

TORAY Group Social Responsibility

2014

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# Social Responsibility



**Message from the President**



**CSR Report Highlight**



**Toray Group's Corporate Social Responsibility**



**Value Creation**




**Governance**



**Social Initiatives**



**Environment**



**Comparative Table with ISO 26000 Subjects**


TORAY Group Social Responsibility  
**2014**

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Activities of  
**TORAY Group**

**Activities of TORAY Group**

**Our People**  
Let Me Introduce My Work,  
My Company, and Myself



**Our People**



25年度(第54回)贈呈式  
公 団法人 東レ科学振興会

**Development of Science Technology**

Oct 5, 2015

Fibers & Textiles

Toray's ecodear®PET Partially Plant-based Polyester Fiber Obtains World's First Product Certification under Type I Environmental Label (Eco Mark) --World's First Conformity as Synthetic Fiber derived from Plant-based Recycled Resources--

Aug 18, 2015

Others

Toray Pan Pacific Open Tennis 2015 Announcing 20 Players who Gained Direct Entry to the Main Draw including Six of the World's Top 10 Players!!

Jul 23, 2015

Others

Notice Regarding Result of Toray Advanced Materials Korea Inc.'s Tender Offer for Shares in Toray Chemical Korea Inc.

Jul 1, 2015

Others

Toray acquires SolviCore, a German company active in Fuel Cell and Water Electrolysis industry

## CSR News

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Oct. 23, 2015 [Thailand]

Thai Toray Synthetics Co., Ltd. (TTS)

TTS Employees Teach Experimental Science Class at the Local Elementary School (Aug. 21, 2015)

Sept. 3, 2015 [Malaysia]

Toray Industries (Malaysia) Sdn. Berhad (TML)

Visit to the Malaysian Ministry of Higher Education (Aug. 10, 2015)

Sept. 3, 2015 [Malaysia]

Toray Industries (Malaysia) Sdn. Berhad (TML)

Toray Awards for Participants of ITST 2015 (August 2015)

Sept. 3, 2015 [Malaysia]

Penfabric Sdn. Berhad (PAB)

PAB is "Made in Green" (June 2, 2015)

Sept. 3, 2015 [United States]

Toray Fluorofibers (America), Inc. (TFA)

TFA Participates in "Rebuilding Together" (April 2015)

\*[ ] denotes the country or region.

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## Message from the President

### Contributing to society through the creation of new value with innovative ideas, technologies and products

#### Leveraging the Power of Chemistry for a Positive Social Impact

As businesses today continue to develop their global operations across national boundaries, there is an increasing social focus on corporate governance and social responsibility. This has broad-reaching implications. For instance, when a scandal involving a pharmaceutical company broke in Japan, the president of the Swiss parent corporation had to come to Japan and issue a public apology to regain trust. When a building collapsed in Bangladesh in 2013, there was a consumer backlash against retailers in the United States and Europe that had sourced garments that were made in the collapsed building.

At Toray Group, we recognize that we must strengthen group-wide corporate governance and work harder than ever before to meet our global social responsibilities—precisely because Toray Group is a truly global enterprise in every sense of the word. Our core strategy is to expand our business worldwide by focusing on industrial segments and countries and regions that are growing. We continue to enhance collaboration among our business locations worldwide and strive to develop new markets. As a further avenue for growth, we are pursuing mergers, acquisitions, and business alliances worldwide that leverage our core technologies to achieve valuable synergies. For the fiscal year ended March 31, 2014, Toray Group's consolidated net sales were 1,837.8 billion yen. The Group has grown to employ 45,881 people at a total of 253 group companies—102 in Japan and 151 in 24 other countries and regions around the world, and it has benefited by absorbing diverse elements of various corporate cultures in mergers and acquisitions.

Toray Group embraces a corporate philosophy of contributing to society by creating new value with innovative ideas, technologies, and products. With the strong belief that materials have the capacity to fundamentally change the world, we are focusing our energies on research and technology development. Inspired by the slogan "Innovation by Chemistry," we are determined to leverage the power of chemistry to address diverse social issues. At the same time, we have made it our highest management priority to meet our social responsibilities in the areas of safety, accident prevention, and environmental preservation, as well as corporate ethics and legal compliance. This commitment is shared throughout the Group, as we seek to grow as a socially responsible corporation.



*Akihiko Nishikawa*

President, Toray Industries, Inc.

#### Launch of New Medium-Term Management Program

In February 2011, we formulated the long-term corporate vision, AP-Growth TORAY 2020, and the medium-term management program, Project AP-G 2013, outlining our core strategy to expand business in segments, countries and regions that are growing while bolstering our competitiveness. We are also harnessing our collective strengths to expand Green Innovation businesses that help to address today's increasingly prominent global environment, resource, and energy issues, while seeking to grow our business in the rest of Asia and developing countries.

We began implementing the medium-term management program, Project AP-G 2016, in April 2014. In addition to continuing the initiatives we launched under the earlier Project AP-G 2013, we are now also focusing on growing our Life Innovation business, which seeks to improve the quality of medical care, reduce the burden on medical settings, and contribute to health and long life. We are also looking to expand our business in the rest of Asia and developing countries that are expected to grow, as well as growing our business in the U.S. with a focus on the shale gas revolution.

In order to support and ensure this business expansion, we are focusing our research and technology development on projects that will be fundamentally competitive over the long term, leveraging Toray Group's core technologies, elemental technologies, and business platforms. Starting in 2014 and for the ensuing three years, we will invest some 180 billion yen in research and technology development, with 50% of this investment allocated to Green Innovation businesses and 20% directed to Life Innovation businesses. Our pledge is to address social issues not only by making the most of our existing advanced materials and technologies, but also by developing new products and technologies.

#### Achieving Sustainable Growth

The global economy is projected to continue its gradual recovery, while political and national circumstances in each country and region dictate diverse and unique risks and growth opportunities. We are endeavoring to minimize risks both from a long-term perspective and with a solid grasp on the present. You can count on Toray Group to pursue growth by creating products and developing businesses that are ahead of the times, leveraging our world-leading technologies and advanced research capabilities.

In order to achieve sustainable growth for human societies, the world must learn to pair economic growth with solutions to global-scale issues such as the environment. At Toray Group, we aim to offer products, services, and technologies that help address these issues. We believe that, by doing so, Toray Group's growth will go hand in hand with social growth. To provide even greater value to all stakeholders, we will achieve sustainable growth, proactively contributing to social development and practicing sound environmental stewardship. We recognize that the key to doing this is ensuring that every employee and every worksite is fully engaged in fulfilling our corporate commitment to social responsibility.

Detailing our progress in fiscal 2013, this website aims to communicate to stakeholders the efforts Toray Group is taking to meet its social responsibilities. We

## Top Management Highlights in Fiscal 2013



April 3, 2013  
Ribbon cutting ceremony for the new carbon fiber plant of Toray Advanced Materials Korea Inc. in the City of Gumi, Gyeongsangbuk-do, South Korea



April 29 – May 4, 2013  
On an economic mission to the Middle East led by Prime Minister Shinzo Abe, which included stops at Riyadh and Jeddah in Saudi Arabia, Abu Dhabi in the United Arab Emirates, and Ankara, Turkey.



May 16–17, 2013  
At the 9th Asian Chemical Fiber Industries Federation Conference in Bangkok, Thailand.



September 27, 2013  
Announcing the acquisition of US-based carbon fiber manufacturer Zoltek Corporation at a joint press conference at the Toray head office with Zoltek President Zsolt Rummy.



October 10, 2013  
At the Medical Devices Center of the University of Minnesota to sign a memorandum of agreement for cooperation on the development of medical devices.



January 29, 2014  
Ribbon cutting ceremony for the new integrated production line for TORAY WATERLESS PLATETM at Toray Textiles Central Europe s.r.o. in the Czech Republic.



February 17, 2014  
Announcing the medium-term management program, Project AP-G 2016, to be implemented over three years starting from April 2014.



February 26–27, 2014  
Visiting the City of Kitakyushu and the City of Fukuoka, with stops at the Water Plaza Kitakyushu (featuring Toray's advanced water reuse system) and a ride on a carbon fiber-bodied electric bus. The visit included meetings with the mayor, vice-mayor, and other officials of the City of Kitakyushu.

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## Addressing Social Issues

Toray is having a positive social impact by creating new value with “Innovation by Chemistry”—leveraging chemistry to develop innovative materials and technology.

### Toray Green Innovation for a Sustainable Society

Businesses that help address issues facing the global environment, resources, energy, and water resources

### Toray Life Innovation—Transforming Everyday Lives and Medical Settings

Businesses that improve medical care, reduce the burden on medical staff, and contribute to health maintenance and longevity

The new medium-term management program, Project AP-G 2016, being implemented by Toray Group outlines the pursuit of a new Life Innovation Business Expansion (LI) Project alongside existing business initiatives. The Life Innovation business leverages the Group’s strengths in advanced materials and its experience in pharmaceuticals and medical care, aiming to develop diverse Toray Life Innovation solutions in fields ranging from medical care to health care. Here, you can learn more about the Group’s efforts to address social issues through Green Innovation and Life Innovation.

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## Toray Green Innovation for a Sustainable Society



**We are pursuing the Green Innovation Business Expansion Project in an effort to develop innovative technologies and products that will help realize a sustainable planet and society for future generations.**

Shinichiro Hata  
General Manager, Global Environment Business Strategic Planning Department,  
Toray Industries, Inc.

### Embracing 21st-century corporate responsibility to address global environmental issues

Today's global environmental issues such as climate change, depletion of resources, air pollution and water shortages are mainly caused by human economic activity. The Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC)<sup>1</sup> officially released in the fall of 2014 warns that global warming will continue and further global-scale measures are needed to address the threat of climate change.

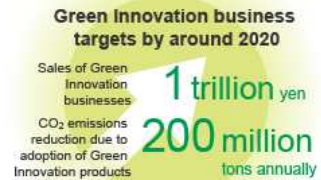
As a corporation engaged in chemical-related businesses, Toray Group has a major social responsibility to help to build sustainable, low-carbon, recycling-based societies by developing innovative technologies that help address various global environmental issues. Toray Group is determined to keep developing innovative technologies and materials for the planet and its stakeholders.

<sup>1</sup> IPCC is an intergovernmental body under the auspices of the United Nations that gathers and assesses scientific research regarding climate change. IPCC issues assessment reports every seven years that are influential in shaping national and corporate policies.

### Second phase of Toray Green Innovation

Coinciding with its 85th year in business, in April 2011 Toray Group unveiled the long-term corporate vision, AP-Growth TORAY 2020, and launched the medium-term management program, Project AP-G 2013, to implement the first phase of the vision. The Group also launched the Green Innovation Business Expansion (GR) Project as a corporate initiative headed by the president, reaffirming the Group's focus on environmentally responsible management.

The GR Project directs the Group to engage in environmentally responsible management driven by a life cycle management<sup>2</sup> process with firm foundations in life cycle assessment.<sup>3</sup> It sets a target of increasing net sales of Green Innovation products to one trillion yen by around 2020, encompassing solutions that help address global environmental, resource, and energy issues (see the diagram below). The Group is also pursuing the goal of helping customers to realize a 200 million ton annual reduction in CO<sub>2</sub> emissions by adopting its green innovation products.



<sup>2</sup> Life cycle management: Management that uses life cycle assessment to reduce environmental impact while securing economic growth.

<sup>3</sup> Life cycle assessment: Assessment of environmental impacts taking into account the entire life cycle of products and services—from resource extraction to manufacturing, use, and disposal.

Under the new medium-term management program, Project AP-G 2016, launched in April 2014, the GR Project remains a matter of highest corporate priority and is entering its second phase. By executing environmentally responsible management driven by life cycle management of products and services, the Group's business divisions and R&D departments will work more closely together to establish frameworks to expand business and further accelerate the project.

#### Related Information

> [Green Innovation Business Expansion Project](#)

### Environmental impact categories for Green Innovation products

#### Realizing Green Innovation

1 Energy-saving

		<p>Basic concept: Products that reduce the energy consumed during their product life cycle</p> <p>Main products: Carbon fibers for automobiles, aircrafts, and compressor tanks; cooling and insulating micro fibers; photosensitive functional materials</p>
2	<b>New energy</b>	<p>Basic concept: Any parts, materials, and technologies used in industries relating to new energy</p> <p>Main products: Solar panel backsheets, separators for lithium ion batteries</p>
3	<b>Biomass-derived</b>	<p>Basic concept: Products derived from non-petroleum raw materials</p> <p>Main products: Bio-based PET; 3GT fibers; polylactic acid for textiles, plastics, and film</p>
4	<b>Water treatment</b>	<p>Basic concept: Parts, devices, and systems, etc. used in water treatment</p> <p>Main products: Reverse osmosis (RO), ultrafiltration (UF) and microfiltration (MF) membranes; TORAYVINO™ home-use water filter</p>
5	<b>Air purification</b>	<p>Basic concept: Parts, devices, and systems, etc. used in air purification</p> <p>Main products: dust collector filters and air filters</p>
6	<b>Low environmental impact</b>	<p>Basic concept: Products that control the emissions or use of hazardous substances</p> <p>Main products: Non-halogen flame retardants for fibers, textiles, plastics, and films; TORAY WATERLESS PLATE™</p>
7	<b>Recycling</b>	<p>Basic concept: Products made from recycled materials or featuring a recyclable design</p> <p>Main products: Reusable and recyclable products; material and chemical recycling technologies</p>
8	<b>Process innovation</b>	<p>Basic concept: Innovative manufacturing technology that greatly reduces the environmental impact of an existing process</p> <p>Main technology: Chemical processes that reduce gas emissions</p>

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## Water Treatment Membrane Technology

Using water as a valuable resource

### Saudi Arabia—Desert Nation and Leader in Desalination and Wastewater Reuse



**1** Sewage lake and treatment facility in Jeddah, Saudi Arabia. The facility is shown in the foreground with a pool of treated water behind it. The project received a Global Water Award in 2011.

**2** Close-up of sewage treatment system employing MBR process.

**3** Treatment facility built for a Saudi food company that enables 85% reuse of wastewater. The project received a Global Water Award in 2013.

## Twice recipient of Global Water Award for addressing water resource issues

Saudi Arabia faces serious water shortages as a nation whose land is mainly desert, while facing population growth and increasing urban and industrial development in recent years. Traditional water sources such as oases, springs, and wells are no longer sufficient for the country's water needs. Saudi Arabia is reliant on seawater desalination that removes salt from seawater to secure the supply of fresh water, and operates the largest network of desalination plants in the world. Wastewater is also treated as a valuable water resource, and both wastewater treatment and reuse are increasingly common. These combined with desalination plants are making a difference in Saudi Arabia's efforts to effectively use its precious water resources.

Suido Kiko Kaisha, Ltd., a Toray Group company that provides comprehensive engineering services for water treatment, established Suido Kiko Middle East, LLC in 2006 as a joint venture with a Saudi firm, to provide solutions for the nation's water resource issues. The parent company, Suido Kiko, supplies technology and other resources to work on developing local solutions. Suido Kiko Middle East has twice received the prestigious Global Water Award for industry achievement, in recognition of its advanced technology and solutions.

### Voice

Saudi Arabia is seen as a rich, resource-laden nation, but the nation's water and sewage infrastructure remains inadequate. Water shortages are constantly discussed in Saudi newspapers, and wastewater treatment has emerged as a major issue in recent years.

Suido Kiko Middle East has been working to address these issues in whatever way we can, since we started doing business in Saudi Arabia. We have been involved in a number of infrastructure projects including the sewage lake project, and have made a difference in the lives of Saudi Arabians. We will continue working to find solutions to the water issues that face Saudi Arabia.



