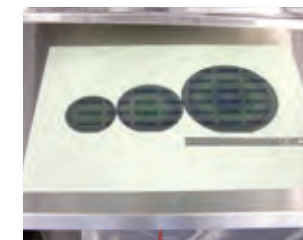


The Next Generation Nitride-based HEMT Epitaxial Substrates

A promising next generation material for power semiconductor devices (that control or supply power) is nitride-based HEMT epitaxial substances. To help the global warming countermeasures and rising awareness on environment, these next-generation substances provide for further energy savings.

Nitride-based HEMT epitaxial substrates withstand higher voltages and their electric resistance is lower than silicon-based substrates that are presently used, and can reduce power loss to one third. They can contribute to improve the energy saving effect dramatically. Our HEMT epitaxial substrates have the world's top level performance that can withstand 1,000 volts. As they produce little heat during operation, the heat dissipation required for silicon-base substrates can be simplified, thereby contributing to reducing device size.

They can be used for a wide range of applications from power semiconductors for PCs, air conditioning, household electrical appliances equipped with inverters such as refrigerators, hybrid cars and electric cars. They can also be used for applications employing high frequency waves such as antennas for base stations of mobile phones. We would like to contribute to our energy-saving society by providing materials for semiconductors.



VOICE

Production Division, the Nitride Epitaxial Production Department

Kohei Yoshizawa

I believe that the nitride-based HEMT epitaxial substrate is promising to meet the needs of our age for energy savings and more and more compact electronic devices. I have to learn many new things every day as I am in charge of introducing, managing and setting up manufacturing equipment. With the help of people around me, I feel I am steadily progressing. As a member of the Nitride Epitaxial Production Department,

I will do my best to improve productivity and quality to speedily expand the use of this promising product.



Enhancing Energy Saving Measures by Introducing Air Cooling Chillers

While our products contribute to energy saving of electronic devices, their production requires a large amount of electricity. We are committed to actively introduce highly efficient equipment and to promote energy saving at our facilities.

For example, power consumption of the turbo refrigerator that supplies cool water to the temperature control equipment accounts for slightly over 10% of the power used in the LED plant. In the nitride plant air conditioning equipment accounts for approximately 50% of the power consumption. In November last year, the LED plant introduced an air cooling chiller to keep the temperature to the specified degrees through circulation of water for energy saving. The nitride plant introduced the facilities equipped with cooling functions to mist water to improve efficiency of the existing air cooling chiller. Introduction of the chiller reduced power consumption of the equipment in the LED plant by approximately 25%. Introduction of the facilities dramatically reduced power consumption in summer in the nitride plant, reducing approximately 20,000 kwh/month at the peak time. The nitride plant used to use a thermo-electric ammonium removal device to clean exhaust gases generated in the process of manufacturing semiconductor compounds. It was replaced with the latest, more efficient LPG gas-based device, succeeding in reduction of power consumption of approximately 26,000 kwh/month.



VOICE

Production Division Head, the Nitride Epitaxial Production Department

Yoshikazu Ohga

The semiconductor plant uses the air conditioning equipment dedicated to the clean room and has a rule that it cannot stop its operation. Our plant is appointed as an energy controlled plant. Reduction of power consumption of air conditioning equipment and production facilities will help the presently dire electricity situation in Japan as well as a reduction of production energy requirements and safer operation. The whole plant will continue to implement total energy management and work at continued reduction of environmental burdens.



Topics 2012

Receiving Students on Internship

DOWA Semiconductor Akita receives local students on internship every year as part of our activities to foster human resources and to contribute to local communities in partnership with universities.

A total of four students from Tohoku University, Akita University and Akita College of Technology participated in the program and addressed the challenges in the LED plant, the substrate plant and the nitride plant for approximately two weeks. We hope the actual experience on the manufacturing site will help them to decide their career paths and select their jobs. We will continue to promote the program as part of our social contribution activities through education.





President and Representative Director
Haruo Nishizawa

DOWA METALTECH provides the following variety of technical services. Our copper elongation sheet products use highly functional copper alloys and they are offered on a global basis. They include NB109 (the standard material for on-board connectors), C7025 for high-end lead frames and ultra-strong YCuT-FX (enables ultra-compact size of parts and components). Our bar products have been highly adopted and applied in gas and water supply fields. Our metal plating contributes to maintaining strict surface quality of automobile electric equipment and cell phone parts and components. Our highly professional products include metal ceramic substrates that are indispensable for inverter circuits including industrial machinery, hybrid vehicles, wind power generation and railways.

We established a reflow tin plating plant in Shanghai, China and Thailand. The Thai plant handles silver and nickel plating. We support for local procurement of the products by Japanese companies deploying business in other countries with the same quality as those manufactured in Japan.

We have granted the license of on-board NB109 and NB105 to U.S. and German manufacturers and are proceeding to establish the global supply system to North America, Europe and Asia. We opened sales offices in Shenzhen in China and Singapore to widen our service areas.

We will provide our customers with a wide variety of solutions through our network of products and technical services.



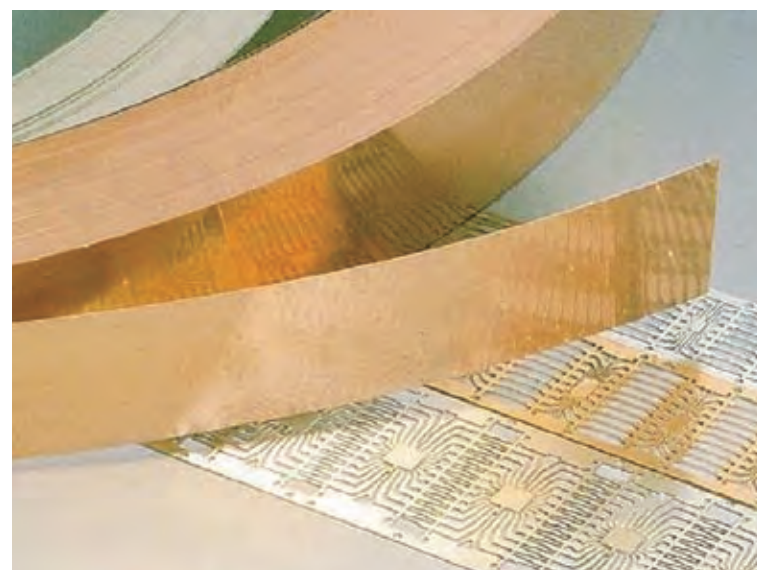
Introduction of Main Plant of **DOWA METANIX**

Address: 2630 Shingai, Iwata-shi, Shizuoka Prefecture 438-0025 Japan
Number of Employees: 205 (as of March 31, 2013)

Metal Material Supporting the IT Industry

DOWA METANIX was founded in 1961 as an alloy manufacturing company and joined the DOWA group in 2007, supporting the cutting-edge technologies of the IT industry through manufacturing of metal materials.

The market of information devices such as smart phones and PCs are expanding on a global basis and devices with a more compact size and less weight are being required. We manufacture copper-based and nickel-based highly functional alloys that are indispensable for making those rapidly advancing information devices. We strive to further enhance already high performance, improve safety and reduce environmental burden through not only offering materials but also designing and processing of parts and components. We put much emphasis on improvement of technologies and fostering of human resources. Through these activities we will aim at being a company that can contribute to further enriching the lives of people.



Enhanced Development of Highly Functional Alloys, Considering Environment

DOWA METANIX manufactures highly functional alloys for lead frame connectors used for main information communication devices. The size of the parts and components of smart phones and PCs is getting smaller and smaller. Metal materials need higher performance to achieve ultra-compact size.

Connectors in this field use copper alloys containing beryllium; however, beryllium oxide is a hazardous substance. We have succeeded in developing the ultra strong copper alloy of YCuT-FX to replace beryllium. Using our proprietary technology of "Texture Control" and "Precipitates Control" for copper-titanium alloys we have succeeded in dramatically improving performance. The product is safe as only added element is titanium. It also has sufficient springiness and processability to be formed to complicated shapes, ideal for ultra-compact connectors and ultra-small switches. The manufacturing technology of copper-titanium alloys is very difficult and has not yet achieved cost-effectiveness. We are committed to eco-friendly manufacturing, taking environment and health in consideration of the requirements for safety.



VOICE

Deputy Division Head,
Iwata Technical Center

Motohiko Suzuki

Our YCuT series are copper-titanium alloys that are very difficult to produce. Research, manufacturing and sales departments all strive to improve quality, cost and delivery in cooperation. There are various major and minor issues on this production technology. To resolve the problems we must take quality control and productivity actions, and at the same time we must seek the ideal situation for the future. Every day I think about the ways to obtain the better results. We will develop the best conditions to produce better product by introducing new equipment and facilities, remove quality variation factors, and establish the system to maintain quality so that the market place will recognize us as "METANIX of quality."



Fostering Human Resources through the TPM Activities

DOWA METANITEX has been engaged in the TPM (Total Productive Maintenance & Management) activities for many years, aimed at increasing earning power and strengthening the corporate infrastructure. All employees participate in these activities. TPM is the generic term for the management activities across the company to improve human, facility-related and corporate factors, aimed at preventing losses that could impair efficiency of the production system throughout the life cycle of the system.

Fostering human resources is one of the main activities of the diversified TPM activities. We are promoting education that is systemized per job functions and ranks in this activity. We encourage employees to obtain qualifications so that they can have higher goals and improve their technical abilities. One out of three of our operators has taken a national skill examination and has received a certificate. Relevant parties in each department and division share the activity policy, plan and progress statuses via "the sign board." We hold a sign board contest to raise awareness of employees by visualization and sharing of issues and details of TPM activities.



VOICE

TRM Promotion Office Head
Hiromi Fujimura (left)
Chief in charge
Hiromasa Omura (right)

TPM has become the indispensable tool to revamp management. The role of the TPM Promotion Office is to challenge the spirit of our employees in their activities. The driving force to promote the activities in the busy workplace every day is sharing the sense of crisis that nothing can be achieved only maintaining the status quo. The activities have expanded to involve sales, planning and general administration departments that are not directly connected to the activities, in addition to the manufacturing and technical departments. Now every employee of our company participates in our TPM activities. We endeavor to promote TPM so everyone can take pleasure in of the activities.



Topics 2012

Shall We Walk!

To promote the health of employees, DOWA METANIX encourages them to participate in a walking event called as "Shall We Walk!" Participants can choose their goals from 6,000, 8,000 or 10,000 steps/day; they then keep a record of the number of steps they took during three months. Although almost all the employees participated in the event, METANIX comes up with unique encouragements for participation every time the walking event is held. For example, bonus points will be added to those who do not smoke during the event period. Even though you know you must exercise, it is difficult to do so by yourself. This event encourages employees to tackle their health issues as if they were playing games. The event also helps to promote communication among employees. In 2012, the event added team participation. Having teams encourages employees to participate more often, thereby contributing to their health more. We will continue these efforts in the event.





President and Representative Director
Toshiro Sumida

DOWA THERMOTECH's business activities focus on two main activities: heat treatment and industrial furnaces. In the heat treatment business we apply heat treatment to automobile engine parts and gears to improve surface strength, while in the industrial furnace business we manufacture, sell and maintain heat treatment equipment and facilities.

In the heat treatment business, as the temperature of the furnace must be kept very high for heat treatment of products, which uses a large amount of energy. This makes energy saving important for conservation of the environment and it is also one of the major challenges for management. Each plant sets its goals of improvement including reconsideration of its heat treatment conditions and for increased productivity. Our plants have been steadily achieving these goals. Recently we have started to reuse industrial waste such as used oil, and set forth stricter in-house standards than compliance to current relevant laws.

The automobile industry is our important customer who is increasing the shift from domestic market to markets outside of Japan. We set up our business bases in U.S.A, Thailand, China, India and Indonesia to support for local manufacturing of our client companies. We have just started environmental conservation and safety activities abroad. We endeavor to promote these activities in other countries in close partnership with their Japanese counterparts.



Introduction of Main Plant of DOWA THERMO ENGINEERING CO.,LTD. OHTA Plant

Address: 997-720 Wakiya-cho, Ohta-shi, Gunma Prefecture 373-0031 Japan
Number of Employees: 105 (as of March 31, 2013)

Main Plant of Heat Treatment in Kanto Area

The Ohta Plant of DOWA THERMO ENGINEERING ("Ohta Plant") is located in Ohta-shi, Gunma Prefecture and started operation in 2008. It is a major base of the heat treatment business in the DOWA group (total seven plants) in the Kanto Area.

Heat treatment is applied to metal surfaces to make metals stronger, lighter and last longer. The technology is necessary for automobiles and construction machinery that require resistance to wear and corrosion.

The Ohta Plant has three menus of heat treatment: carbonized treatment, salt bathing (TD) treatment, shot-peening. It is the latest heat treatment plant that adopted the FA system with computer controlled equipment and facilities including the heat treat furnace with monthly 1,000 ton treatment capacity, high raised automatic warehouse and automatic conveyer equipment. The Ohta Plant is actively promoting energy savings and reduction of environmental burdens by developing and introducing energy saving heat treatment equipment and facilities as well as installing 100 kW class solar panels.



Maximizing Energy Efficiency

Processing by heat treatment requires a great amount of energy as it is a technology that requires high temperatures for a long time. We always regard energy saving as our main challenge.

Mainly used for automobile parts, carbonized treatment is the core of DOWA THERMOTEC's heat treatment business. We use two types of furnaces. The first is a batch feed furnace suitable for products of a small quantity with different treatment conditions or products that require a long treatment time. The second is a continuous feed mini-furnace that processes mass production products efficiently. The Ohta Plant reduces fuel consumption by devising means of improving heat insulating effect of those furnaces and reducing heat emission to the surrounding environment. In 2012, the plant succeeded in improving productivity by equalizing treatment conditions of products to be processed in the continuous mini-furnace. The mini-furnace can reduce energy consumption when it processes a large amount material under the same conditions. The characteristics of products are influenced by heating speed, temperature and time. Therefore, it used to be difficult to equalize the treatment conditions for diversified products with different characteristics. The Ohta Plant succeeded in setting up proper treatment conditions satisfying the need of customers through trial and error from various angles for products with different materials and standards, capitalizing on its experience and know-how.



VOICE

Production Technology group,
the Production Division

Keita Yoshitomi

We inspect multi-mix products one by one to equalize their heat treatment conditions. It is a very strenuous work. In the Ohta Plant, from the planning stage all organizations cooperated to share the issues of equalization of conditions. This enabled us to proceed to mass production at an early stage in partnership with our customers. Before equalization, we often stopped furnace operation every time modifications were made to the product, the furnace temperature and atmosphere also must be changed. However, at present the furnace operates all the time from Monday to Saturday. We can conduct preventative maintenance of the furnace on Sundays, resulting in visual improvements in the heat treated products.



Highly Accurate Quality Control System

Heat treatment is a business in which the most suitable treatment is applied to the products according to the request from the clients. It requires very strict quality control at every stage from production and inspection to shipment.

Heat-treated products are inspected with various inspection instruments in the Ohta Plant and the inspection results are input into computers by authorized persons before shipment. This is how the quality control work is standardized in the plant, which maintains the quality level. The plant implemented the centrally administered storage in a high-rise warehouse. Highly accurate quality control system is put in place using a layout where incoming and outgoing points of products are clearly separated. This prevents mixture of untreated products and treated ones. For education, the plant holds some study sessions conducted by external lecturers. Other times the employees themselves act as lecturers to one another to teach about heat treatment techniques. The plant endeavors to enhance technological capabilities and improve quality, focusing on educating employees. These efforts include study sessions and providing support for them to obtain qualifications. The plant maintains the top level yield rate (the ratio to produce and ship products without defects in the production process) among heat treatment plants of the DOWA group through the diversified efforts including improved systems, facilities and employee education.