Takeshi Hara  
Deputy General Manager, Suido Kiko Middle East, LLC

## Using advanced purification technology to solve the challenging problem of sewage lakes

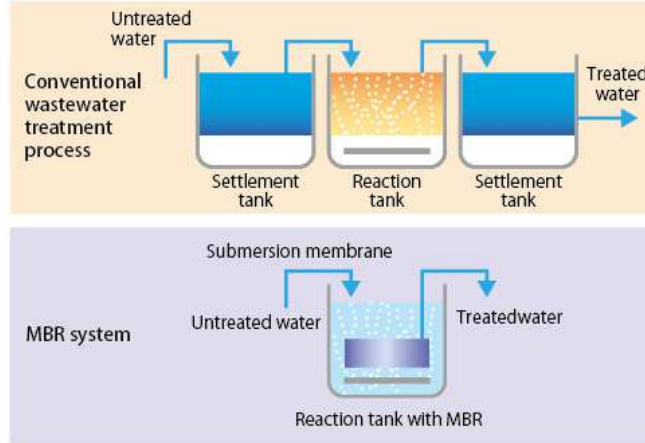
The Saudi government acted to clean up a man-made sewage lake in the western Saudi city of Jeddah, by constructing a sewage treatment plant that was completed in 2009 (photos **1** and **2**). The sewage lake itself was created from the discharge of untreated household wastewater and had become a public health issue while carrying the risk of washout in heavy rains. The sewage treatment plant employs a membrane bioreactor (MBR) process proposed by Suido Kiko Middle East, with the capacity to treat 60,000 cubic meters of water a day (see diagram below). The sewage treatment plant quickly resolved the public sanitation problem and today supplies treated water to a forested park. The project earned a Global Water Award in 2011.

### Membrane bioreactor process

Membrane bioreactor (MBR) process supplies high-quality treated water while taking up less space than conventional processes. MBR removes microorganisms from water, enabling reuse of toilet and sprinkler water.



MEMBRAY™ immersion-type membrane modules for bioreactor process



MBR process eliminates the need for the settlement tanks before and after the reaction tank, which takes up less space.

### Construction of world’s largest reverse osmosis (RO) membrane plant in Saudi Arabia

Toray reached an agreement with Abunayyan Holding, a Saudi-based corporate group with a leading presence in power generation and desalination solutions, to establish Toray Membrane Middle East LLC, which will provide solutions for water and wastewater treatment. The companies officially signed an agreement in February 2014 and the joint venture will construct a world-class manufacturing facility for RO membranes in the eastern Saudi city of Dammam. Production will begin in 2015. The joint venture will also operate a technical service facility next to the plant to enhance accessibility for customers in the Middle East and North Africa. Toray Group is committed to addressing water issues in Saudi Arabia and throughout the Middle East and North Africa in partnership with local companies.

Toray Membrane Middle East LLC (est.2014)



SUIDO KIKO MIDDLE EAST, LLC (est.2006)



Official signing of the agreement between Toray and Abunayyan Holding in February 19, 2014



Toray's ROMEMBRA™ RO membrane elements remove impurities and ions from water and are used in various applications including seawater desalination, brackish water desalination, and wastewater reuse.

**Kitakyushu Smart Community**

Using fossil resources wisely

Reducing CO<sub>2</sub> emissions

**Building an Emission-free  
Public Transportation System  
—From a Community Vision to  
Changing the World**



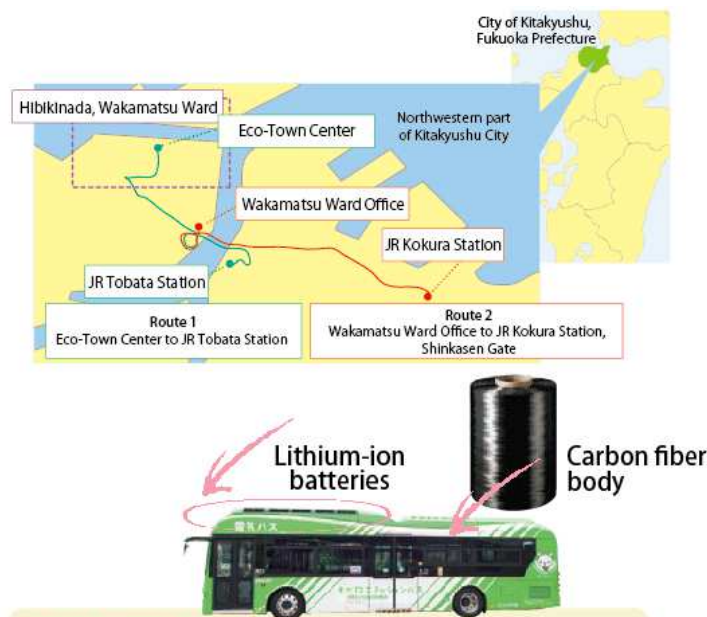
**Developing new energy systems with the City of Kitakyushu**

Energy technologies such as solar cells, rechargeable batteries, and fuel cells are prominent as environmental technologies. New energy sources must be adopted and used more widely, in order to make the transition to a more energy efficient, low-carbon society. In 2009, Japan's Ministry of Economy, Trade and Industry released a report summarizing a vision for next-generation energy grids and social systems, designating four municipalities as smart grid and smart community demonstration areas. The municipalities are the City of Yokohama, Kanagawa; the City of Toyota, Aichi; Kansai Science City, Kyoto/Osaka/Nara; and the City of Kitakyushu, Fukuoka. The demonstration period is from 2010 to 2014, during which time the private sector, local governments, universities, and citizens have been working together on forward-thinking initiatives. Toray Group has been working in partnership with the City of Kitakyushu to develop new business models and innovative energy systems that leverage the Group's materials development and its corporate resources and relationships.

**Carbon fiber-bodied electric buses**

Toray Group and the City of Kitakyushu are working on a project to establish a zero-emission transportation system that does not produce waste and CO<sub>2</sub> emissions, for operation in Hibikinada, Wakamatsu Ward. In the first phase of the project, two electric buses were put into regular service in March 2014 (Fig. 1). Future phases will see buses that operate on photovoltaic power and the launch of large rechargeable batteries (Fig. 2). The goal is to generate zero CO<sub>2</sub> emissions from power generation and driving, thus saving some 30–50 tons of CO<sub>2</sub> emissions annually. The electric bus project is being jointly implemented by Toray Engineering Co., Ltd., Mitsubishi Heavy Industries, Ltd., and third-sector company Hibikinada Development Co., Ltd., which is partly owned by the City of Kitakyushu.

Figure 1: Electric bus routes



**Electric bus specifications**

Maximum passengers	: 72
Bus weight	: 11,250 kg (About one ton, or 10%, lighter than regular buses thanks to the use of carbon fiber)
Driving distance	: Up to 80 km in a single charge. High-performance lithium-ion batteries increase the driving distance on a single charge.
Maximum speed	: 85 km/h

## Voice

The City of Kitakyushu is moving forward with the Kitakyushu Eco-Town Project in Hibikinada, Wakamatsu Ward to help build a resource-recycling society. The project leverages our local industrial base and technology resources as a center for manufacturing, as well as capitalizing on human resources, engineering, and expertise that we have accumulated when combatting pollution issues in the past. We are also communicating the results to the world and cooperating in efforts such as training people from other parts of Asia to improve water quality.

Our relationship with Toray Group began when the company contributed its expertise for the installation of a photovoltaic reverse osmosis (PVRO) desalination system, as part of a JICA-supported base of the pyramid (BOP) project in Surabaya, Indonesia. Toray Group also assisted the City of Kitakyushu in establishing the Water Plaza Kitakyushu, whose purpose is develop an advanced water recycling and reuse system as well as build management and operating expertise, with the further goal of encouraging technology adoption by disseminating information in and outside of Japan.

Our efforts to build a zero-emission transportation system and large-scale photovoltaic power plant are part of a larger project to promote the City of Kitakyushu as a regional energy center. Our municipality will continue to support regional growth while serving as a center for environmental and energy solutions. We look forward to forming partnerships with companies like Toray which have advanced technologies and display a strong commitment to addressing environmental and social issues.

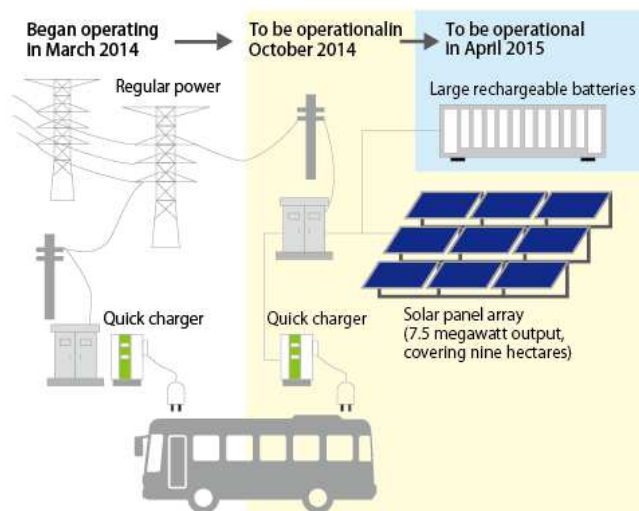


Kenji Kitahashi  
Mayor, City of  
Kitakyushu

## Establishing a zero-emission transportation system

The zero-emission transportation project is moving ahead in three phases, with the crucial second phase involving the transition to running entirely on photovoltaic power. This would be the first route bus in Japan to operate entirely on photovoltaic power. Toray Group has established a subsidiary to work on a large-scale photovoltaic power generation project with the aim of supplying sufficient photovoltaic power to operate the two electric buses by the spring of 2015.

Figure 2: Plan for zero-emission transportation system



## Voice

Kitakyushu TEK & FP LLC is presently building a photovoltaic power station in the City of Kitakyushu that will begin operating in October 2014. Under the project, Toray Engineering Co., Ltd. is expanding its scope of business from construction alone to encompass engineering and procurement together with operations and maintenance. At the same time, Toray Group is building an integrated supply chain from solar panels through to facilities engineering, construction, operations, and maintenance. This is being realized by using solar panels made by Fujipream Corporation which employ Toray Group materials (backsheets, encapsulant), and incorporating power generation forecasting systems developed by Toray's Environment & Energy Development Center. The Group will leverage its comprehensive strengths to make the project a success and expand the environmental and energy business.



Nobukazu Motochika  
President, Kitakyushu  
TEK & FP LLC

## Supporting regional development with a large-scale photovoltaic power station

Partnering with solar panel manufacturer Fujipream Corporation, Toray Engineering Co., Ltd. established Kitakyushu TEK & FP LLC in February 2014, tasking the new firm with establishing and operating a new photovoltaic power station. The joint venture is developing an innovative large-scale photovoltaic power generation project that pairs Toray Engineering's strengths in system engineering and construction with Fujipream's proprietary photovoltaic systems.

The joint venture is now constructing a photovoltaic power station with a 6,400 MWh annual capacity on seven hectares of land in Wakamatsu Ward, Kitakyushu that belongs to third-sector company Hibikinada Development Co.,

Ltd., which is partly owned by the City of Kitakyushu. Electricity generated by the power plant will be sold to Kyushu Electric Power Co., Inc. In addition to contributing to the broader adoption of photovoltaic power generation in Kitakyushu, the facility will play an important role in realizing the zero-emission transportation system. The long-term goal of the joint venture is to develop regional photovoltaic projects such as infrastructure development that benefits agriculture and regional industry.



Ryoichi Kawamura (right), President of Toray Engineering Co., Ltd., and Tomonaga Matsumoto, President of Fujipream Corporation, at the press conference announcing the joint venture in February 2014



Tracking photovoltaic system developed by Fujipream Corporation. The elevated system enables the space underneath the panels to be used for other purposes. Solar panels automatically track the sun by calculating its position, generating power more efficiently than a fixed panel system.

**Carbon Fiber (1)**

Spread of clean energy

Reducing CO<sub>2</sub> emissions

**Carbon Fiber—Playing a Role in the Widespread Adoption of Hydrogen Energy**



**Carbon fiber for hydrogen transport, storage, and use**

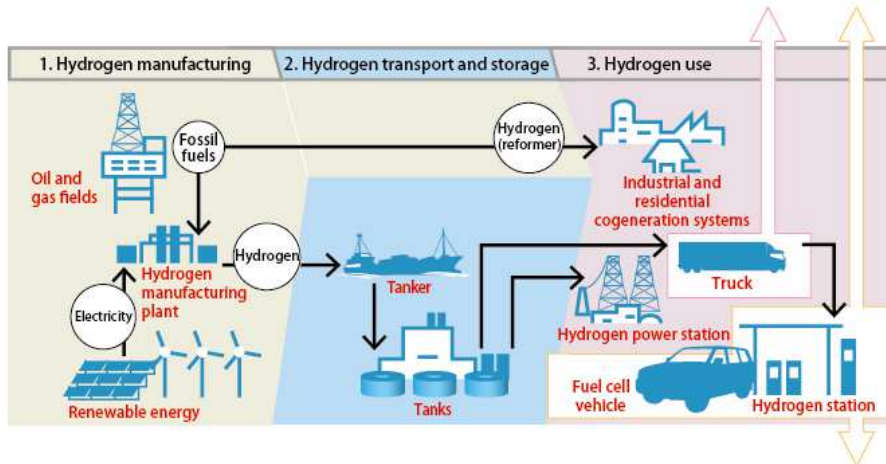
Hydrogen power generation produces only water and heat, making it a clean energy source that does not generate CO<sub>2</sub> emissions. The efficiency of hydrogen energy is spurring the development of fuel cell vehicles that run on hydrogen fuel. Meanwhile, the rush is on to develop the needed hydrogen infrastructure before fuel cell vehicles are released in Japan.

Hydrogen is not a natural resource and is manufactured in a number of ways including as a byproduct generated by plants and through electrolysis of water. It is then transported by hydrogen tanker ship or truck and stored in tanks, before being delivered to the user. Toray carbon fiber is being used in the transport, storage, and use of hydrogen, and plays an important role in supporting hydrogen infrastructure.

**Widespread adoption of hydrogen energy**

**Carbon fiber-reinforced hydrogen tanks**

Securing efficiencies in hydrogen storage and transport is crucial to the development of infrastructure for a hydrogen-powered society. Toray carbon fiber is used extensively for reinforcement of pressure tanks used in transporting compressed hydrogen, both in transport tanks on tanker trucks and the smaller hydrogen tanks in fuel cell vehicles.



**Carbon fiber in fuel cells**

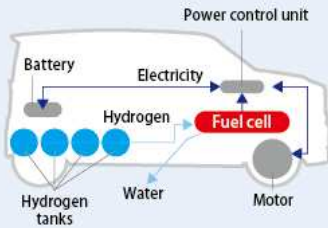
Fuel cell units are made from layers of plates that are called cells. Each cell only produces a limited amount of energy, but the cells can be stacked to generate a large amount of energy. Fuel cells generate electricity through the chemical reaction of hydrogen and oxygen, serving as a clean power generation system that does not produce CO<sub>2</sub> or NO<sub>x</sub> emissions. Toray is the leading supplier of gas diffusion layers, which are an important component of generating systems used in promising fuel cell vehicles that could eventually surpass the popularity of today's eco-vehicles. These gas diffusion layers are made from carbon fiber.