VOICE

Quality Control Division

Takanori Inayoshi

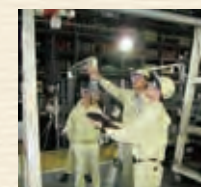
The Ohta Plant is designed to meet the ideal image of a heat treatment plant from the construction stage of the plant. Cutting-edge heat treatment equipment and facilities were introduced. In this plant heat treatment conditions can be monitored all the time to detect abnormalities at an early stage. Using the ideal layout and latest heat treatment equipment, these facilities minimizes problems and offer stable operation to produce quality products. Visualization of problems is put in place in the plant via the Morning Market board. All employees gather every morning in front of the board for a morning meeting to share day-to-day issues. We are committed to resolving problems at an early stage in partnership with each division and section.



Topics 2012

No Accident Record for Consecutive Three Years

The Ohta Plant places the top priority on Safety Control and promotes various activities, from the monthly safety patrol and potential accidents prevention activities to small group activities. We regard "5S" activity as the basis of promoting health and safety: 5S means five S's indicating the capital letter of five words in Japanese referring to Seiri (Organized), Seiton (Put in order), Seiso (Cleaning), Seiketsu (Clean) and Shitsuke (Training). Each section of the plant starts cleaning its responsible area at 13:00 every day. Hidden problems on site will be discovered through these daily activities. Employees can work more comfortably if their workplace are organized and clean. We achieved the record of no accidents for three consecutive years. We will continue our efforts.



CSR Management

Corporate Governance

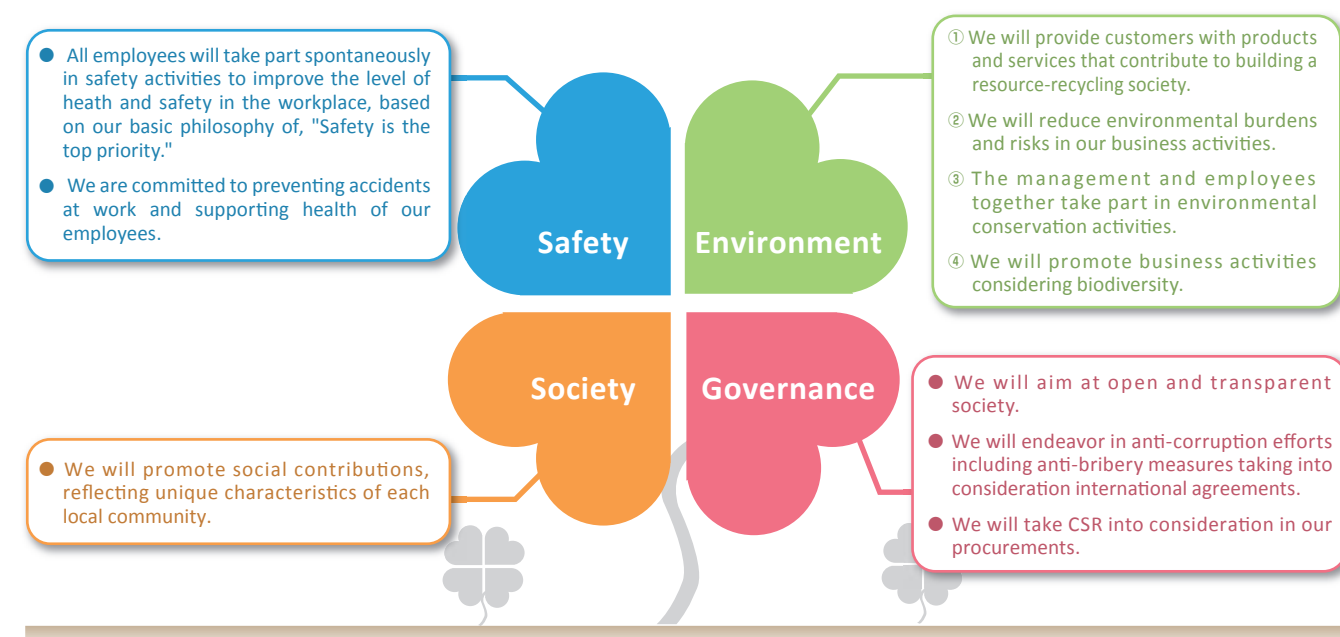
The DOWA group set forth the Dowa Group's Values and Standards of Conduct and the DOWA Group's CSR Guidelines so that each employee to be aware that a company is a public institution, comply with laws and regulations and take a sensible course of action.

We also strive to ensure sound business management, focusing on enhancement of corporate governance through internal controls. This is done to improve quality and efficiency of management to implement open, highly transparent management.

CSR Policy

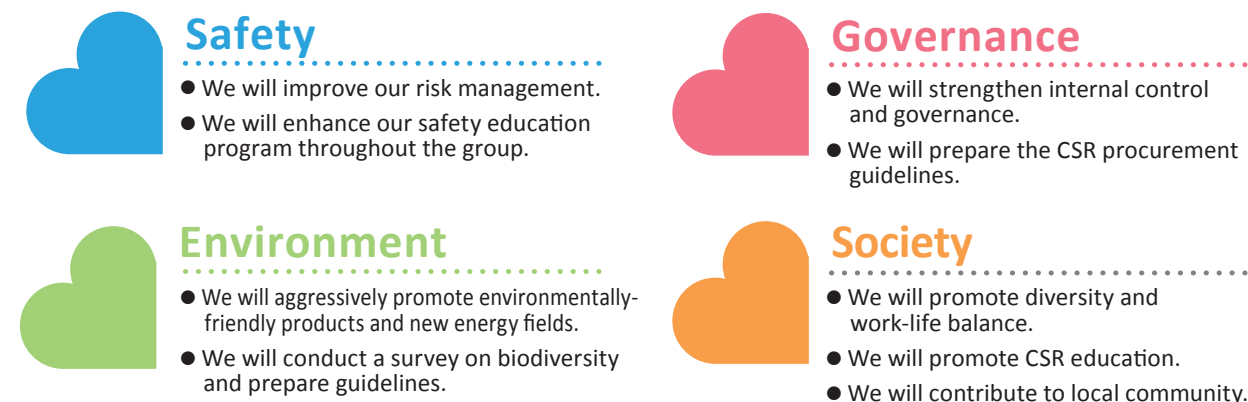
The DOWA group set forth its "CSR Policy" to promote CSR activities from a long-term point of view, based on the Dowa Group's Corporate Philosophy and Standards of Conduct, referring to the rules of United Nations Global Compact Guidelines. We will carry out our responsibilities for society

through our CSR activities with management based on this policy. We endeavor to share the policy with all employees, utilizing the group's in-house newsletters and the Intranet to implement our CSR efforts in a practical manner.



Priority List of CSR

We evaluated ourselves based on the key focus of ISO 26000 when we set forth our CSR Policy. We then set forth a priority list of CSR that the DOWA group should address in implementing the policy. We are committed to promoting sound business management through implementation of the policy as a responsible company.



Main Activities in 2012

The DOWA group sets up the goals of our CSR activities, based on our CSR Policy and Priority List of CSR.

Our focus in 2012 was Safety activities of our business establishments. As for Environment, our total emission of CO₂ in 2012 increased by 9% as compared to the previous year, probably due to the increased CO₂ emission factor of the electric power company. We

will continue to reduce the emission. As for Society, we set forth and published our new policy on conflict minerals in SCR procurement. We also made efforts to educate our employees by opening the portal site in-house for their further understanding of CSR. We will continuously improve our CSR activities, referring to the results and progress statuses of our activities during the fiscal year.

Focus	Goal	Main Results	Evaluation	Page	Issues for FY 2013
Safety	Improvement of risk management	<ul style="list-style-type: none"> Starting up of the Group Safety Activity Project Implementation of risk assessment and preparation of BCP (Business Continuity Plan) in all business establishments in Japan and abroad 	○	P.17-18	Implementation of the project across the whole holdings group companies.
	Enhancement of safety education program throughout the group	<ul style="list-style-type: none"> Implementation of safety patrols (4 times/year) Support for educational courses to experience risks (235 persons took the course.) 	○	P.17-18	Strengthening the programs outside Japan
			○	P.17-18	Continuation of the courses
Environment	Global warming measures	<ul style="list-style-type: none"> Emission of greenhouse gas: 1.49 million CO₂ ton. Emission of greenhouse gas for domestic companies: 9% increase compared to last year Modal shift Reduction of fuel through process improvement 	×	—	Reduction of total amount of emission
	Promoting resource-recycling	<ul style="list-style-type: none"> Expansion of precious metal recycling businesses in Asia (Full operation of Singapore plant) Implementation of recycling and reuse of cerium, a glass grinding material 	○	P.5 P.22	Enhanced development of recycling technologies
	Promoting environmentally-friendly products and new energy fields.	<ul style="list-style-type: none"> LCA of main products Diagnostics of energy saving 	×	—	Selection of LCA items
	Conservation of biodiversity	<ul style="list-style-type: none"> Survey on biodiversity and formulation of conservation guideline Promotion of Forest management (Planted 5,000 trees in Kosaka-machi, Akita Prefecture and promotion of forest management) 	×	—	Formulation of Biodiversity Conservation Policy
Governance	Strengthening of internal control and governance	Support for internal control activities of newly added companies to our consolidated accounting (Six companies)	○	—	Enhancement of internal control of overseas business establishments
	Promoting CSR procurement	<ul style="list-style-type: none"> Preparation of the basic policy on procuring conflict minerals Obtained Certificate for the Gold Conflict-Free Smelter program from EICC-GeSI 	○	P.23	Formulation of CSR Procurement Policy
Society	Promoting diversitymanagement	<ul style="list-style-type: none"> Promoting the framework for employees regardless of nationality to work globally Revision of the re-employment system to hire experienced retired employees 	○	P.24	Promoting employment of disabled people
	Promoting work-life balance	<ul style="list-style-type: none"> Support for obtaining leave of absence/return to work Implementing the questionnaire to the newly employed 	○	P.24	Preparation of action plans to support fostering the next generation
	Contribution to local communities	Holding and operating events with local communities (Marathon, ski competition, cherry blossom festival)	○	P.24	Promoting social contribution, reflecting unique characteristics of each local community
	Promoting in-house CSR education	In-house portal site established	○	P.24	Improvement of the portal site

Compliance

The DOWA group places "Compliance" as the basis of our corporate management and is promoting such measures as strengthening of internal control and education, based on the standard of conduct of our group.

Standards of Conduct of the DOWA group http://www.dowa.co.jp/jp/about_dowa/cvision.html

The DOWA group set forth Standards of Conduct so that each employee is aware that a company is a public institution, comply with laws and regulations and take a sensible course of action and continues to act spontaneously towards creating a good life and building a resource-recycling society.

Our Efforts for Human Rights and Corruption Prevention

The DOWA Group is committed to prohibiting discrimination due to nationality, race, ethnic group, religion, sex, age and disability; child labor; forced labor; and tackling corruption under the ten principles of the UN Global Compact (UN GC).

We strive to understand the circumstances relating to human rights by conducting surveys in our operational subsidiaries both

in Japan and other countries.

In 2012 we did not receive any report on discrimination relating human rights, child labor, forced labor and actual cases of corruption. The DOWA group will continue to respect human rights and promote anti-corruption measures.

Our Safety Measures

No One Is Hurt. No One Hurts Others. The Safety Activity Project across the Group Started.

“Safety is the Top Priority.” “No Shortcut to Safety.” These are the slogans long shouted in every industry, but unfortunately there seems no end to serious accident incidents. The accident frequency rate and severity rate* of the DOWA group's bases of production were lower than that of another company of a similar scale listed in the occupational accident statistics by the Ministry of Health, Labour and Welfare, and yet we are only half way to completely creating a culture of the safety. The DOWA group started the Safety Activity Project across the Group to further carry out our social responsibilities of: “Safety is the Top Priority.”

*Frequency rate: The number of casualties by accident incident per 1 million hours of labor (frequency of accident incidents)

*Severity rate: The number of days lost from work per 10 million hours of labor (severity of an accident incident)



Aimed at Raising the Safety Activity Level

The DOWA group put in place a health and safety committee in every business establishment in Japan and other countries to promote various safety activities according to the annual health and safety plan, under the health and safety policy of “All employees will take part in safety activities with their own initiatives to improve the level of health and safety in the workplace, based on our basic philosophy of “Safety is the top priority.” We also implemented safety checking mechanisms by third parties and also mutual safety checking mechanisms such as: support for risk experience educational courses, safety patrols jointly with local community people, safety audits and instructions within each operating company in addition to independent activities in each business establishment. Despite these efforts, each of our business establishments has its own questions as follows: Are these activities really contributing to preventing accidents from happening or raising awareness of employees? Have these activities become routine and uninspiring? Business bases are increasing especially overseas

in connection with our recent, rapid expansion of business. The needs are increasing to support for putting safety organizations in place and safety education in newly opened business bases.

Under such circumstances, the DOWA group started the Safety Activity Project across the Group by appointing the director of board in charge of safety as chief responsible person in August 2012. With the slogan of “No One Is Hurt. No One Hurts Others.”, this project is intended to raise the level of safety activities across the group. A person in charge of safety activities in major business establishments in Japan is appointed as member of the project. They are called for the meeting, where they discuss the ideal image of safety activities including potential accident prevention measures, risk assessment and safety patrol. They are working hard towards full deployment of the project across the group at the middle of 2013. We adopt excellent (advanced) cases of safety activities in each business establishment actively and strive to share them across the entire group.

The Safety Activity Project across the Group

Policy

To determine standard efforts for safety activities and their details (mechanism) based on excellent (advanced) cases of safety activities in the group and promote the efforts across the group.

Keyword

- Integration of “Top-down (instantaneous)” and “Bottom-up(continuity)”
- Improved effectiveness of safety activities
- Participation of all employees in safety activities and clarification of each role in the activities

The ideal image of safety activities determined by project members = Preparation of the safety standard of the DOWA group

To improve the safety level
by spiraling upwards.

To confirm the gap between
the ideal image and the
present status in each
business establishment.

To plan and implement
improvement plans towards
realizing the ideal image.

To plan and implement
further improved plans.

To mutually check the
improvement results in each
area and discuss.

To promote excellent (advanced) case of safety activities across
the group to further raising the level of safety activities.



Scene of an actual activity on the Safety Activity Project
(Local hearing in Okayama area)



Joint safety patrol in Thailand



Promotion of Safety Activities Overseas – Learning Each Other Beyond the Sea

Firstly the Safety Activity Project will be deployed in Japan. However, we have already started our efforts to raise the level of safety activities in overseas business bases. In Asian countries where our business bases are increasing rapidly, we are focusing on communication on safety activities between business bases in Thailand and China.

Joint safety patrols and study sessions are held in each establishment in turn for mutual learning, aimed at raising the level of safety activities in each country and region basically

in a similar way to the Safety Activity Project in Japan. Under the cultural, business and labor environments different from those in Japan, each overseas business base is promoting its activities through trial and error, trying to raise awareness of local employees for safety, maintain the activities as routines and further activate them. We aim at building the “DOWA Global Safety Standard” by not only deploying the Japanese cases or know how overseas but also introducing excellent cases in each country back to Japan actively beyond the sea.