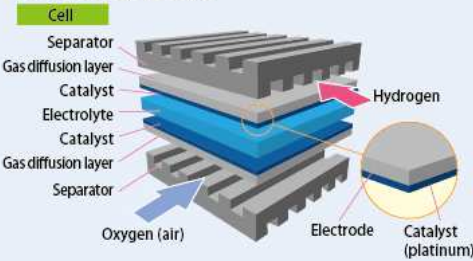
Fuel cell



• How fuel cell vehicles work



• Fuel cell construction



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**Carbon Fiber (2)** Using fossil resources wisely Reducing CO<sub>2</sub> emissions

**Using Carbon Fiber to Lessen the Weight of Vehicles and Aircraft and Reduce CO<sub>2</sub> Emissions**



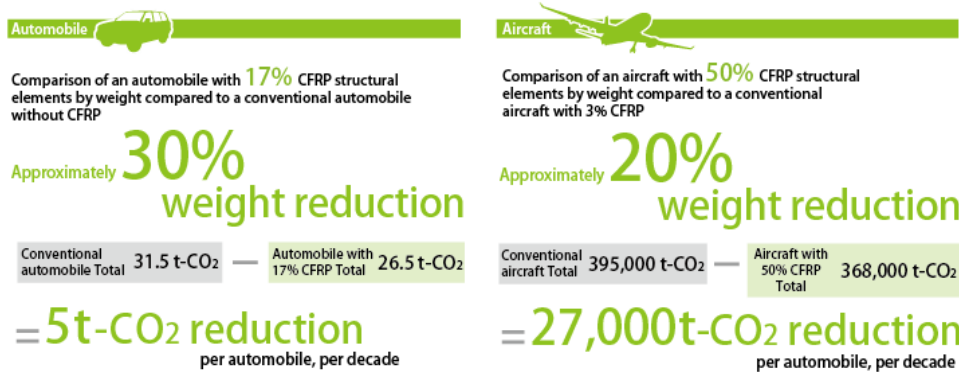
**Lighter cars and planes mean lower CO<sub>2</sub> emissions**

Carbon fiber reduces the weight of vehicles and aircraft, which directly improves fuel economy and reduces CO<sub>2</sub> emissions. Lightweight aircraft made from carbon fiber are already flown around the world, with Toray receiving high praise from various organizations for its contributions to aircraft weight reduction. In May 2013, Toray took a stake in Plasan Carbon Composites, Inc., a leading manufacturer of automotive carbon fiber-reinforced plastic (CFRP) components based in Michigan, USA. The investment in Plasan Carbon Composite is part of a global strategy to grow Toray's business in the automotive sector. In addition to securing a sales channel to supply U.S. automakers and establishing a manufacturing and development base in North America for CFRP automotive components, Toray will build a strong and integrated supply chain, from supply of carbon fiber to intermediate materials and molded products.

**Establishing a supply chain for automotive composites**



**CO<sub>2</sub> emissions reduction throughout the product life cycle due to adoption of carbon fiber**  
(based on calculations by the Japan Carbon Fiber Manufacturers Association)



Source: Japan Carbon Fiber Manufacturers Association

Source: Japan Carbon Fiber Manufacturers Association

**Spotlight**

**60th Okochi Memorial Prize**

Toray received a 60th Okochi Memorial Prize from the Okochi Memorial Foundation for the development of carbon fiber composite materials for aircraft.



Award ceremony held on March 26, 2014. From Toray Industries, Inc. (left to right): Makoto Endo, General Manager of Composite Materials Research Laboratories; Yukichi Deguchi, Senior Vice President; Minoru Yoshinaga, Director; Nobuyuki Odagiri, General Manager of ACM Technology Department

**Minister of Economy, Trade and Industry Prize, Green Sustainable Chemistry Awards**

Toray received a Minister of Economy, Trade and Industry Prize under the Green Sustainable Chemistry Awards sponsored by the Japan Association for Chemical Innovation, for developing carbon fiber composite materials that reduce the weight of aircraft.



Award ceremony held on May 22, 2014. From Toray Industries, Inc. (left to right): Makoto Endo, General Manager of Composite Materials Research Laboratories (second from left); Nobuo Suzui, Executive Vice President; Yukichi Deguchi, Senior Vice President.

**Polyactic Acid Fiber**

Combatting desertification

Alleviating food shortages

**Increasing Arable Land in the Face of Desertification and Food Shortages from Population Growth**



**Introducing roll planters to South Africa and testing corn crops**

Africa as a region is vulnerable to climate change, and population growth is increasingly outstripping food production in many areas due to a shortage of agricultural land brought on by drought-induced desertification. In South Africa, dust from mine dumps created from materials left over from mining are a growing problem. Some of the dust that is kicked up contains mining remnants with trace amounts of radiation, causing a serious health issue. Toray is endeavoring to address this problem through the use of polyactic acid fiber, a plant-based material that ultimately is biodegraded into water and carbon dioxide.

Toray, working in partnership with Mitsukawa Co., Ltd., whose business ranges from fibers to environmental solutions, has developed tube-shaped roll planters made from polyactic acid fiber. The roll planters are being used in South Africa to convert denuded areas into arable land, setting up planters in a way that addresses the challenges of the land. This initiative is being advanced with the support of Japan's Ministry of Economy, Trade and Industry and the United Nations Development Programme.

**Using roll planters in South Africa to convert denuded areas into arable land**

**Converting mine dumps into green land**

Roll planters filled with soil are laid in a lattice pattern and seeds are planted in the gap between roll planters. This arrangement beds down the dust and prevents it from blowing off the mine dumps, and encourages plant growth.



**Planting cash crops**

Roll planters are filled with local soil and laid across denuded land. Crop seeds are planted in the gap between the roll planters. The roll planters retain their shape without breaking down in the sun, while offering excellent permeability and water retention to keep root systems at temperatures that facilitate crop growth.



The crops are cultivated by watering and fertilizing the soil in the roll planters. A drip irrigation system developed by Netafim Japan Co., Ltd., a leading provider of watering solutions, is used to efficiently supply water to the roll planters. The drip irrigation combined with roll planters and their high water retention enables crops to be raised with less water and fertilizer.



**Manufacturing roll planters in South Africa**

The system developed by Toray Industries, Inc., Mitsukawa Co., Ltd., and Netafim Japan Co., Ltd. requires almost no complex labor and can be widely adopted once established. Manufacturing of roll planters in South Africa is already being conducted on a trial basis, and with the cooperation of Mitsukawa, initial training on operating the roll planter manufacturing equipment was conducted in Japan in November 2013.

Toray will continue working with local partners and other companies to convert denuded areas into arable land in South Africa, in an effort to address desertification and help alleviate food shortages.



A South African trainee learns to operate roll planter manufacturing equipment in Japan

Returning to South Africa and teaching others how to operate the machinery

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**Air Filters** Cleaning the air

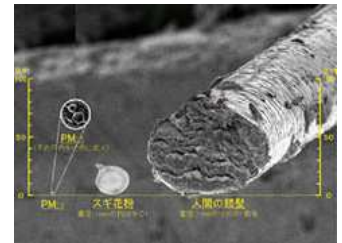
**Leveraging Chemical Engineering to Protect Air Quality and Address Problems Created by Economic Growth**



**Air filters made from ultra-fine, non-woven fabrics given electret properties**

Air pollution is mainly caused by human socioeconomic activity and has long been an issue. The problem was bad enough, even back in the 19th century, that people invented new words like “smog”—a combination of “smoke” and “fog.” Due to the health risk to humans, most countries and regions today have agencies that deal with the environment, issuing warnings and advisories based on air pollution indexes.

Fine particles less than 2.5 micrometers in diameter (PM2.5) have emerged as a major air pollution problem in recent years. In China, rapid economic growth has brought with it ever-worsening air pollution in the winter from the use of coal heating. To reduce particle inhalation, people are increasingly using masks when going outside or using air purifiers indoors. Toray Group is leveraging its strengths as a synthetic fiber manufacturer to develop and supply products that help improve the quality of air indoors.



PM2.5: Fine particles less than 2.5 micrometers in diameter. A micrometer is 1/1,000th of a millimeter.

Quoted from Tokyo Metropolitan Government website



Air filter made by the Toray Group that is used in air purifiers. The filter is made from TORAYMICRON™, a polypropylene meltblown non-woven fabric that is given electret properties through a specialized process. Each ultra-fine fiber is given electret properties, so that the fibers can capture everything from large dust to micron particles that are invisible to the eye. These air filters are used in air purifiers offered by leading appliance makers, and in cabin filters in automobiles.



**Voice**

PM2.5 levels are getting worse in China and have emerged as a major social issue, becoming a health hazard and leading to advisories on being outdoors. We are seeing a sharp increase in demand for air purification solutions. As a global supplier of air filters, Toray Fibers (Nantong) Co., Ltd. established an integrated manufacturing system for high-performance filter elements in March 2013, and we are currently expanding our facilities with the expectation that we will double our production capacity in March 2015. We will expand the air filter business to help address this social issue, in pursuing the Green Innovation and Life Innovation businesses under the medium-term management program, Project AP-G 2016.



Toray Fibers (Nantong) Co., Ltd.



Shi Qiyao  
Assistant General Manager, Air Filter Sales Department, Toray Fibers (Nantong) Co., Ltd.



## Toray Life Innovation—Transforming Everyday Lives and Medical Settings



**A promise to realize “life innovation” for the future, from the perspectives of personal health and the safety and security of people around the world.**

Toshiaki Tanaka

Senior Director of Technology, General Manager of Life Innovation Business Strategic Planning Department, Toray Industries, Inc.

### Making the world better through Life Innovation solutions

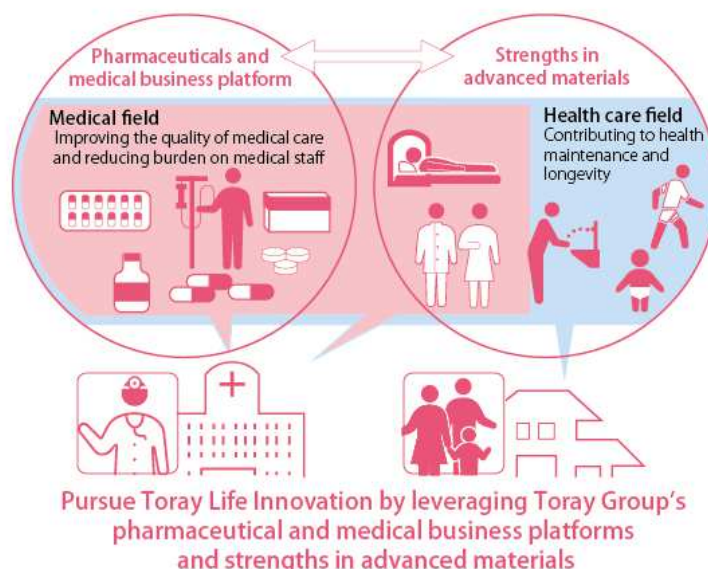
There are many challenges facing the global environment and issues facing people and society today. Social issues vary widely from place to place depending on factors such as the level of economic development. The United Nations Millennium Development Goals identify many life-affecting issues that need to be addressed through medical care in both emerging and developing nations, outlining common goals that the international community should strive to achieve. In developed countries that are already face aging demographics, rising health care costs and the growing burden on medical staff are major issues requiring urgent review of health care programs and policies. Furthermore, there is increasing interest in health-conscious living to prevent disease. Toray Group is committed to realizing life innovation solutions that help to address these diverse and varied social challenges, leveraging the Group’s strengths in advanced materials and technology together with its experience and proven achievements in pharmaceuticals and medical care.

### What is Toray Life Innovation?

Starting in April 2014, Toray Group began implementing the medium-term management program, Project AP-G 2016, which directs the Group to leverage its full resources to pursue a new Life Innovation Business Expansion Project alongside its existing business efforts. The project redefines the Toray Life Innovation businesses to include existing solutions revolving around pharmaceuticals, medical materials, and biotools while also encompassing peripheral health care solutions that leverage advanced materials.

The Group has launched a Life Innovation Business Strategic Planning Department that is responsible for best leveraging Toray’s advanced materials, core and elemental technologies, and business platform to achieve results from the project. The department reports directly to the president and is responsible for executing the strategic corporate plan for the Life Innovation business. With the cooperation of the Life Innovation Planning Group of the Technology Center that oversees all corporate R&D, the Life Innovation Business Strategic Planning Department implements corporate planning for Life Innovation businesses and facilitates business development.

### Toray Life Innovation



### Dedicated staff involved in Life Innovation Business Expansion Project



### Life Innovation Business Strategic Planning Department

Corporate planning for Life Innovation businesses and facilitating business development

The Life Innovation Business Strategic Planning Department was launched in April 2014 and reports directly to the president, who also heads the Life Innovation Business Expansion Project. The department advances corporate initiatives under the leadership of staff with specialized engineering expertise and knowledge pertaining to advanced materials, pharmaceuticals, and medical devices, which are needed to expand business in the life innovation field. The department works closely with the Life Innovation Planning Group of the Technology Center, which was launched in March 2013 to accelerate integration of research and technology development with business development.

### Life Innovation Planning Group of the Technology Center

Facilitates development that leverages the comprehensive strengths of the Technology Center that directs all corporate R&D



## Bringing innovation to medical settings and everyday life

The Life Innovation Business Expansion Project seeks to realize concrete products and technologies that (1) improve the quality of medical care and reduce the burden on medical staff, and (2) contribute to health maintenance and longevity.

### Improving the quality of medical care and reducing the burden on medical staff

Toray Group began devoting major resources to developing pharmaceuticals and medical devices in the 1970s, and the resulting solutions have helped to improve the level of medical care in medical settings today. These solutions include innovative pharmaceuticals such as FERON™ for treatment of viral hepatitis and malignant tumors, DORNER™ for treatment of peripheral vascular disease, and REMITCH™, an oral antipruritus drug. They also include medical devices such as Inoue-Balloon catheters for patients with mitral stenosis, FILTRYZER™ hemodialyzers, and TORAYMYXIN™ blood purification devices for sepsis treatment.

Toray Group has long been a proponent of preemptive medicine, which has risen to prominence as an area of medical care. Solutions in this area include the development of DNA chips and protein analysis chips used in R&D for early detection and prediction of the nature of diseases.

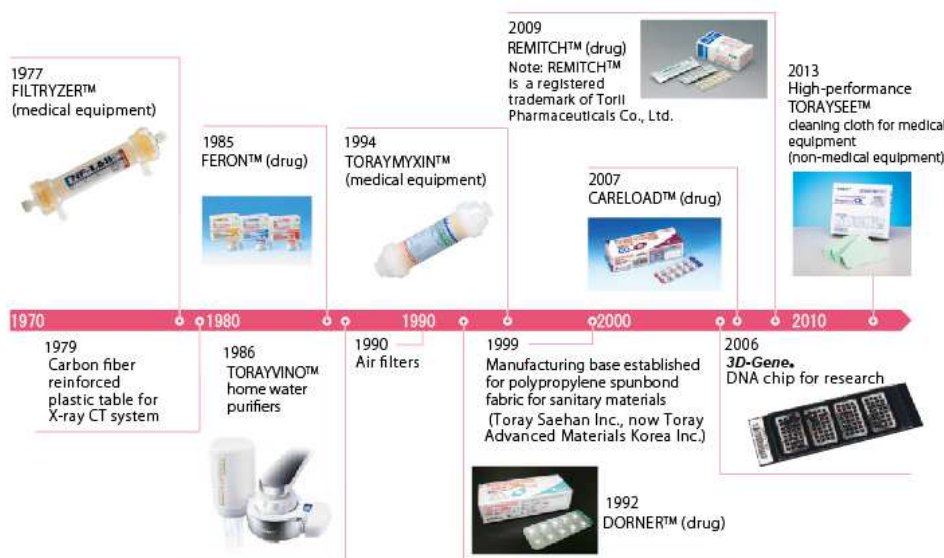
Toray Group is working to reduce the burden on not only medical staff but also patients. The Group supplies high-performance fibers that stand up to repeated washing and are antibacterial, sweat absorbing, stretchy, opaque, static-free, dirt resistant, quick drying, and odor resistant. These qualities lend themselves to use by medical practitioners who demand clean and comfortable work garments, and patients who require comfortable garments post-surgery. Toray Group also supplies tables for CT scanners that are made from carbon fiber composite materials that are rigid, lightweight, and highly permeable to X-rays, enabling high-definition images to be obtained using less radiation and reducing exposure for patients. The Group is exploring new ways to leverage its advanced materials for supplies and systems used in hospital settings, and for advanced analysis devices and components.

### Contributing to health maintenance and longevity

TORAYVINO™ home water purifiers were first introduced in 1986 and have become Toray's leading consumer product contributing to health maintenance and longevity. TORAYVINO™ reflects years of ongoing development to improve performance and function, providing delicious filtered water in the home while retaining beneficial minerals. Other leading Toray home products include air purifiers that use non-woven cloth made from special ultra-fine fibers. The Group is also bringing advanced materials to IT in order to develop innovative products such as bio-sensing clothing, working to supply new solutions to meet the growing emphasis on health today.

Toray Group will realize life innovation solutions from a comprehensive perspective that encompasses fields from pharmaceuticals and medical care through the management, maintenance, and enhancement of health, by leveraging its platform of advanced materials and processing technology. The Group will make the most of its full resources and accumulated experience to realize these solutions.