No Shortcut to Safety – Social Responsibility for “Safety is the Top Priority.”

Safety culture cannot be built in a day. It requires day-to-day, steady efforts. Business entities must continue to secure safety as long as they continue business. Therefore, a company must make efforts together with all employees to realize effective safety activities. More specifically, as described in the keyword of the Safety Activity Project, the “Top-down” by a strong leadership of the management and the “Bottom-up” by employees on site must be integrated.

Employees are important stakeholders in terms of CSR of the DOWA group. Therefore, securing safety of labor is an important issue of the group. Securing safety is the major premise of safe operation and also the basis of trust from local communities and society. The DOWA group is committed to carrying out social responsibilities of “Safety is the top priority.” through the efforts focusing on the Safety Activity Project.

Relations with Society

The DOWA group would like to make various contributions by tackling with social issues through our business activities. We also would like to create values sought by all of our stakeholders by continuing growth through our business activities in harmony with society.

Relations with Stakeholders

The Dowa group communicates with our stakeholders, including our customers, shareholders, investors, partners, local communities and employees in many ways at our offices and business units.

Main stakeholders	Our Responsibility	Opportunities
Customer	All customers who use the products and services offered by the DOWA group	• Ensuring quality and safety of our products and services • Pursuit of Customer Satisfaction (CS) • Protection of customer information
Shareholders and investors	Individual or institutional investors including our shareholders	• Various seminars and exhibits • Plant visits • Various PR activities on environment • Disclosure of information on our website
Partners	All partners who collaborate with us for provision of the products and services offered by the DOWA group	• Maximization of corporate values • Dividends • Disclosure of information and dialogue
Local communities	People in local communities who we interact with through our offices and main business activities	• Selection of procurement sources based on fair and unbiased basis • Support for green procurement and environmental management
Employees (including their family members)	Employees who work in the DOWA group and their family members	• Various seminars and exhibits • Plant visits • Presentations to partners including green procurement • Quality and environment audit • Corporate ethics contacts
	• Environment conservation activities • Contribution to regional development through support for culture and sports activities • Educational activities • Disclosure of information and dialogue	• Plant visits by local people • Participation in local groups • Hosting, participation in and support for local events • Risk communication
	• Proper evaluation and treatment • Ensuring diversified human resources • Promotion of work/life balance • Ensuring health and safety of workplace • Human development	• Management meeting • Management-labor interviews • Human resource education and environmental education • In-house newsletters & portal site • Events for family members of employees
	• Respect for human rights	

Relations with Customers

Sending Out Information

The DOWA group strives to send out information related to the environment and social contribution, through our website, exhibitions and seminars.

We are committed to strengthening communication with our customers by engaging in various activities to send out information, including exhibitions and events in and outside Japan, holding

seminars and making presentations at symposiums.

Exhibitions offer us an opportunity to communicate with our customers and gather opinions directly from them. In connection with our global business deployment, we have more opportunities to send out information by actively participating in international exhibitions.

The main international exhibitions that we participated in 2012.

- **PCIM Asia 2012**
June 19 – 21, Shanghai, China
- **WasteMET Asia 2012**
July 1 – 4, Singapore
- **Printed Electronics USA 2012**
December 5 – 6, Santa Clara, U.S.A.
- **Photonics West 2013**
February 5 – 7, San Francisco, U.S.A.

The main lectures we participates in 2012

- **OPIE' 12 Special Seminar on infrared and ultraviolet light radiation**
April 25, Yokohama, Japan
- **Tohoku Branch of the Iron and Steel Institute of Japan Lecture Commemorating Yukawa/President Yamazaki of MM**
December 11, Morioka, Japan
- **Japan and Brazil Recycling Seminar on Waste from Electric and Electronic Products/ES Recycling Business Unit**
March 12 – 13, Brasilia, Brazil

Response to Conflict Metals

The Dodd-Frank Act was enacted in July 2010 in U.S.A. This is a law to reform financial regulations. The act requires listed companies to report to the U.S. Securities and Exchange Commission on the use of conflict minerals produced in the Republic of Congo and adjoining countries in their products. The conflict metals refers to tantalum, tin, gold, tungsten and other minerals designated by the Secretary of State in the Act, aimed at cutting off the financial sources to the armed groups in the Republic of Congo.

The DOWA group set forth the basic policy as follows and is actively informing all employees of the policy in order to carry out our social responsibilities in purchasing so that our customers can utilize our metal materials without any concern.



- We do not use or purchase minerals designated as conflict metals produced in the conflict areas and their recycled materials.
- We do not trade conflict metals in the conflict areas.

DOWA METALS & MINING accepted the audit of Gold Conflict-Free Smelter program by EICC-GeSI and obtained the certificate in October 2012.
EICC: Electronic Industry Citizenship Coalition
GeSI: Global e-Sustainability Initiative

○ Procurement policy of conflict minerals http://www.dowa-csr.jp/en/csr/procurement_policies.html

Relation with Employees

Employment

The DOWA group tries to maintain an appropriate number of employees, considering the present status of employees and our growth plan. As of March 31, 2013 we have total 5,315 employees, of

which 88% (4,404) are male and 12% (593) are female. The number of temporary workers including contract employees, non-regular staff and dispatched workers is 1,455.

Employment status in Japan

Classification		Fiscal year		2010		2011		2012	
		Male	Female	Male	Female	Male	Female	Male	Female
Regular employees in Japan	Director	127	1	123	1	124	0		
	Manager	670	8	681	8	707	8		
	Ordinary employees	2,698	291	2,699	288	2,727	294		
Non-regular employees in Japan	Dispatched employees	454		432		318			
	Part-time workers, temporary workers and seasonal workers	741	270	826	265	846	291		
Total		5,260		5,323		5,315			

Number of employees per region

Region	Fiscal year	2010	2011	2012
Japan		5,260	5,323	5,315
Other Asian countries		1,115	1,325	2,510
Europe		1	4	16
North America		67	78	92
Central & South America		3	3	1
Total		6,446	6,733	7,934

Promotion of Diversity Management

Employees with diversified talents exercising their full potential will lead to the growth of a company. The DOWA group is now building a system to recruit employees who can work on a global basis regardless of nationality as part of promoting diversity efforts. We also re-employed those who intended to work in the

DOWA group after compulsory retirement age for the purpose of actively utilizing experienced workers. We revised the re-employment system by newly adopting a job rank system, aimed at putting in place the working environment where experienced employees can fully exercise their long cultivated talents.

Work/Life Balance

The DOWA group is committed to improving the workplace for employees. Our work/life balance program aims at helping each employee to exercise his/her abilities to the fullest extent according to his/her life style both at work and at home. We strive to improve the working environment by implementing a more flexible working system like flexible working hours and leave of absence system for raising children and caretaking of family

members. As a result of these efforts, users of these systems are increasing every year. In 2012, 16 employees took child-raising leaves of absence. The survey results for newly recruited employees show approximately 44% wanted to take leaves of absence for raising children and approximately 20% for caretaking of family members. We will continue our work life balance efforts further, based on the action plan to nurture the next generation.

Health and Safety

The DOWA group continues to offer educational programs on health and safety of the workplace to employees and those of partner companies to raise awareness and prevent accidents. We also offer study sessions on risk assessment and accident cases in addition to various training and educational programs, especially in production-related departments where environmental and safety education is prerequisite.

In 2012 we started the Safety Activity Project across the Group (More) to improve the safety levels of all offices and business establishments both in Japan and other countries, in addition to the usual safety patrols and risk assessment campaigns.

Health

The DOWA group considers it important for all employees to enjoy an active life both in terms of body and mind and health as the fountain of developing human resources. DOWA strives to protect the health of each employee, including support for various systems of physical examinations and gynecological examinations and putting the mental health counseling system in place.

2012 accident incidents at the DOWA group's production bases

The 2012 frequency of accidents at DOWA group's production sites was compared to that of another company of similar scale listed in the occupational accident statistics by the Ministry of Health, Labor and Welfare. DOWA's frequency rate was 1.21 compared to that of the other company of 2.43 and the severity rate was 0.05 compared to that of the other company of 0.12. The figures are lower than those of the other company in the accident statistics.

*These rates are compared to those confirmed values of the accident statistics in 2011 for a company with 50 to 99 employees (average number of employees in each one of DOWA group's production bases).

Environmental Report

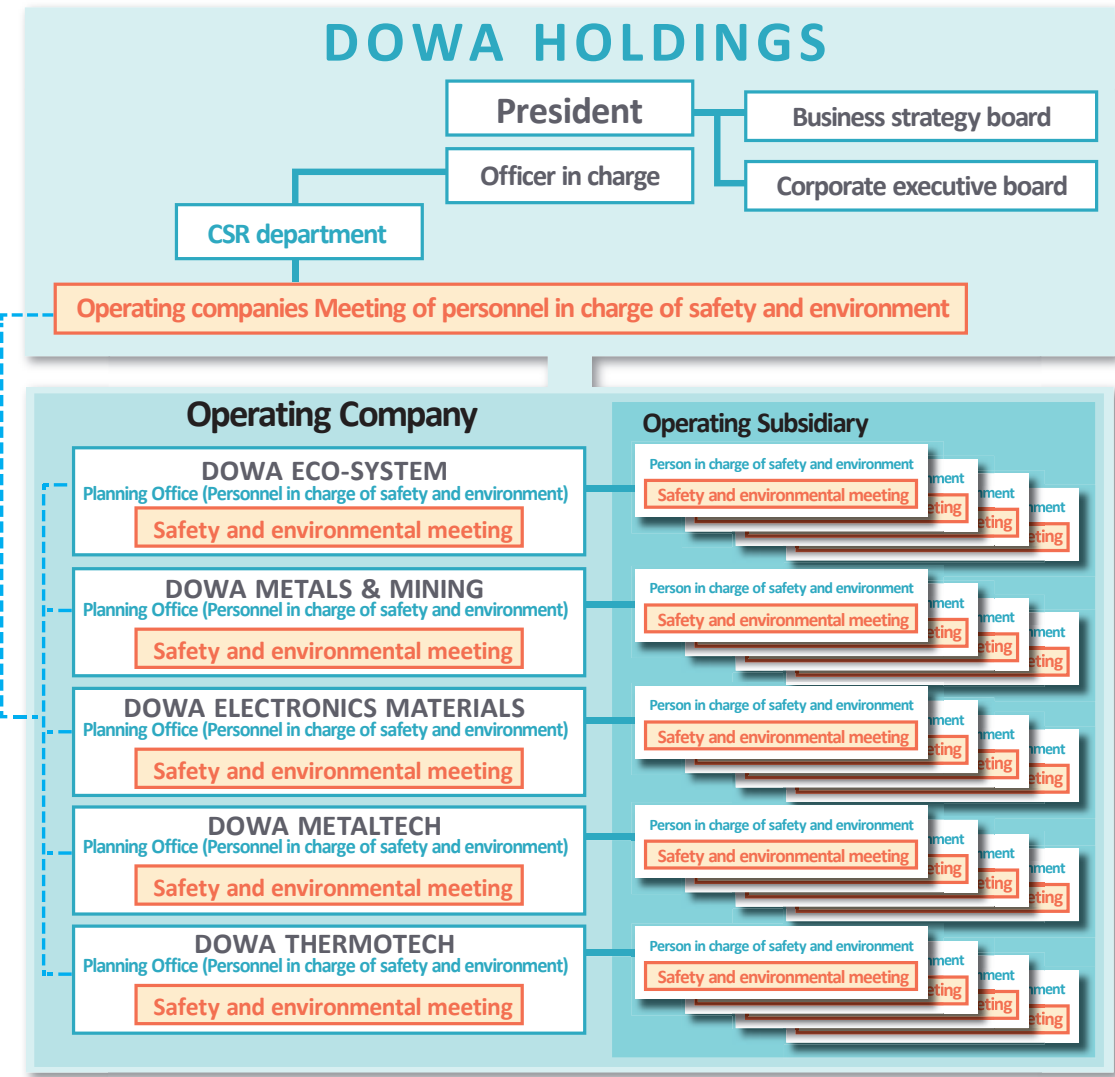
Policy on Environmental Consideration

The DOWA group set forth its "Basic Environmental Policy,  " focusing on environmental conservation as a key issue in our business management. We are promoting environmentally-friendly business management across the entire group based on this policy.

In our environmental activities we should respond to environmental and social issues through our main business and at the same time we should reduce the environmental burden produced by our business. We will strive for environmental conservation and at the same time create economic value.

Environmental Management System

The CSR Department of DOWA Holdings is promoting the DOWA group's environment management activity in partnership with the planning office of each operating company that is in charge of environmental conservation. DOWA Holdings is responsible for environment management and compliance of the DOWA group in addition to coordination and improvements among our operating companies.



Implementation Status of Environment Management System

The main production facilities in Japan and the overseas business establishments of the DOWA group are ISO 14001 certified. Dowa Tsu-un attained the Green Management Certification to promote environmental conservation in the truck industry.

We conduct internal audits and external audits on a regular basis to ensure proper environmental management. We also offer training courses for internal auditors to foster internal auditors and increase the number of internal auditors.



Feature 3


DOWA's Eco-products

The DOWA group promotes production of eco-products that considers environment throughout their life cycles from the production process to the disposal process.

In four fields of 1) Materials, 2) Parts and Components, 3) Products and 4) Services, we strive to develop and produce eco-products. Eco-products mean those products and services that are eco-friendly considering conservation

of resources and environment at each stage of production, usage and disposal. We try to reduce environmental burden when we produce our products. We endeavor to offer parts and components contributing to energy saving of end products and reduction of environmental burden. We try to recycle metals after they are used as well as disposing of waste.

1 Recycling of heavy and rare metals with bryophytes




Services	Development of metal recycling technology with funariales (Joint study with German Institute of Physical and Chemical Research)
Targets	Heavy and rare metals (lead and gold, etc.)
Environmental performance	Conservation of resources and water environment/at recycling
Feature	Recycling technology to use completely new function of plants

2 Study of the solar panel recycling system



Services	Research and Development of the solar panel recycling system
Targets	Used solar panels
Environmental performance	Reduction of waste and prevention of improper disposal and illegal dumping/at disposal
Feature	Future recycling system of used solar panels to be generated in a large quantity due to expansion of new energy technologies

3 Recycling of cerium from glass grinding materials




Services and Materials	Recycling of grinding materials for glass and lenses
Targets	Rare earth (cerium)
Environmental performance	Reduction of waste/at disposal Conservation of rare earth resources/at recycling
Feature	Approximately 90% of high recycling rate

4 Technology to remove radioactive cesium from incinerator fly ash

Services	Effective removal of water soluble cesium from incinerator fly ash. Development of materials and the separation process through joint study with the Jikei University
Targets	Incinerator fly ash generated by burning waste affected by a nuclear power plant accident
Environmental performance	Safe waste disposal/at disposal
Feature	Reduction of concentration of radioactive cesium from 3,800Bq*/kg to 1,500Bq/kg in the demonstration experiment *Bq: Becquerel (Unit to indicate the amount of radioactivity)

5 Biodiesel fuel



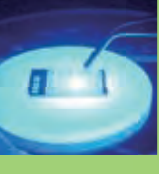
Services	Recycling of diesel engine fuel (alternative fuel for light oil) from used cooking oil jointly with Okayama City
Targets	Used cooking oil from households, restaurants and food manufacturing factories
Environmental performance	Reduction of CO ₂ emission/in use Reduction of waste/at disposal
Feature	Okayama City uses the fuel for garbage trucks and buses.