### Timeline for Toray's Life Innovation products



### Related Information

> [Life Innovation Business Expansion Project](#)



## Carbon Fiber Reinforced Plastics

Improving the quality of medical care

Reducing burden on medical staff

**Not Only Lightweight and Durable, But Also Highly Permeable to X-Rays**



### Reducing patient exposure and facilitating accurate X-ray imaging

Carbon fiber reinforced plastics (CFRP) are strong, rigid, and lightweight materials that are used extensively in common applications such as aircraft, automobiles, and sporting goods. CFRP is also an important material used in medical X-ray imaging and analysis equipment such as CT scanners and X-ray machines.

The tables which patients lie on to receive X-ray exams were once made of wood or plastic. Toray worked in cooperation with a leading medical devices company to develop a CFRP table in the late 1970s, and has now accumulated more than 30 years of experience supplying CFRP tables.

Low-density materials offer better permeability to X-rays. CFRP is rigid and lightweight, making for a table that is also less dense. A CFRP table enables more X-rays to reach the detectors below, so that imaging resolution is improved and X-ray exposure reduced to significantly lower the patient exposure to radiation compared with wood or plastic tables.

Toray is engaged in ongoing development of carbon fiber textiles and prepreg designed to minimize X-ray blockage, and continues to develop mass production molding techniques. These development efforts are supporting medical settings around the world by providing high added-value products and services.

### How X-ray CT machines work, and the advantages of CFRP tables

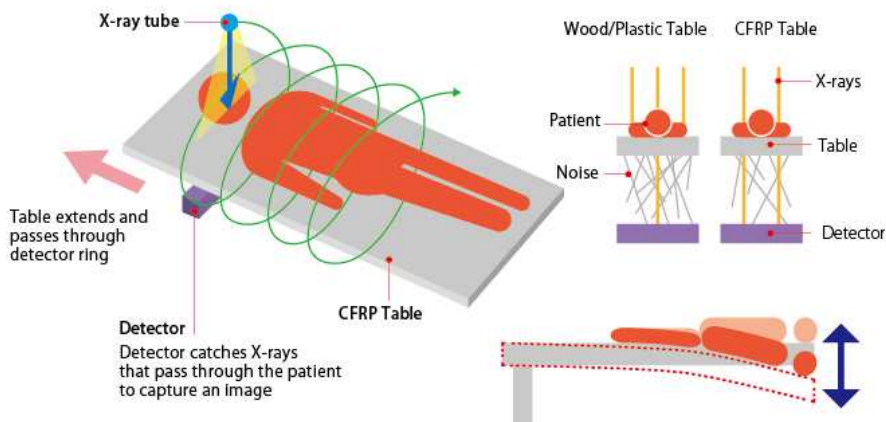
#### CFRP tables reduce radiation exposures and enhance imaging

##### Highly permeable to X-rays

CFRP tables are highly permeable to X-rays, offering roughly double the pass-through of wood tables and five times that of acrylic plastic tables. Patient exposure is reduced since less X-ray exposure is needed to capture accurate imaging for diagnosis. Less X-ray exposure also reduces noise (scattered radiation), allowing finer imaging.

##### Rigid

CFRP tables are highly rigid and do not flex when they are extended into the ring of detectors. This enables detailed and accurate imaging without loss of imaging resolution.



### Voice

Tables are an important part of X-ray machines that help us to see what is happening inside the human body. Any presence of foreign material in the table can lead to misdiagnosis, so the tables have a direct impact on medical settings.

Toray supplies CFRP tables for X-ray machines to leading medical device manufacturers around the world, who trust our development and quality. Leveraging our expertise in carbon fiber manufacturing, we will apply our proprietary

knowledge to make tables that make the most of the benefits of carbon fiber to support the development of medical devices that put the patient first.



Masaru Hamada  
Advanced Composites Section  
No. 2, Advanced Composites  
Marketing 1st Department, Toray  
Industries, Inc.

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**Blood Purifiers**

Improving the quality of medical care

**More than 200,000 Bacterial Toxin Removal Cartridges Sold Since 1994**

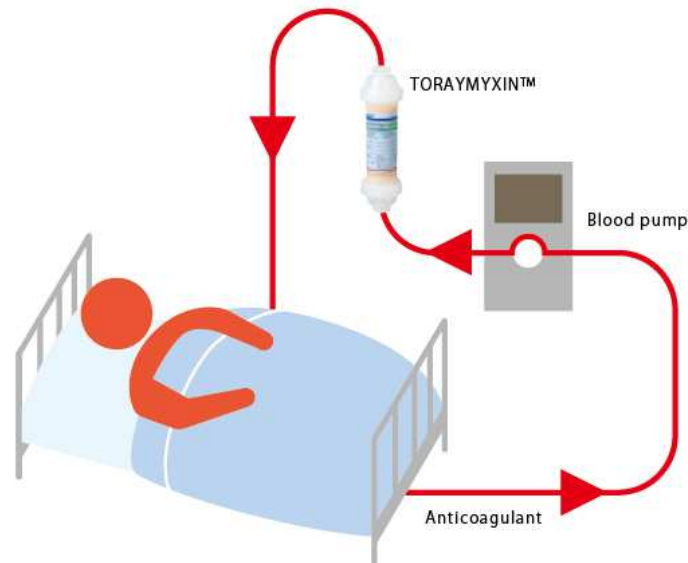


**Compact TORAYMYXIN™ cartridges released in 2012**

Sepsis is a life-threatening complication characterized by systematic inflammation and organ dysfunction caused by bacterial infection. Toray Group manufactures and markets TORAYMYXIN™ cartridges that help to improve patients' clinical condition by removing sepsis-causing bacterial toxins from the blood. TORAYMYXIN™ cartridges are the only medical device in Japan that is covered under nation health insurance to treat septic shock, a condition that lowers blood pressure and causes disturbances of consciousness. The cartridges are mainly used at emergency and intensive care units.

TORAYMYXIN™ cartridges are filled with composite fibers (polystyrene-derived fibers) that are bound to Polymyxin B antibiotics, to effectively catch and remove bacterial toxins. More than 200,000 units have been used since they were originally introduced in 1994, saving many lives in the process.

In 2011, Toray introduced a compact TORAYMYXIN™ cartridge (type 01R) that is used for premature infants and newborns, who are difficult to treat because of their physical underdevelopment, hoping to save the newest little lives.



**Voice**

TORAYMYXIN™ is the only sepsis-treating device in Japan and has become more and more widely used abroad. This device saves lives that could not have otherwise been saved, and we are proud to be involved with this business.



Emergency and Critical Care Medicine Section,  
Medical Devices Department, Toray Industries, Inc.

## High-Performance Materials

Contributing to health maintenance and longevity

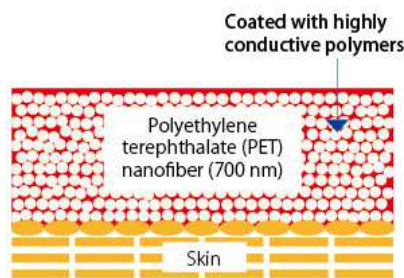
### Wearable Health Solution



## Biosensing fabric detects heart rate and cardiographic waveforms

Toray collaborated with Nippon Telegraph and Telephone Corporation (NTT) to develop hitoe™ biosensing fabric that measures heart rate and cardiographic waveforms when it is worn. hitoe™ is made from advanced nanofibers that are specially coated with highly conductive polymer resin. The cloth is highly sensitive to biosignals and offers excellent durability, breathability, and skin-hugging fit. Biosensing clothing made from hitoe™ can be worn every day to easily monitor bioinformation such as heart rate and cardiographic waveforms. NTT DoCoMo Inc. plans to release clothing products made from hitoe™ along with smartphone-based services sometime in 2014.

Note: hitoe™ is non-medical equipment.



Tiny nanofibers measuring just 1/100th the diameter of a human hair are coated with highly conductive polymers. The flexibility of the nanofibers gives the fabric a skin-hugging fit for reliable biosensing.

## Smartphone-based biosensing system using hitoe™

### Continuous heart rate and cardiographic waveform monitoring system

Portable monitor paired with biosensing clothing made from hitoe™. Cardiographic waveform data is relayed wirelessly to a smartphone.

Displays real-time heart rate and cardiographic waveform data



## Voice

**Shingo Tsukada**  
Senior Distinguished Researcher, Molecular and Bio Science Research Group, Material Science Laboratory, NTT Basic Research Laboratories, Nippon Telegraph and Telephone Corporation

hitoe™ is a soft bioelectrode fabric that feels softer against the skin than conventional products. It does not cause rashes and can be easily worn for monitoring. The comfortable feel of hitoe™ makes it easy to wear for a long time. I hope it will contribute to the early detection of



**Takashi Teshigawara**  
Manager, Tokyo Uniform Section, Uniform & Advanced Textiles Department, Toray Industries, Inc.

Toray's collaboration with NTT realized the development of biosensing clothing that can easily monitor heart rate and cardiographic waveforms in everyday wear, bringing health management to the public. We hope to develop clothing using hitoe™ that improves the health of people around the world.



Joint press conference by Toray, NTT, and NTT DoCoMo on January 30, 2014.



**DNA Chips**

Improving the quality of medical care

Reducing burden on medical staff

**Gene Analysis to Aid Early Detection**



3D-Gene®

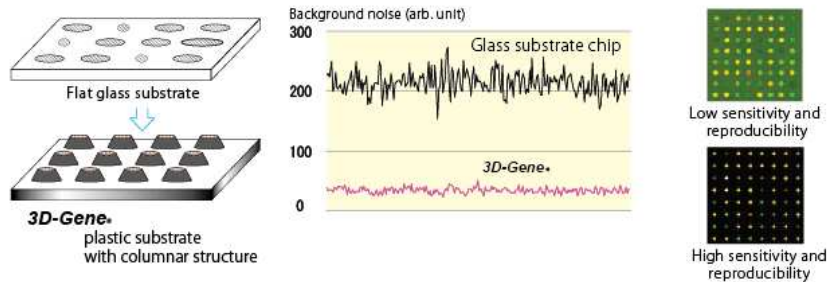
**3D-Gene® highly sensitive DNA chips developed by Toray**

A DNA chip, also called a DNA microarray, is an analytical tool for expressed genes contained in human and animal tissue and blood. Many DNA fragments are densely placed on a resin or glass substrate to exhaustively analyze several tens of thousands of genes at once. The DNA chips are used in a variety of research fields.

Toray is developing new biotools that combine nanotechnology, such as for polymer materials and surface modification, with biotechnology developed for pharmaceuticals and medical care. One result is the development of high-sensitivity 3D-Gene® DNA chips used in research, that offer excellent reproducibility and quantitative data.

The most common use for DNA chips is to analyze DNA fragments immobilized on a glass substrate, by detecting optical signals through reactions of fluorescent labeled genes taken from a specimen. Toray developed an innovative plastic substrate with a fine columnar structure and perfected proprietary technology that reduces background noise. These innovations increase gene detection sensitivity by about 100-fold.

**Features of 3D-Gene®**

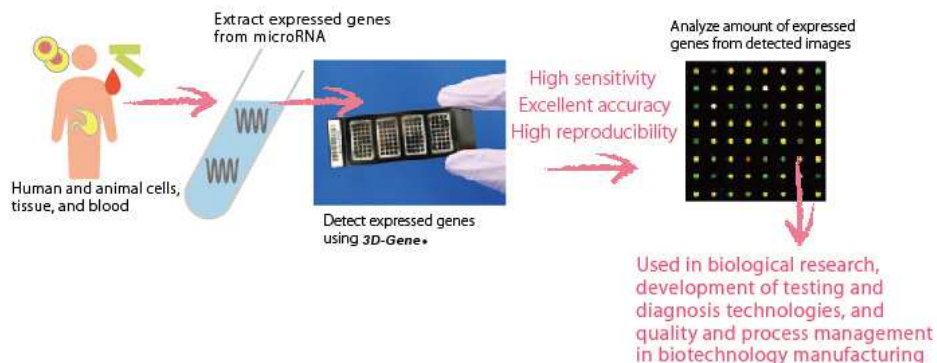


3D-Gene® is used in academic settings and by pharmaceutical companies in their research, such as for detecting biomarkers that indicate a disease condition and to aid in early detection of disease. Toray has developed a simple and accurate method for detecting microRNA, whose relationship to disease is being increasingly studied today. Toray offers total solutions encompassing DNA chips, reagents optimized for analysis, detection equipment, and contract analysis services.

3D-Gene® is already widely used in Japan for research in pursuit of personalized medicine and preemptive medicine. In the U.K., the Cambridge Genomic Service of Cambridge University has been conducting gene analysis using 3D-Gene® since December 2013. Toray has high hopes for this powerful biotool developed in Japan to help people around the world.

Note: 3D-Gene® is not a diagnostic pharmaceutical or diagnostic medical device.

**Expressed gene analysis using 3D-Gene®**





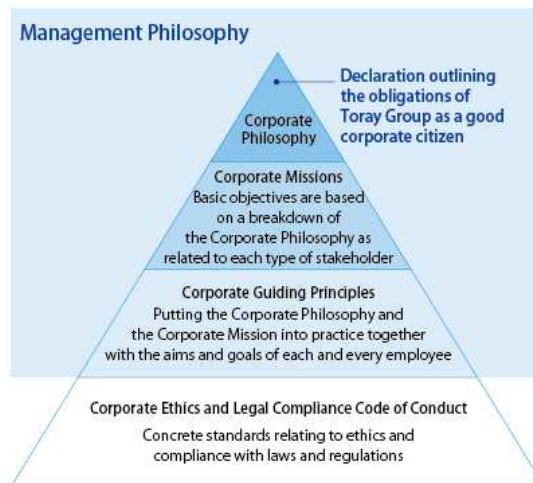


## Toray Group's Corporate Social Responsibility

### Toray Group's Management Philosophy and CSR

Toray Group is committed to sustainable social development and corporate growth, by improving its ability to respond to social issues and change. Under a Corporate Philosophy of “contributing to society through creation of new value with innovative ideas, technologies and products,” the Group has from the beginning pledged to have a positive impact on society through its business, realizing its corporate social responsibility and management philosophy (Fig. 1) at the same time. Toray Group’s Corporate Ethics and Legal Compliance Code of Conduct supports this management philosophy, outlining concrete rules of conduct for every employee to follow.

Figure 1 Management Philosophy and Code of Conduct



#### Related Information

- > [Corporate Philosophy](#)
- > [Corporate Missions](#)
- > [Corporate Guiding Principles](#)

### Corporate Ethics and Legal Compliance Code of Conduct (Adopted October 2003)

**1. Contribute to society**

As a company aspiring to be a New Value Creator, provide trustworthy products and services that satisfy our customers.

**2. Communicate with society**

Communicate with the various parties associated with the company, including its customers and shareholders as well as members of the local community. Actively and fairly disclose pertinent information about the company.

**3. Behave as a good corporate citizen**

Comply with laws and regulations, respect human rights, and actively contribute to society as a good corporate citizen.

**4. Play an active role in preserving the global environment**

Recognize that playing an active role in preserving the global environment is an important management issue, and strive to coexist with the environment in all corporate activities by conserving energy, reducing emissions and waste, promoting recycling, and so forth.

**5. Prioritize fairness and trust in corporate activities**

Engage in proper trade based on free, fair, and transparent market competition, and conduct corporate activities that earn the deep trust of society.

**6. Comply with national laws and regulations**

Pursue management reform from a global perspective, comply with the respective national laws and regulations in overseas operations, and be

self-disciplined with high ethical standards. Conduct corporate activities with respect to the culture and customs of each country and contribute to the advancement of local communities.

**7. Raise motivation and create a corporate culture that lets employees demonstrate their ability**

Strive to create a corporate environment that allows each and every employee to be motivated to demonstrate their ability, respect individual human rights, character, and personality, and maximize creativity and professionalism.

**8. Break off relations with antisocial forces**

Always work for the good of society, break off relations with antisocial forces that threaten the order and safety of civil society, and take a resolute stand as a unified company.

## Ten Basic Environmental Rules (Adopted January 2000 and revised June 2011)

**1. Prioritize environmental preservation**

We shall comply with all laws, regulations, and agreements in all of our business activities. Taking into consideration biodiversity, we shall place the highest priority on environmental preservation in the manufacture, handling, use, sale, transport, and waste disposal of products.

**2. Prevent global warming**

We shall promote energy conservation and work to reduce our unit energy consumption and our carbon dioxide emissions.

**3. Achieve zero emissions of environmental pollutants**

We shall strive continuously to reduce our emissions with the ultimate goal of achieving zero emissions of hazardous chemical substances and waste materials into the environment.

**4. Use safer chemical substances**

We shall collect, maintain, and provide information on the health and environmental effects of the chemical substances we handle while striving to use safer chemical substances.

**5. Promoting Recycling**

We shall develop recycling technologies for products, containers, and packaging and cooperate with society in promoting the recovery and reuse of such items.

**6. Improve the level of environmental management**

We shall work to maintain and improve the level of our environmental management while working to upgrade our environmental management technology and skills, performing self auditing, and taking other measures.

**7. Contribute to society through environmental improvement technologies and products**

We shall meet the challenge of developing new technologies and shall contribute to society through environmental improvement technologies as well as products that place a low burden on the environment.

**8. Improve the environmental management of our overseas businesses**

In our overseas business activities, we shall place top priority on complying with local laws and regulations, and further, we shall manage those businesses in accordance with the management standards of Toray Group.

**9. Improve employees' environmental awareness**

We shall strive to improve our employees' awareness of environmental issues through environmental education, social activities, internal communications activities, and other means.

**10. Share environmental information with society**

We shall deepen mutual understanding of Toray Group environmental policies and practices by widely publicizing our environmental preservation efforts and their results in environmental reports and other publications directed at local communities, investors, and the media.



## Toray Group's Management Strategies and CSR

For Toray Group to attain sustainable growth, it must fulfill its social responsibilities in all facets of its business activities. Accordingly, every employee and manager is expected to view the Group's business and its operations in every workplace through the lens of social responsibility.

The long-term corporate vision, AP-Growth TORAY 2020, places social responsibility at the center of the Group's management vision, outlining basic principles containing three important elements of it. Under the medium-term management program, Project AP-G 2016, the Group is executing growth strategies to expand business in growth segments and in countries and regions marked by growth. The program also makes it a top management priority for the Group to meet its social responsibilities through safety, accident prevention, and environmental preservation, and through corporate ethics and legal compliance.

Toray Group links management strategy to social responsibility by establishing a specific CSR Road Map to direct the Group's execution of its growth strategy. This shows just how integral social responsibility is to the management philosophy and strategy of Toray Group.

Figure 2 Social Responsibility Integrated with Management Philosophy and Management Strategy

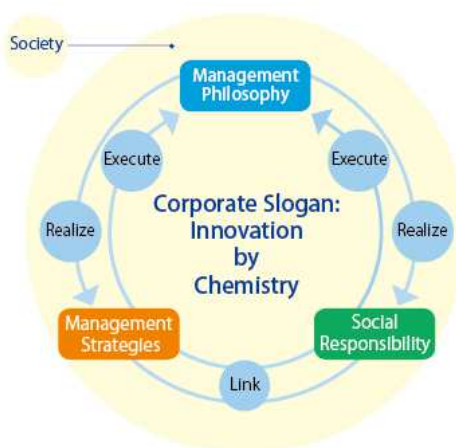
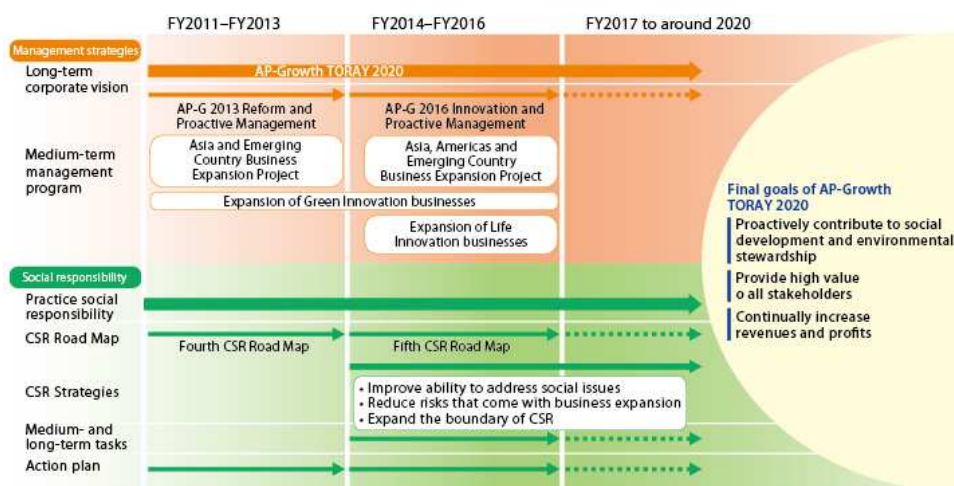


Figure 3 Management Strategies Linked with Social Responsibility



### Related Information

- › [Medium-Term Management Program, Project AP-G 2016](#)

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## Framework for Toray Group's CSR Strategies

### Achieving continued growth by helping to build a more sustainable world—Toray Group's strategic practice of social responsibility

Toray Group established the CSR Committee in 2003, which is regarded as the inaugural year of promoting corporate social responsibility in Japan. Since then, we have outlined three-year CSR road maps and adopted our own CSR Guidelines to facilitate our efforts in this area.

CSR at Toray Group is firstly characterized by the integration of social responsibility with our management philosophy and strategy. Secondly, we create CSR road maps to address the issues laid out in our CSR Guidelines and execute the actions in the road maps under the leadership of our directors. Thirdly, we implement group-wide “CSR Guideline activities” and worksite-specific “CSR line activities” in parallel. Our Fifth CSR Road Map, covering fiscal 2014–2016, outlines specific strategies and medium- and long-term tasks to achieve these strategies, enhancing our efforts to link management strategy and social responsibility.

The modern corporation faces diverse and complex challenges. Toray Group is determined to develop its global business and capitalize on growth opportunities while managing risk, placing the highest management priority on meeting our social responsibilities as a corporation.

As the person in charge of Toray Group's CSR activities, I will do everything I can to see the Toray Group strategically practice social responsibility. By doing so, I am confident that we will achieve continued growth as we help to build a more sustainable world.



Akira Uchida  
Senior Vice President in charge of CSR Activities,  
Toray Industries, Inc.

Toray Group is strategically practicing social responsibility under its Fifth CSR Road Map, which consists of carefully defined CSR strategies, medium- and long-term tasks, and a detailed action plan.

The Group outlines CSR strategies and medium- and long-term tasks based on the final goals of its long-term corporate vision, AP-Growth TORAY 2020.<sup>1</sup> The strategies and medium- and long-term tasks are then broken down into a three-year action plan, which includes the following components.

- CSR Guidelines: Toray Group's original guidelines that categorize social issues to address into 10 themes
- CSR Road Map goals: Three-year targets for each theme in the CSR Guidelines
- Key performance indicators (KPI): Indicators to quantify target achievement and check progress

<sup>1</sup> (1) Proactively contribute to social development and environmental stewardship, (2) provide high value to all stakeholders, and (3) Continually increase revenues and profits

#### CSR Strategies Framework

##### CSR strategies

- 1 Improve ability to address social issues
- 2 Reduce risks that come with business expansion
- 3 Expand the boundary of CSR

##### Medium- and long-term tasks for achieving CSR strategies

- 1 Invigorate CSR activities across Toray Group
- 2 Expand employee education and training
- 3 Strengthen risk management
- 4 Support CSR Initiatives at group companies around the world
- 5 Strengthen CSR Initiatives throughout the supply chain



Action plan under CSR Road Map





## Organizational Structure for Social Responsibility

Toray Group's CSR Committee serves as a group-wide deliberative organization for important issues concerning social responsibility. The committee coordinates six other group-wide committees and assigns tasks along with the themes in CSR Guidelines to the six committees.

Group-wide Committees Responsible for Executing CSR Guidelines		
Organization overseeing CSR activities	CSR Committee	
Themes in the Toray Group CSR Guidelines	Group-wide committees	Subordinate organizations
1. Corporate Governance and Management Transparency	Corporate Ethics Committee	
2. Corporate Ethics and Legal Compliance	Corporate Ethics Committee	Company-Wide Legal Compliance Committee
3. Safety, Accident Prevention, and Environmental Preservation	Safety, Health, and Environment Committee	
4. Product Safety and Quality	Product Safety and Quality Assurance Committee	
5. Risk Management	CSR Committee	Risk Management Committee
6. Communication	Corporate Communications Committee	
7. Contributing Solutions to Social Issues through Business Activities	Global Environment Committee	
8. Human Rights Promotion and Human Resources Development	Corporate Ethics Committee	Human Rights Promotion Committee
9. Facilitating CSR Initiatives Throughout the Supply Chain	CSR Committee	
10. Social Contribution Activities	CSR Committee	

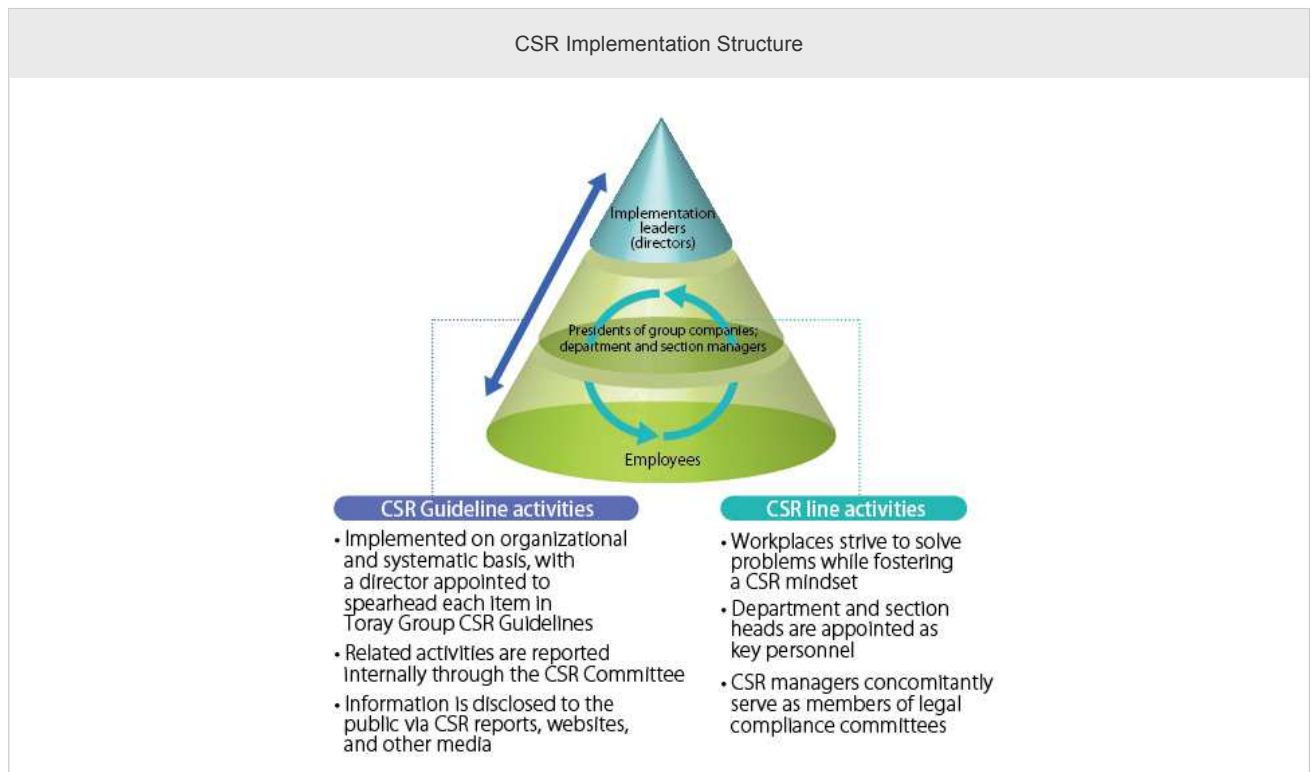


## Toray Group's CSR Activities

Toray Group implements "CSR Guideline activities" and "CSR line activities" in parallel. The former are driven by the entire organization based on the CSR Guidelines, while the latter are pursued by individual divisions in accordance with their own targets.

CSR Guideline activities are implemented by the relevant division under plans led by a director appointed to serve as implementation leader for each respective activity. Activity progress and results are regularly reported to the group-wide CSR Committee. The information is also broadly disclosed to the general public through such media as Toray Group's CSR Report and website on a regular basis.

"CSR line activities" are intended to raise awareness of corporate social responsibility and promote solutions to related issues through voluntary initiatives proposed by any employee at the Group's worksites, led by section and department managers appointed as key personnel. These activities are being implemented at all group companies in Japan, and Toray is expanding the activities to group companies outside the country, tailoring them to suit local circumstances.



## Progress on Key Performance Indicators in Fiscal 2013

Toray Group made steady progress on its goals under the Fourth CSR Road Map that ended in fiscal 2013. However, the Group did not achieve several of the numerical targets specified under its key performance indicators (KPIs). The Group analyzed the reasons why those KPI targets were not achieved and instituted improvements, and is determined to achieve all the targets under the Fifth CSR Road Map.

### Related Information

> [CSR Road Map and Key Performance Indicators](#)

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## Transition from Fourth Road Map to Fifth Road Map

### Success of Fourth Road Map

The Fourth CSR Road Map was launched in fiscal 2011. In three years, the Group accomplished the following goals: implemented life cycle assessment for major products; achieved reduction targets for greenhouse gas emissions and adopted third party verification on greenhouse gas emission data; established a company-wide CSR procurement system; prepared business continuity plans for earthquakes; and improved priority risk controls. The Group also established an inter-departmental working group to address emerging problems such as conflict minerals.

### Development of Fifth CSR Road Map

The Fifth CSR Road Map that went into implementation in fiscal 2014 has the theme, "For the Company," urging employees to do what is best for the company. Building on the Fourth CSR Road Map, it outlines new strategies and medium- and long-term tasks for social responsibility and includes a subsequent action plan for achieving the road map targets.

The CSR Guidelines themes were reorganized to align with the top-level concepts of the Corporate Philosophy, instead of organizing them according to the Corporate Missions as before. The four headings are "value creation"—aligning with the Corporate Philosophy of contributing to society through the Group's business—and the general headings of "environment," "social initiatives," and "governance." This website is also organized under these headings.

To reflect the changing landscape of corporate social responsibility, the Company revised some of the previous themes of the CSR Guidelines: "7. Green Innovation Businesses" was changed to "7. Contributing Solutions to Social Issues through Business Activities" and "9. CSR Procurement" was revised to "9. Facilitating CSR Initiatives Throughout the Supply Chain."