6 Low lead zinc




Materials	High quality zinc ingot of 1ppm or less that is one tenth of conventional lead component
Applications	High safety for new applications for medical and food fields
Environmental performance	Improvement of safety/in use Reduction of hazardous substances/at disposal
Feature	Prevention of environmental contamination and risk to health by lead

7 Deep ultraviolet LED



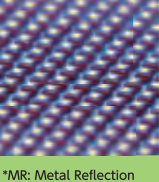
Parts	LED that can output deep ultraviolet of 350 nm or less
Applications	Resin hardening, adhesion, drying, medical treatment, analysis, photocatalyst or water purification
Environmental performance	High efficiency, long life cycle and energy saving/in use Reduction of hazardous substances (lead-free)/at disposal
Feature	Wavelength (300nm or less) to realize disinfection and sterilization of water or material surface efficiently

8 Nitride-based HEMT structure epitaxial substrates



Materials and Parts	Materials for power semiconductor devices
Applications	Power supply of household electric appliances, high output products including servers and antennas for base stations of cell phones, hybrid cars and electric cards
Environmental performance	Energy saving/in use
Feature	Resistant to high voltage and with low electric resistance to reduce power loss to one thirds compared to conventional silicon-based substrates


9 MR* (lamine) LED



Parts	High output infra-red LED chips with a bonding technology that bonds a highly functionalized epitaxial thin film substrate consisting of several tens of crystalline layers in a nanometer order to the substrate with a metal reflection part.
Applications	Proximity sensors for smart phones
Environmental performance	Energy saving/in use
Feature	Less power consumption by high output


*MR: Metal Reflection

10 Energy-saving heat treatment furnace




Products	Carburizing furnace for heat treatment of automobile parts
Targets	Automobile parts including engines and transmissions
Environmental performance	Energy saving and reduction of CO ₂ emission/in use
Feature	Approximately 50% reduction of CO ₂ emission from existing facilities

11 Silver powders for solar panels



Materials	Silver powders to cater for various particle shapes (spherical and flakes) and distribution of granularity
Applications	Sliver paste used for electrodes of photovoltaic cells (crystal, silicon-based photovoltaic cell)
Environmental performance	Improvement of functions of photovoltaic cells/in use
Feature	World top share of silver powder production for photovoltaic cells

12 Surface treatment, Cr-Dope-N



Services	Surface treatment of metal materials (physical vapor deposition)
Targets	Mold to form powder, plastic and rubber
Environmental performance	Energy saving, reduction of CO ₂ emission and reduction of hazardous substances/at production Longer life of products/in use
Feature	Safe without hazardous substances such as hexavalent chromium, cadmium and lead

At disposal / recycling At production In use

Material Balance of the DOWA Group

Overview of Our Business Activities

The DOWA group is engaged in environmental & recycling, nonferrous metals, electronic materials, metal processing and heat treatment businesses along with related transportation businesses.

We strive to save resources, energy and reduction of environmental burdens as follows. We promote recycling of water, heat, materials and reactants in our production and transportation processes and implement various measures relating to energy including hydroelectric and solar power generation.

Material Balance of 2012

Material balance shows the entire picture of environmental burden within the DOWA group, identifying the input of resources and energy into the business activities of the DOWA group ("INPUT") and the output of products produced and the discharged amount of substances imposing environmental burden ("OUTPUT").

Efforts of each field of the DOWA group in 2012 are described as below:

• Environment & recycling business

Is engaged in strengthening the network of collecting waste for treatment and disposal and increasing the amount of treatment.

• Nonferrous metals business

Endeavors to increase collection of new metals and reduce the basic unit of power.

• Electronic materials business

Developed products that satisfy the market needs of IT related product such as PCs and multi-functional cell phones. We expanded the sales of new products including nitride-base semiconductors (HEMT) and Responded to the demand for multi-functional cell phones and photovoltaic cells.

• Metal processing business

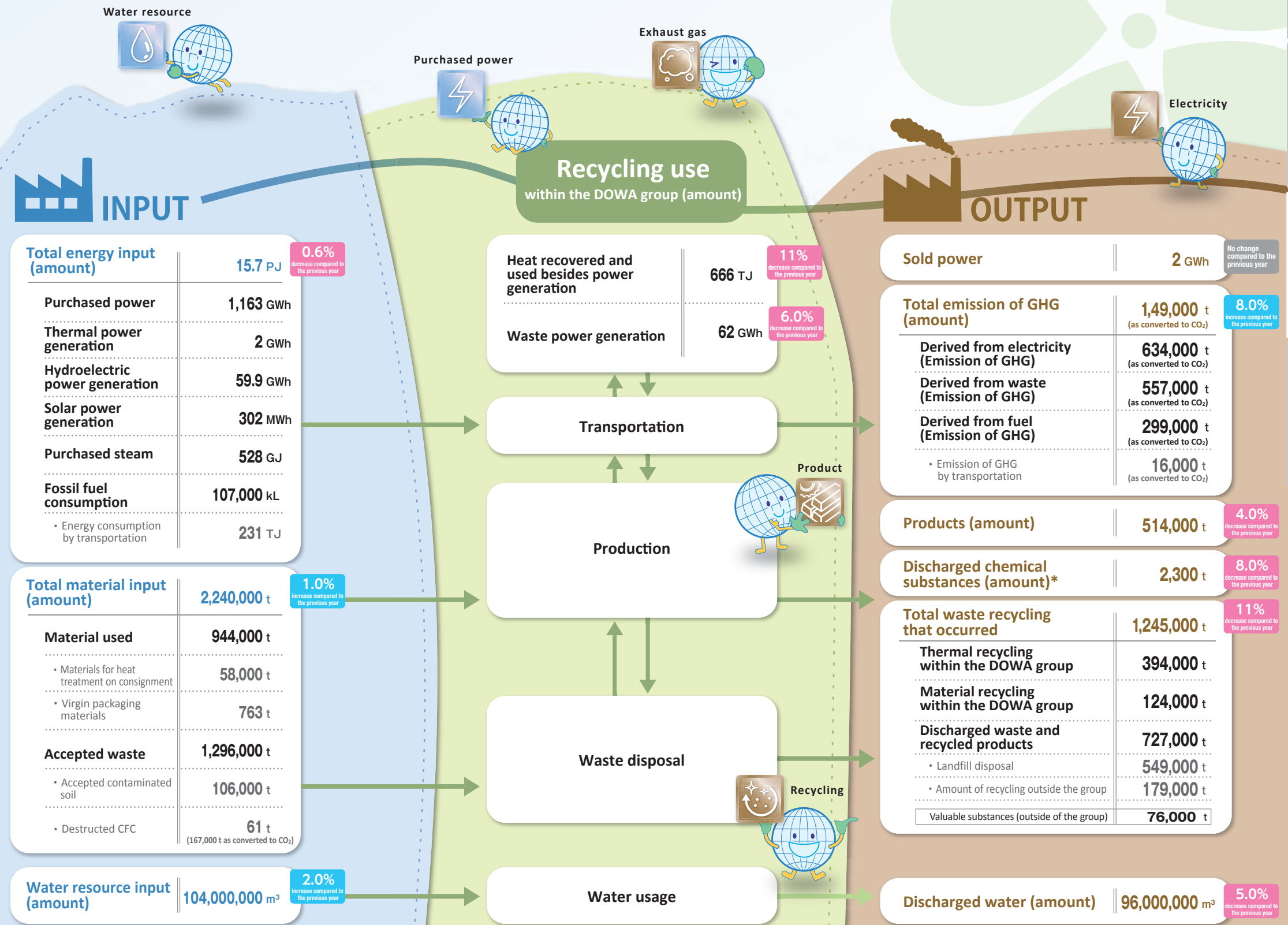
Responded to the demand for copper elongation products for consumer multi-functional cell phones. We promoted improvement of yield and productivity of operation.