#### Related Information

› [Fifth CSR Road Map](#)

#### Reclassification of the Toray Group CSR Guidelines themes in the CSR Road Map

## Fourth CSR Road Map

### For our customers:

To provide new value to our customers through high-quality products and superior services

- Green Innovation Businesses
- Product Safety and Quality
- CSR Procurement

### For Our Employees:

To provide our employees with opportunities for self development in a challenging environment

- Human Rights Promotion and Human Resources Development
- Occupational safety

### For Our Shareholders:

To provide our shareholders with dependable and trustworthy management

- Corporate Governance and Management Transparency
- Corporate Ethics and Legal Compliance
- Risk Management

### For Society:

To establish ties and developing mutual trust as a responsible corporate citizen

- Communication
- Social Contribution Activities
- Safety and the Environment

## Fifth CSR Road Map

### Value Creation

- Facilitating CSR Initiatives Throughout the Supply Chain

### Governance

- Corporate Governance and Management Transparency
- Corporate Ethics and Legal Compliance
- Risk Management

### Social Initiatives

- Human Rights Promotion and Human Resources Development
- Product Safety and Quality
- Facilitating CSR Initiatives Throughout the Supply Chain
- Communication
- Social Contribution Activities

### Environment

- Safety, Accident Prevention, and Environmental Preservation



## CSR Road Map and Key Performance Indicators (KPI)

**Notes:**

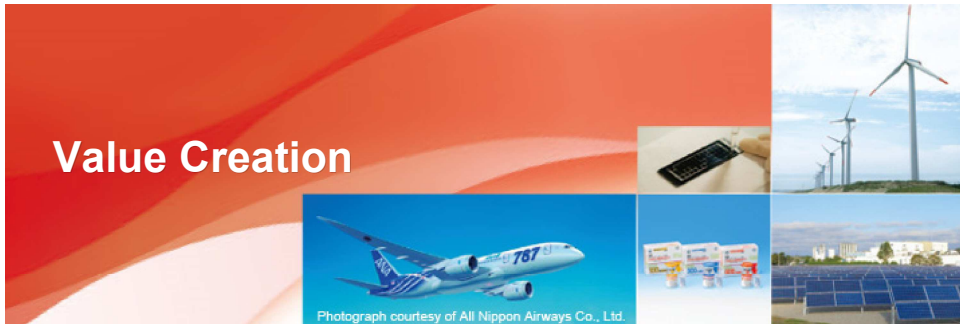
1. While the degree of success is not shown for key performance indicators for which no numerical targets are set, Toray discloses and continues to monitor the results.
2. Names and job titles of implementation leaders are current as of March 31, 2014.

[CSR Road Map and Key Performance Indicators \(KPI\)\(PDF:53KB\)](#)

Corporate Mission	CSR Guidelines	Implementation Leader	CSR Road Map goals	Key performance indicators	Fiscal 2013 targets	Fiscal 2013 Results	Degree of success
For Our Customers To provide new value through high-quality products and superior services	<p><b>1. Product Safety and Quality</b> Improve safety and quality of products by adhering to strict requirements, especially for product safety, and further improve and further enhance information security.</p> <p><b>2. Customer Satisfaction</b> Improve customer satisfaction through the active exchange of information with customers and suppliers, and enhance customer loyalty and retention.</p>	<p>Kenji Ito Senior Vice President, General Manager of Industrial Property Division, Information Systems, Quality, Global Environment, Business Planning, Planning, Operations, Technology Center, Innovation &amp; Energy Center, Toray Industries, Inc.</p>	<p>1. Provide structural materials and accessories that contribute to saving energy costs.</p> <p>2. Reduce the life cycle assessment for product, process, and materials to 50% reduction throughout product life cycle.</p>	<p>1. Green Investment Revenue ratio (Toray Group)</p> <p>2. Number of meetings by the Global Environment Committee (Toray)</p>	<p>1. 13% sales ratio</p> <p>2. Over 100 times</p>	<p>1. 13% sales ratio</p> <p>2. 104 times</p>	<p>○</p>
For Our Employees To provide an environment for all employees to contribute to a sustainable society	<p><b>Human Rights Protection and Human Resources</b> Improve the safety and health of employees and workers, and provide a safe and sound working environment for all employees.</p> <p><b>2. Fairness, Equal Opportunity, and Environmental Protection</b> Improve the safety and health of employees and workers, and provide a safe and sound working environment for all employees.</p>	<p>Yoshiaki Yoneda Senior Vice President, General Manager of Personnel &amp; Industrial Relations Division, Toray Industries, Inc.</p>	<p>1. Respect human rights by providing discrimination-free work environment.</p> <p>2. Enhance the system for product safety and quality assurance.</p>	<p>1. Number of employees participating in CSR activities (Toray Group)</p> <p>2. Ratio of employees participating in CSR activities (Toray Group)</p>	<p>1. 80% of employees</p> <p>2. 100% of employees</p>	<p>1. 80% of employees</p> <p>2. 100% of employees</p>	<p>○</p> <p>○</p>
For Our Shareholders To provide an environment for all shareholders to contribute to a sustainable society	<p><b>1. Fairness, Equal Opportunity, and Environmental Protection</b> Improve the safety and health of employees and workers, and provide a safe and sound working environment for all employees.</p> <p><b>2. Fairness, Equal Opportunity, and Environmental Protection</b> Improve the safety and health of employees and workers, and provide a safe and sound working environment for all employees.</p>	<p>Yoshiaki Yoneda Senior Vice President, General Manager of Personnel &amp; Industrial Relations Division, Toray Industries, Inc.</p>	<p>1. Respect human rights by providing discrimination-free work environment.</p> <p>2. Enhance the system for product safety and quality assurance.</p>	<p>1. Number of employees participating in CSR activities (Toray Group)</p> <p>2. Ratio of employees participating in CSR activities (Toray Group)</p>	<p>1. 80% of employees</p> <p>2. 100% of employees</p>	<p>1. 80% of employees</p> <p>2. 100% of employees</p>	<p>○</p> <p>○</p>
For Our Stakeholders To provide an environment for all stakeholders to contribute to a sustainable society	<p><b>1. Fairness, Equal Opportunity, and Environmental Protection</b> Improve the safety and health of employees and workers, and provide a safe and sound working environment for all employees.</p> <p><b>2. Fairness, Equal Opportunity, and Environmental Protection</b> Improve the safety and health of employees and workers, and provide a safe and sound working environment for all employees.</p>	<p>Yoshiaki Yoneda Senior Vice President, General Manager of Personnel &amp; Industrial Relations Division, Toray Industries, Inc.</p>	<p>1. Respect human rights by providing discrimination-free work environment.</p> <p>2. Enhance the system for product safety and quality assurance.</p>	<p>1. Number of employees participating in CSR activities (Toray Group)</p> <p>2. Ratio of employees participating in CSR activities (Toray Group)</p>	<p>1. 80% of employees</p> <p>2. 100% of employees</p>	<p>1. 80% of employees</p> <p>2. 100% of employees</p>	<p>○</p> <p>○</p>

The degree of success is defined as follows: ○ means the goal was fully met; △ means 50% or more of the target was achieved; × means less than 50% of the target was achieved; and N.A. means no targets were specified for the fiscal year under review.

[HOME](#) • [Social Responsibility](#) • [Value Creation](#)



The materials from which all products are made have the power to fundamentally change the world. Toray Group is committed to leading the way in technological innovation and having a positive social impact by developing advanced technologies and new materials that can be used in the growth sectors of the global environment, medical care, and health.

**Contributing Solutions to Social Issues through Business Activities**

Toray Group provides solutions from a global perspective, seeking to address global-scale environmental issues such as climate change and resource depletion as well as social issues relating to health and medical care.

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## Contributing Solutions to Social Issues through Business Activities

Toray Group provides solutions from a global perspective, seeking to address global-scale environmental issues such as climate change and resource depletion as well as social issues relating to health and medical care.

### Management

Toray Group's medium-term management program, Project AP-G 2016, includes the Green Innovation Business Expansion Project and the Life Innovation Business Expansion Project. These group-wide initiatives to expand business in growth segments are under the direct leadership of the president.

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## Green Innovation Business Expansion Project

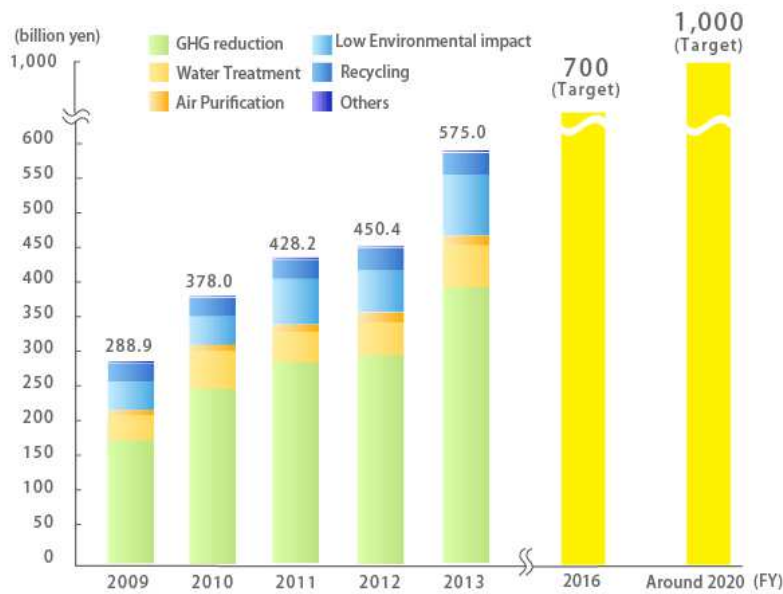
Toray Group has been supplying products and materials that help to conserve the global environment for years. In fiscal 2011, the Group launched the Green Innovation Business Expansion Project to further strengthen businesses that help address today's increasingly challenging global environmental issues. Due to these efforts, net sales from Green Innovation products increased to 575 billion yen in fiscal 2013, surpassing the target of 500 billion yen for the year. Launched in fiscal 2014, the medium-term management program, Project AP-G 2016, sets a target for net sales from Green Innovation products of 700 billion yen by fiscal 2016. Also, Green Innovation products sold in fiscal 2013 accounted for a 38 million ton annual reduction of CO<sub>2</sub> emissions.<sup>1</sup>

<sup>1</sup> Calculated CO<sub>2</sub> emissions reduction arising from principal Green Innovation products, based on Toray's life cycle assessment analysis

### Green Innovation Business Targets and Fiscal 2013 Results

- Target 1** Sales of Green Innovation businesses  
1 trillion yen by around 2020
- Target 2** CO<sub>2</sub> emissions reduction due to adoption of Green Innovation products  
200 million tons annually around 2020

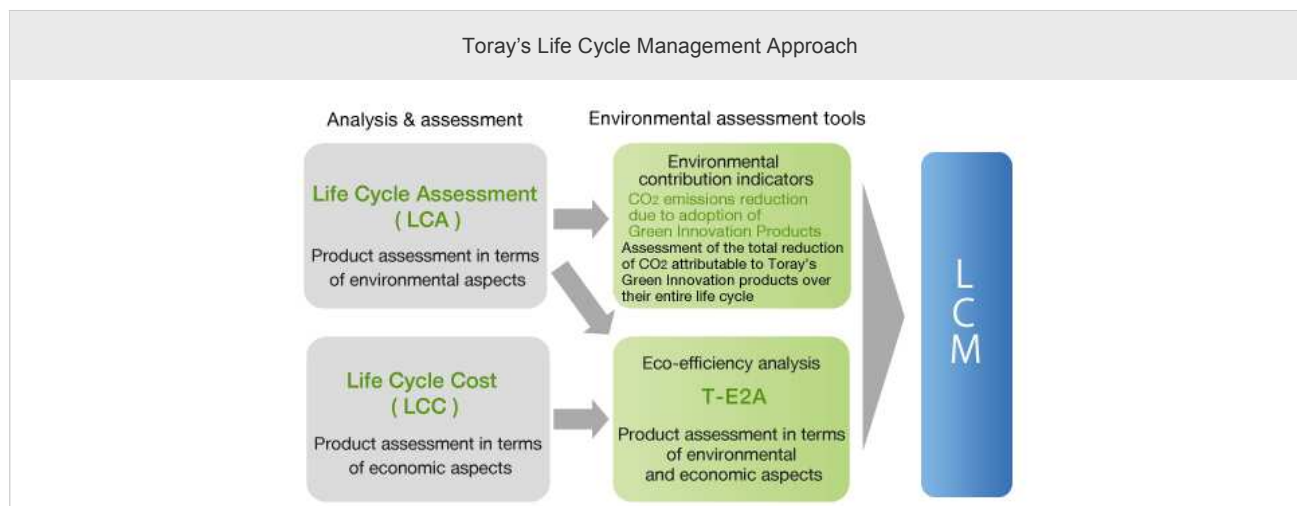
Sales of Green Innovation Businesses (Toray Group)



## Promoting Life Cycle Management

Toray Group implements environmentally responsible management considering the entire produce life cycle. The Group considers the entire life cycle of products and services in all business activities with the aim of reducing its environmental impact while raising its corporate and social value. It is the foundation of Toray's Green Innovation Businesses. To implement life cycle management, Toray Group has adopted LCA<sup>1</sup> methods and the Toray Eco-Efficiency Analysis (T-E2A) tool,<sup>2</sup> and is working to entrench and promote them throughout its business activities.

- 1 Life Cycle Assessment is a method for quantitatively assessing the resources that have gone into a product and the impact the product
- 2 T-E2A is an environmental analysis tool developed by Toray. It produces a map of multiple products plotted along the axes of environmental impact and economic performance, enabling users to select the most environmentally friendly and economical products.



In June 2012, Toray and the Japan Environmental Management Association for Industry announced that they had fully integrated the T-E2A tool and Multiple Interface Life Cycle Assessment (MiLCA) software, developed and utilized by Toray and the association, respectively. Reporting on this progress, in March 2013 Toray gave a keynote speech at the 8th Meeting of the Institute of Life Cycle Assessment, Japan, and won praise for these efforts from participants.

### Spotlight

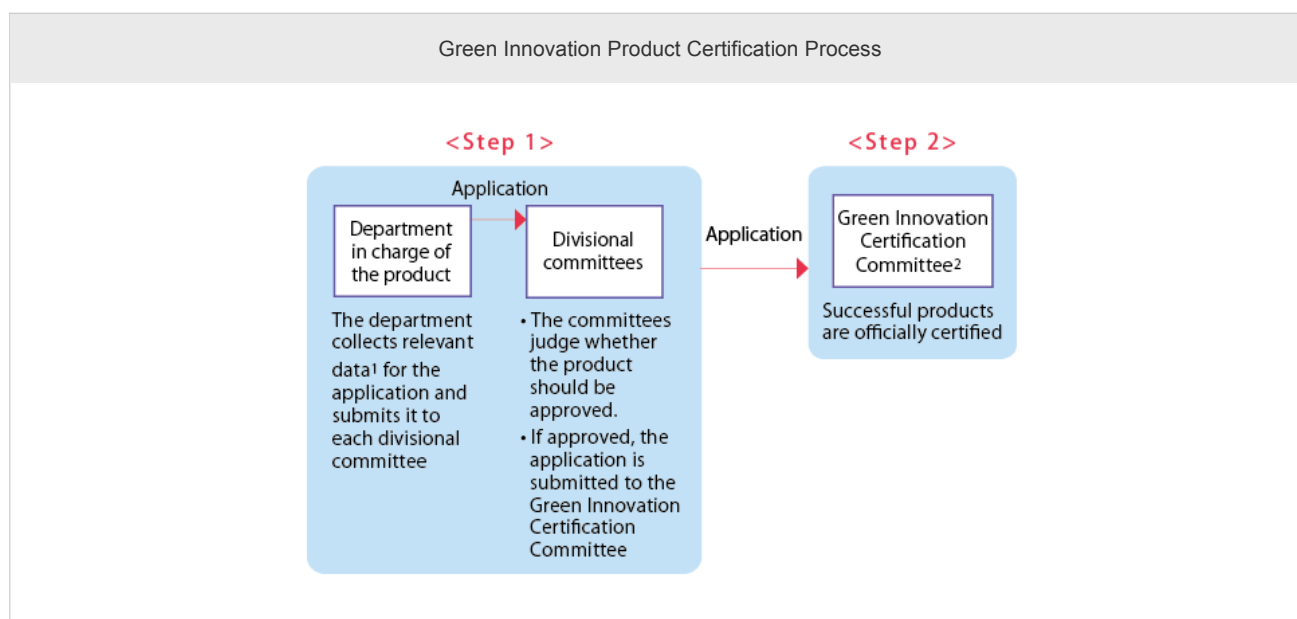
#### International Guidelines for Calculating Avoided CO<sub>2</sub> Emissions

The International Council of Chemical Associations (ICCA) and World Business Council for Sustainable Development (WBCSD) released *Addressing the Avoided Emissions Challenge* in October 2013. Representatives from Toray and the Japan Chemical Industry Association (JCIA) played a key role as working group members to create it. The report includes international guidelines on accounting for avoided emissions, which evolved from Japanese guidelines that were originally released in February 2012 and were later adapted for international use. The international guidelines encapsulate the fundamental concepts of life cycle management as practiced by Toray, influencing how avoided CO<sub>2</sub> emissions are calculated.



## Approach to Green Innovation Product Sector

The following diagram outlines the Toray Group process and procedures for certifying Green Innovation products. Products are subjected to a two-stage screening process conducted by the divisional committees of group companies and by the group-wide Green Innovation Certification Committee. Those able to demonstrate objective evidence of effectiveness are certified as Green Innovation products.



<sup>1</sup> This includes LCA-related data, T-E2A data, and estimates of CO<sub>2</sub> reductions attributable to the product.

<sup>2</sup> Comprised of members of Toray's Global Environment Business Strategic Planning Department, Marketing Planning Department, and Technology Center Planning Department, as well as outside experts when necessary.

## Fiscal 2013 Highlights

### Expanding into Large Tow Carbon Fiber

Toray recently acquired total ownership of Zoltek Companies, Inc., a US-based manufacture of large tow carbon fiber, making it into a subsidiary. The acquisition expands the Toray product lineup to include large tow carbon fiber, building on the regular tow carbon fiber which Toray has specialized in thus far. Toray will use the acquisition to strengthen its competitive position and pursue business in a broad range of applications, particularly in the areas of carbon fiber applications for the automotive sector and sustainable wind power generation. Toray is committed to having a positive impact on the global environment by expanding its Green Innovation businesses.

### ECODEAR™ PET Plant-Based Polyester Fibers

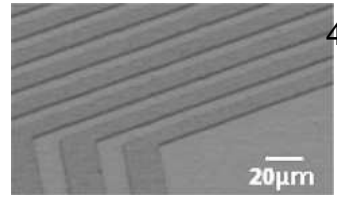
Toray ECODEAR™ PET polyester fiber contains approximately 30% plant-based content and is made by polymerizing and spinning molasses-based ethylene glycol and petroleum-based terphthalic acid. ECODEAR™ meets the BIO-PET criteria newly issued by Japan's Ministry of Environment under the Law on Green Purchasing. In fiscal 2013, ECODEAR™ PET was incorporated into exercise clothing and work uniforms, as well as staff clothing for the 2014 Tokyo Marathon.



### RAYBRID™ Photosensitive Conductive Paste

RAYBRID™ is a coating material dispersed with inorganic particles to imbue various properties to photosensitive resins, utilizing proprietary resin engineering and dispersion technology. The paste makes it possible to form thick and detailed patterns that are not achievable using conventional screen printing, and it is rapidly being adopted for

routing wiring in touchscreen panels and other applications. RAYBRID™ eliminates the need for vacuum equipment in conventional processes used to form detailed patterning, which lowers costs and conserves energy.



Detailed patterning formed using RAYBRID™ photodefinable paste (20 µm width and spacing, respectively)

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## Promoting Recycling Initiatives

As a manufacturer of a wide range of materials, Toray Group is promoting various recycling initiatives that ensure that the earth's precious resources are efficiently utilized.

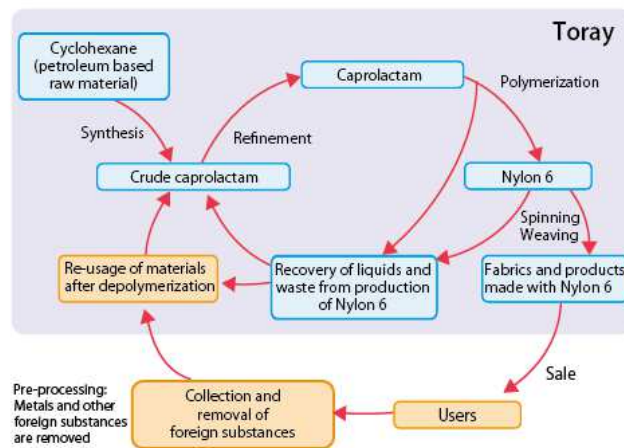
### Recycling Activity Principles (adopted in March 2004)

1. We shall design, produce, and sell products that reduce our impact on the environment.
2. We shall purchase and use materials and products which will help reduce our impact on the environment.
3. We shall disclose information related to recycling programs and recycled goods.
4. We shall voluntarily cooperate with customers to recycle or otherwise appropriately dispose of our products.

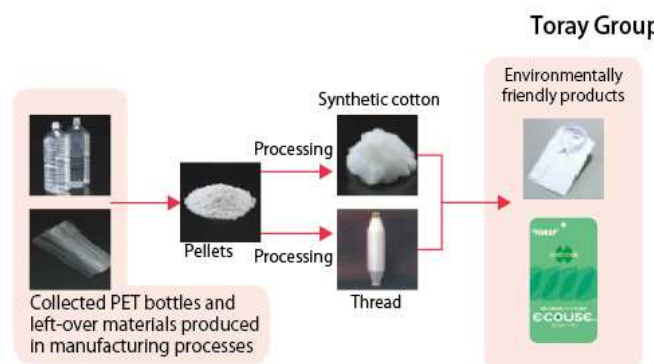
### Fiber and Textile Recycling

Pursuing recycling of fibers and textiles, Toray Group has developed two brands—CYCLEAD™ and ECOUSE™—of Nylon 6 and polyester fibers that are produced using recycled materials.

#### Collection and Circulation Type Recycling with CYCLEAD™ Fabric made from recycled fibers recovered from disposed nylon products

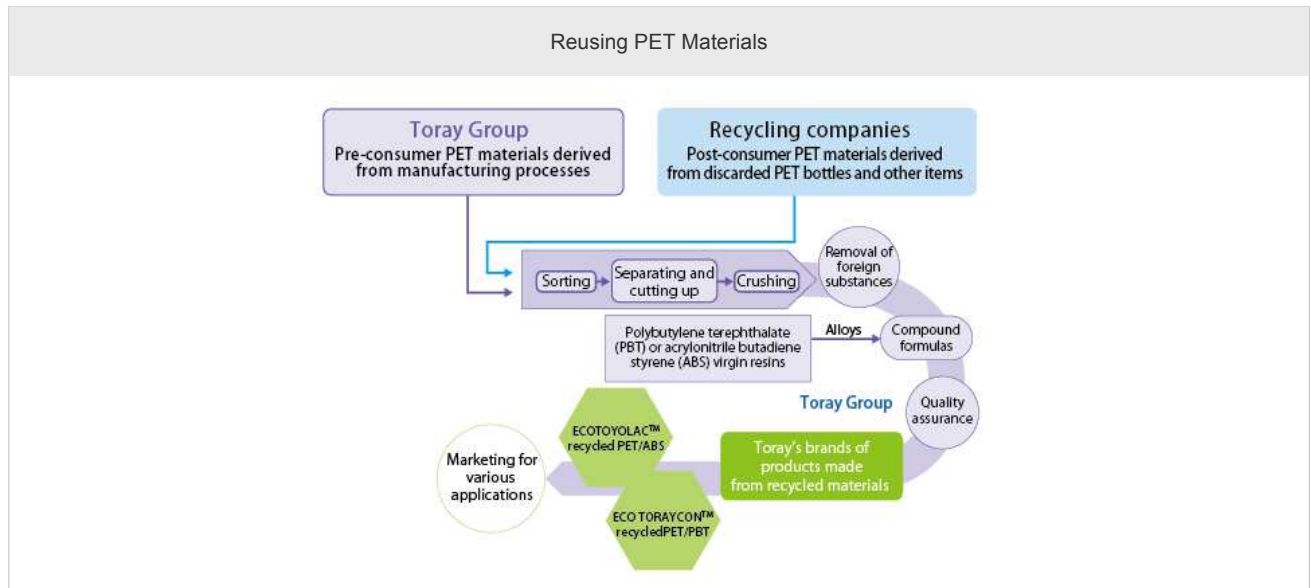


#### Regeneration Type Recycling with ECOUSE™ Fabric made from recycled PET bottles for uniforms and functional sportswear



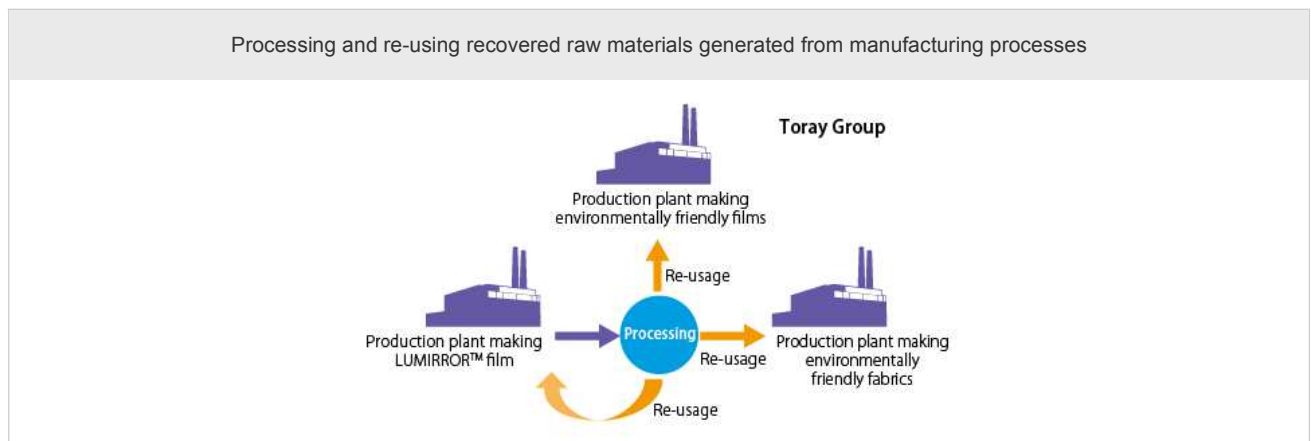
The fans inside home air conditioners are designated for recycling under Japan's Home Appliance Recycling Law. In addition to practicing closed-loop recycling, Toray is diversifying its procurement sources to address growing market needs.

Toray actively engages in pre-consumer recycling, by reusing byproducts from internal manufacturing processes such as film scraps and fiber scraps. Post-consumer recycling is practiced using PET bottle scraps and computer plastic scraps, proactively adopting the Electronic Products Environmental Assessment Tools (EPEAT).



Film Recycling

Toray is recovering and processing raw materials used to make its LUMIRROR™ optical-use PET film and re-using them to produce environmentally friendly films and fabric products.



Carbon Fiber Recycling

Carbon fiber is an advanced material that can contribute to solving global environmental issues, and its applications are expanding in the transportation, energy, and other industries. Recently, recycling of carbon fiber and carbon fiber reinforced plastic (CFRP) is in the spotlight.

In this context, Toray, Toho Tenax Co., Ltd., and Mitsubishi Rayon Co., Ltd. have established a Consortium for Carbon Fiber Recycling Technology Development through a joint investment. The consortium has taken over a pilot recycling plant in the city of Omuta, Fukuoka Prefecture, from the Japan Carbon Fiber Manufacturers Association, and is proceeding to develop recycling technologies for future industrial use.

## Life Innovation Business Expansion Project

In addition to the existing Green Innovation Business Expansion Project, Toray Group launched the Life Innovation Business Expansion Project in April 2014 to address social issues in the fields of medical care and health. The project leverages the Group's core and elemental technologies and business platform strengths. In addition to expanding its pharmaceutical and medical products businesses, the Group is working in unison to expand applications of Toray's advanced materials to Life Innovation products.

### Life Innovation Products

Life Innovation products improve the quality of medical care, reduce the burden on medical staff, and contribute to health maintenance and longevity. These products are grouped into the following categories each covered by separate guidelines.

#### Product Definitions and Guidelines

##### Improving the quality of medical care and reducing burden on medical staff

- Products used in medical treatment
  - Pharmaceuticals, therapeutic devices
  - Materials/components related to preparation of therapeutic agents
- Products used in medical testing and diagnosis
  - Testing devices and diagnostic systems
- Supplies for hospitals
  - Functional, special-grade products
- Other
  - Analysis services, manufacturing equipment/facilities

##### Contributing to health maintenance and longevity

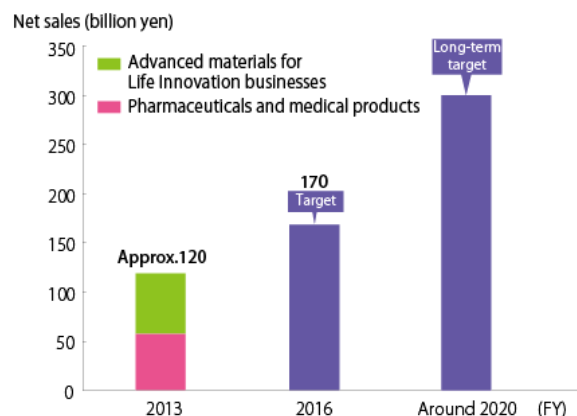
- Products that improve quality of life for the elderly, persons with disabilities, and patients
- Products that prevent diseases and disorders
- Nursing care products

Note: Includes materials and components used in the above products

### Life Innovation Business Target and Fiscal 2013 Results

**Target** Net sales from Life Innovation products  
170 billion yen by fiscal 2016

Sales of Life Innovation Businesses (Toray Group)







## Initiatives for Life Innovation Products

Toray Group supplies a variety of Life Innovation products and focuses on research and technology development to develop new products.

### Fiscal 2013 Highlights

#### hitoe™ Wearable Sensor Fabric

Toray developed hitoe™ sensor fabric, which is made from advanced nanofibers that are specially coated with highly conductive polymer resin. The cloth is highly sensitive to biomedical signals and offers excellent durability, skin-hugging fit, and breathability. Biosensing clothes made from hitoe™ fabric can be worn every day to easily monitor bioinformation such as heart rate and cardiographic waveforms.

#### 3D-Gene® DNA Chips

In Europe, Toray launched the marketing of 3D-Gene® DNA chips for research applications involving reagents and detection equipment that use the chips to detect microRNA in blood samples. These products are used to detect biomarkers that aid in disease testing and diagnosis by research institutions. The Cambridge Genomic Service of Cambridge University in the U.K. employs Toray's analysis systems to offer gene analysis services using 3D-Gene® technology.

#### Related Information

- > [Wearable Health Solution](#)
- > [Gene Analysis to Aid Early Detection](#)

### New Life Innovation Facilities Opened

Toray opened new Life Innovation-related facilities in the Medical Devices Center at the University of Minnesota and at the Kobe Biomedical Innovation Cluster in Hyogo Prefecture. These facilities aim to accelerate the development of medical devices and expand applications of Toray's advanced materials to medical devices. At these Life Innovation-related facilities, Toray will collaborate with medical institutions, clinical laboratories, and medical device companies around the world. Toray engineers were assigned to the two facilities to gather data and conduct planning for outside collaboration.



Signing of agreement with Medical Devices Center at the University of Minnesota



Kobe Biomedical Innovation Cluster

### REMITCH™ Capsules Win Award

REMITCH™ is a world-first selective  $\kappa$  (kappa) opioid receptor agonist drug for hemodialysis patients. In recognition of the development and launch of REMITCH™ 2.5 $\mu$ g capsules, Toray received an Invention Award at the National Commendation for Invention.



[HOME](#) [Social Responsibility](#) [Governance](#)



To maintain the confidence and support of society, Toray Group employs a fair, effective governance structure and holds itself to a high standard of integrity. With the strong leadership of top management, the Group takes a variety of actions to ensure that employees group-wide are fully aware of the importance of corporate ethics and legal compliance. The Group also thoroughly manages risk while confidently taking advantage of growth opportunities.

**Corporate Governance and Management Transparency**

Toray Group is improving its corporate governance system and working to enhance management transparency. Through its CSR activities, the Group aspires to be an excellent company with global reach.

**Corporate Ethics and Legal Compliance**

Maintaining a high level of corporate ethics and legal compliance is one of Toray Group's primary management issues. Accordingly, all members of the Group are expected to carry out operations with a strong awareness of high ethical standards and compliance with the law.

**Risk Management**

Companies face diverse and complex risks, and corporate management involves dealing with these risks effectively. That is why Toray maintains a system of risk management extending from the identification and prevention of potential risks, to mechanisms for major crisis response.