• Heat treatment business

Endeavored to improve productivity to respond to rising energy costs.

In 2012 production and treatment items are diversified in our material balance. Total energy input decreased by 0.6% compared to the previous year due to slight increase of purchased power compared to the previous year and due to the decrease of fossil fuel consumption in 2012. Total material input increased by 1% compared to the previous year as the amount of accepted waste decreased, while use of virgin materials increased. Total emission of green house effect gases both in Japan and other countries increased by 8% compared to the previous year due to the increase of power emission factor in Japan. The amount of waste and recycled products decreased by 11% compared to the previous year due to the decrease of waste overseas.

For individual items and specific figures, see our CSR report on our website.



*Chemical substances: Substances based on the PRTR law.

Economic Report & Environmental Accounting

Social Aspects of Environmentally-friendly Management

For our efforts for responding to important social issues, see "Social Performance."

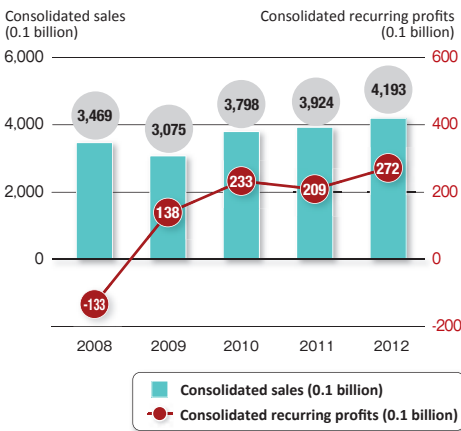
Economic Aspects of Environmentally-friendly Management

Financial Highlights

The DOWA group has been responding to the changing business environment by actively deploying its business in expanding waste, recycling and automobile markets in Asia. We are increasing recovery of new metals due to the expanding sales for multi-functional cell phones. Metal prices have repeatedly fluctuated due to financial situation, but as a whole it has remained weak. Basically, the yen remained strong in the exchange market until the end of the year, when the trend was reversed.

In our Environmental & Recycling business, disposal of low level PCB waste and waste disposal in South East Japan proceeded smoothly. In our Nonferrous Materials business, each plant that ceased operation due to the Great East Japan Earthquake has restarted operation successfully and recovery of new metals such as tin and antimony was strengthened. In our Electronic Materials business, we strived to expand sale of new products and to obtain new customers. In our Metal Processing business, we successfully responded to the increasing demand for multi-functional cell phones. In our Heat Treatment business, we endeavored to gain competitiveness by consolidating the production systems in Japan and enhancing our

capabilities to respond to the increasing demand other countries. As a result, our consolidated sales for the current term increased by 7% compared to the previous year, amounting to 419.3 billion yen, while our consolidated recurring profits increased by 30% compared to the previous year, amounting 27.2 billion yen.



Economic Aspects of Our Business Establishments

Each of our business establishments took measures to save electricity and energy as well as to reduce the amount of waste produced, responding to the increase of energy costs due to the nuclear power plants that ceased operations after the Great East Japan Earthquake. In 2012, the costs of our environmental management efforts (environmental costs) decreased compared to the previous year, while

the sales income from recycled resources increased from the previous year. In our Environmental & Recycling business, we are expanding the menu items of disposal and treatment of refractory waste even though industrial waste produced in Japan remained low. Each business establishment strives to convert waste produced to valuable resources and to increase added-value of recovered valuable resources.

Title	Subtitle	Main expenses item	Expenses and depreciation and amortization in 2012 (million yen)	Main investments	Amount posted to fixed assets in 2012 (million yen)
In-house cost	Cost related to pollution prevention	Purchasing neutralization materials, maintenance of dust collecting equipment and analysis of exhaust gases, etc.	2,439	Purchasing vehicles mounted with urea SCR equipment and cloth filter bags, and construction work of effluent treatment facilities	344
	Cost related to the environmental conservation	Cost for outsourcing CFC disposal, implementation of LED lighting systems, etc.	159	Introduction of highly efficient compressors and high performance insulating materials, etc.	260
	Cost related to resource-recycling	Outsourcing of recycling of ash and disposal of used oil, etc	1,797	Modification of conveyors	102
Cost related to the upper and lower streams of supply chain		Transportation cost of returning pallets, cost related to recycling of packaging materials, etc	19	-	3
Cost related to management activities		ISO related or work environment measurement, etc.	375	Upgrading of automatic measurement instruments	12
Cost related to R & D		Development and streamlining of processes, etc.	315		
Cost related to social activities		Membership fees, etc.	64		
Cost related to repairing environmental damage		Reserve for covering dumps with soil and planting	27		
Total			5,194		722

Basic Requirements

■ Publication Date	June 2013
■ Due Publication Date of the Next Report	June 2014
■ Responsible department	CSR Department, DOWA Holdings
■ URL	http://www.dowa.co.jp/index_e.html (in English) http://www.dowa.co.jp (in Japanese)
■ Contact	CSR Department, DOWA Holdings 22nd Floor, Akihabara UDX Bldg, 4-14-1 Sotokanda, Chiyoda-ku, Tokyo 101-0021 JAPAN Phone: (+81) 3-6847-1104 / Fax: (+81) 3-6847-1227 E-mail address: info_dowa@dowa.co.jp

● The following materials are available from our website. http://www.dowa.co.jp/jp/ir/library_note.html

Results BriefingFinancial ReportInvestor's GuideAnnual Report

CSR Report Web Version <http://www.dowa-csr.jp>

Editorial Line

DOWA CSR Report 2013 reports the major business activities of the DOWA group of the year in an easy-to-understand way to all stakeholders.

This report focuses on DOWA's major efforts of delivering value through its business activities, resource recycling and countermeasures for global warming. Priority of our efforts is based on in-house discussion, survey results from our CSR report readers and opinions from other organizations.

Other information not found in this report is posted on DOWA's website: This allows for more timely announcements of information and reduction of paper needed for printing.

(1) Areas covered in this report

- Target Organizations
DOWA Holdings and subsidiaries (both in Japan and other countries) that are included in our consolidated accounting are selected in these reports. Data on our environmental performance and some of our efforts are only associated to DOWA Holdings and other major companies of the group.
Our overseas subsidiaries of Tianjin DOWA Green Angel Summit Recycling Co., Ltd. and DOWA Metaltech (Thailand) Co., Ltd. have been added to the data collected for this report since 2013.
- Target Areas to Report
The report covers current implementation status, result and future policy of the activities by the above-mentioned organizations from three viewpoints: Society, the Environment and the Economy.
- Target Audience
This report is intended for our customers, stockholders, investors, clients, local communities, researchers, students, employees, rating & evaluation agencies, governmental agencies, NGO's, NPO's and all stakeholders of the DOWA group's business activities.

- Target Period
The report mainly covers from April 1, 2012 until March 31, 2013 (Fiscal year of 2012), partially including the past background and previous activities to provide more accurate information.
- Future Forecast, Plan and Goals
This report contains not only the facts at present and in the past, but also future forecasts, estimates or projections of the DOWA group. These forecasts, estimates or projections are assumptions or judgment that are based on the information available at the time of printing and therefore contains some uncertainty. Actual results or events may differ from those projected in this report.
- Reference Guidelines
 - UN Global Compact Guidelines on Communication on Progress Reference Guidelines
 - ISO 26000
 - Sustainability Reporting Guidelines (G3) of Global Reporting Initiative
 - Environmental Reporting Guidelines 2012 by Ministry of the Environment

(2) Publishing of a web version

This report highlights and reports environmental conservation activities of the DOWA group, focusing on some important points, to provide an overview of those activities in an easy-to-understand way. For more details, visit our website. Check our website for the information about the following.

CSR Report Web version <http://www.dowa-csr.jp/en/index.html>

Corrections to any errors which might be found after publication will be posted on our website.

Please visit our website for the GRI