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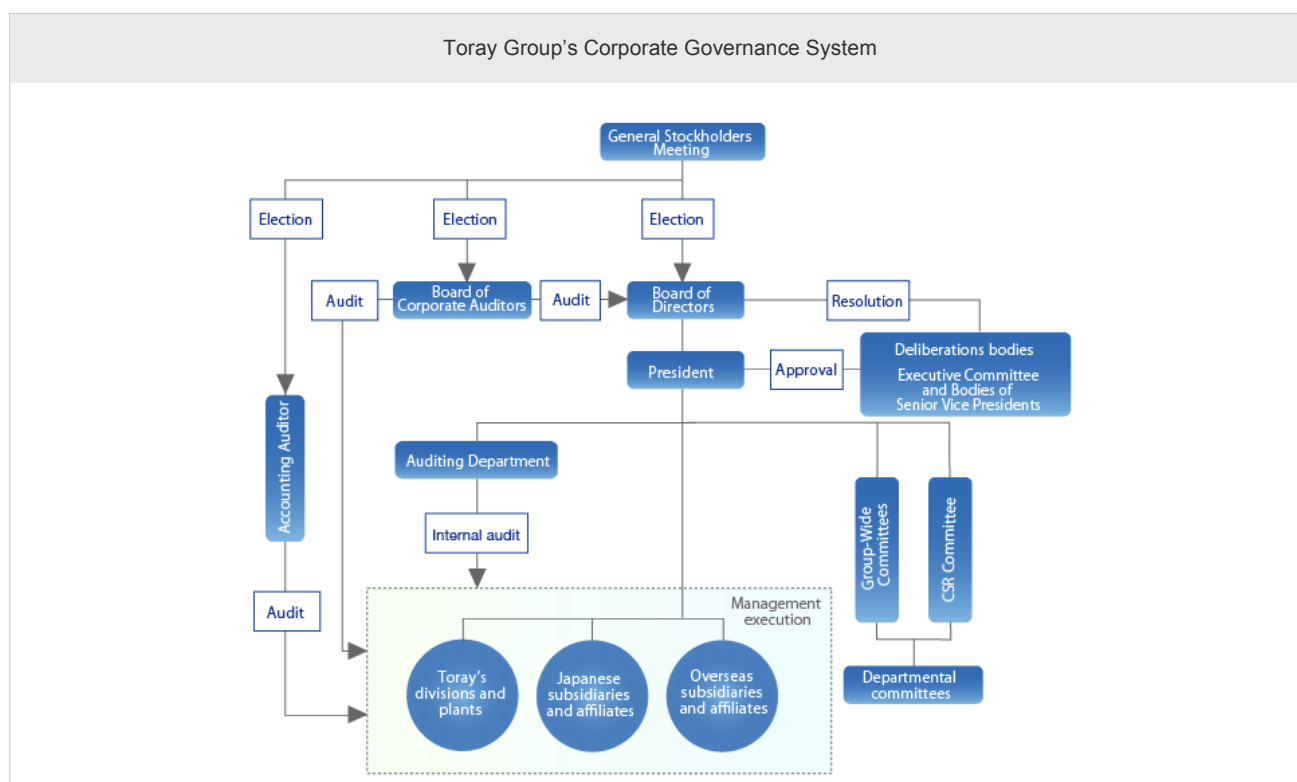


## Corporate Governance and Management Transparency

Toray Group is improving its corporate governance system and working to enhance management transparency. Through its CSR activities, the Group aspires to be an excellent company with global reach.

### Management

Toray Group's basic policy on corporate governance is based on the commitment to "dependable and trustworthy management" included in its Corporate Missions. The Corporate Guiding Principles require the Group to obtain the trust of society and meet its expectations by acting fairly while maintaining high ethical standards and a strong sense of responsibility and maintaining transparency in management. Toray's management structure has been designed to facilitate the realization of these objectives.



### Toray's Management Structure

Toray's first outside director was elected at the Ordinary General Meeting of Stockholders held in June 2014. This move is intended to bring a broader perspective to the supervisory duties of the board and to further increase transparency and objectivity in management.

Toray operates under a corporate auditor system. Two members of the four-member Board of Corporate Auditors are outside corporate auditors. To ensure management transparency and objective and impartial management oversight, the Board of Corporate Auditors is completely independent from the Board of Directors.

Furthermore, the outside corporate auditors conduct comprehensive audits of the management duties performed by directors from an independent standpoint. In fiscal 2013, the corporate auditors, including the outside corporate auditors, attended meetings of the Board of Directors. They also held level-specific meetings with managers including directors, division managers, and department managers, and conducted regular audits of offices, plants and group companies in and outside Japan.

To help ensure effective corporate governance, Toray has established Top Management Authority Regulations as a set of rules for decision-making, specifying what kind of decisions the Board of Directors, company president, general managers of divisions, and other positions have the authority to make. These management responsibilities are complimented by group-wide committees in charge of setting priority management issues.

Remuneration for members of the Board consists of monthly remuneration, a bonus and stock acquisition rights in the form of stock options; meanwhile remuneration for corporate auditors consists of monthly remuneration and a bonus.

The purpose of this structure is to ensure management transparency and fairness, and to provide enhanced incentives for the improvement of financial performance and corporate value in the short-, medium- and long-term perspectives.

## Related Information

 [Corporate Governance \(Investor Relations\)\(PDF:209K\)](#)

## Ensuring Proper Business Conduct and Transparency

To promote proper business conduct in all operations, Toray has established various internal controls designed to ensure legal compliance, effective management execution, secure information storage and protection, and risk management against losses, all in accordance with its Basic Policy for Internal Control Systems.

In addition to striving to ensure transparency in management by establishing and practicing principles related to information disclosure, the Company has determined its own indicators for quantitatively assessing and improving its information disclosure (e.g., the percentage of matters subject to disclosure requirements that are disclosed on its website). In fiscal 2013, the rate was 89%, and initiatives in this area were largely successful.

### Information Disclosure Principles (adopted January 2004)

1. Information Disclosure Principle: Do not avoid reality, conceal facts, or lie when disclosing information.
2. Voluntary Disclosure Principle: Comply with legal disclosure requirements and voluntarily disclose information that can be disclosed.
3. Timely Disclosure Principle: Disclose information that can be disclosed as quickly as possible.
4. Fair Disclosure Principle: Disclose information to all stakeholders fairly and without bias.
5. Information Management Principle: Employees responsible for disclosure shall strive to maintain strict information management until disclosure.

## Dialogue with Labor Unions

Toray holds meetings of the Central Labor and Management Council twice a year. The meetings are attended by directors at the senior vice president level and higher and labor representatives at the union head level and above. At these meetings, management-related information is shared, and there is an ongoing dialogue with the labor union. Resolution of labor issues is undertaken at separate Labor and Management Council meetings.

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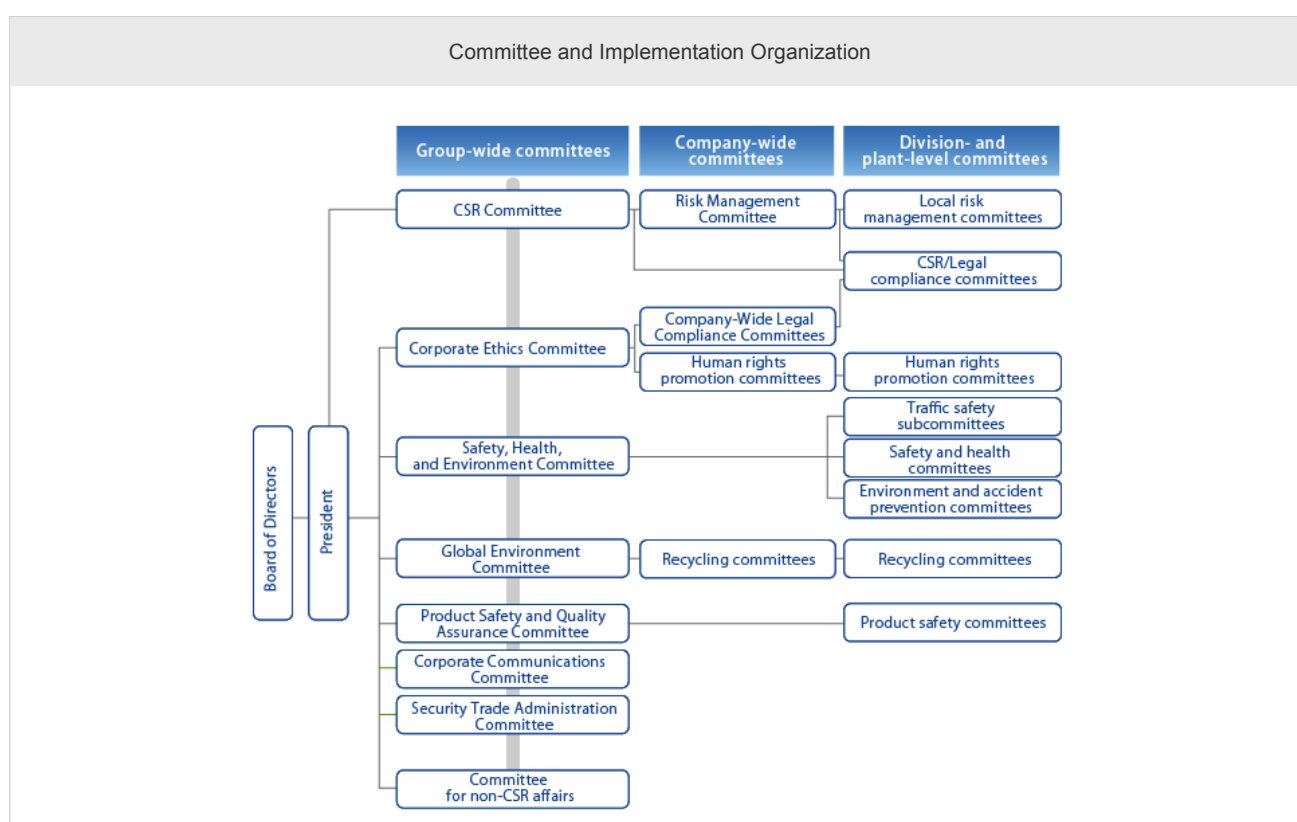


## Implementing CSR Activities and Improving CSR Education

### Toray Group's Framework for Implementing CSR

The CSR Committee, which is chaired by the director in charge of CSR implementation and reports directly to the president, coordinates the activities of six group-wide committees. Furthermore, CSR/legal compliance committees have been established at each group company, division, and plant to help implement group-wide CSR activities.

In fiscal 2013, Toray Group held meetings in South Korea and Indonesia to discuss the results of the fiscal 2012 self-assessment questionnaire on the level of CSR implementation at group companies outside Japan.



### Promoting CSR Initiatives in Every Workplace

A special characteristic of Toray Group's approach to corporate social responsibility is its "CSR line activities," a unique employee participation system that emphasizes putting CSR into practice on the job. In every workplace, relevant departments present suggested tasks corresponding to each of the 10 items in the Group's CSR Guidelines. Based on those tasks, each workplace sets specific actions suited to their respective circumstances while pursuing initiatives in such areas as the environment, safety, and social contribution.

#### Related Information

> [CSR Guidelines](#)

### In-House Training on CSR-Related Issues

Toray Group strives to ensure that social responsibility is firmly rooted in its culture by providing various training opportunities. In fiscal 2013, 98% of group companies provided training on CSR.

#### Voice

## Message from the Outside Director

I was elected as outside director of Toray at the Ordinary General Meeting of Stockholders held in June 2014. I was involved in the Toray Management School—the Group’s primary program for fostering future senior management—since the planning phase, and I served as a senior lecturer there for 20 years. The dominant principle of corporate management is maximizing corporate value, and so I have endeavored to train value-creating leaders at the School. Looking to the future from the vantage point of my new role in the management of Toray Group, I hope to leverage all the knowledge and experience that I have gained in order to ensure that the Group’s corporate value continues to grow over the medium- to long-term.



Kunio Ito  
Professor, Graduate  
School of Commerce  
and Management,  
Hitotsubashi  
University

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## Corporate Ethics and Legal Compliance

Maintaining a high level of corporate ethics and legal compliance is one of Toray Group's primary management issues. Accordingly, all members of the Group are expected to carry out operations with a strong awareness of high ethical standards and compliance with the law.

### Management

Toray's top management takes a clear position on the central importance of corporate ethics and legal compliance in corporate management. Toray leaders strive to further improve the conduct of all companies in Toray Group.

### Framework for Promoting Corporate Ethics and Legal Compliance at Toray

Toray has established a Corporate Ethics Committee and a Company-Wide Legal Compliance Committee. Chaired by the company president, the Corporate Ethics Committee discusses comprehensive policies on corporate ethics with labor-management cooperation. Operating under this committee, the Company-Wide Legal Compliance Committee is primarily comprised of section managers, and promotes independent activities that place importance on direct communication with upper management while addressing group-wide issues. CSR/legal compliance committees at the division- and plant-level encourage employees to perform related on-site activities.



Toray has established CSR/legal compliance committees at its group companies in Japan, and appointed executives and section managers in charge of legal compliance. Furthermore, relevant departments at Toray's headquarters collaborate to hold a group-wide corporate ethics and legal compliance meeting annually to improve understanding of revised laws and particular issues.

CSR/legal compliance committees have also been established at Toray's group companies around the world. With support from Toray's International Division, CSR Operations Department, and other relevant sections, the committees independently promote initiatives related to legal compliance and corporate ethics.

### Company-wide Activities in Fiscal 2013

Toray established or undertook the following company-wide initiatives in fiscal 2013 relating to corporate ethics and legal compliance. Group companies in and outside Japan also work independently on their own activities based on these initiatives.

- Provided thorough training on security trade controls
- Maintained internal controls for financial reporting
- Provided all employees with comprehensive information on antitrust laws and insider trading regulations
- Stepped up initiatives for ensuring strict compliance





## Fostering a Corporate Culture Based on Ethics and Legal Compliance

Toray Group regularly holds a variety of training and educational programs related to corporate ethics and legal compliance with the aim of thoroughly enforcing corporate ethics and legal compliance right down to the level of every individual employee.

### Corporate Ethics and Legal Compliance Code of Conduct and Handbook

The Corporate Ethics and Legal Compliance Code of Conduct is a strict set of standards that every Toray Group executive and employee closely follows when performing corporate activities both in Japan and abroad.

In the event that a violation is discovered, strict discipline is carried out in consultation with the Company's Rewards and Sanctions Committee, and exhaustive steps are taken to publicly disclose relevant information, investigate the causes, and implement measures to prevent a recurrence.

All Toray executives and employees, including contracted, part-time and temporary personnel, receive a copy of the Corporate Ethics and Legal Compliance Handbook, which explains expectations for proper conduct in detail. The handbook is revised when necessary to reflect changes to laws and other matters. Thorough efforts are also made at group companies worldwide, which have CSR/legal compliance committees, by providing similar codes of conduct, guidelines, handbooks, and other information to employees.

#### Related Information

- » [Corporate Ethics and Legal Compliance Code of Conduct](#)

### Main Content of the Corporate Ethics and Legal Compliance Handbook

- Carrying out proper transactions based on free, fair, and transparent market competition (compliance with Japan's Antitrust Law, Subcontract Act, and Act against Unjustifiable Premiums and Misleading Representations)
- Protecting the intellectual property rights of Toray and other companies
- Respecting local laws and regulations in all countries where Toray Group operates
- Respecting human rights and prohibiting all forms of discrimination
- Using proper accounting practices (complying with all relevant laws including Japan's Corporate Law, Tax Law and Financial Instruments and Exchange Act)
- Complying with Japan's Foreign Exchange and Foreign Trade Act, Political Funds Control Act, and Public Offices Election Act
- Prohibiting any form of bribery involving stakeholders
- Corporate Ethics and Legal Compliance Helpline, an internal hotline system



Corporate Ethics and Legal Compliance Handbook (third edition)

### Corporate Ethics and Legal Compliance Education

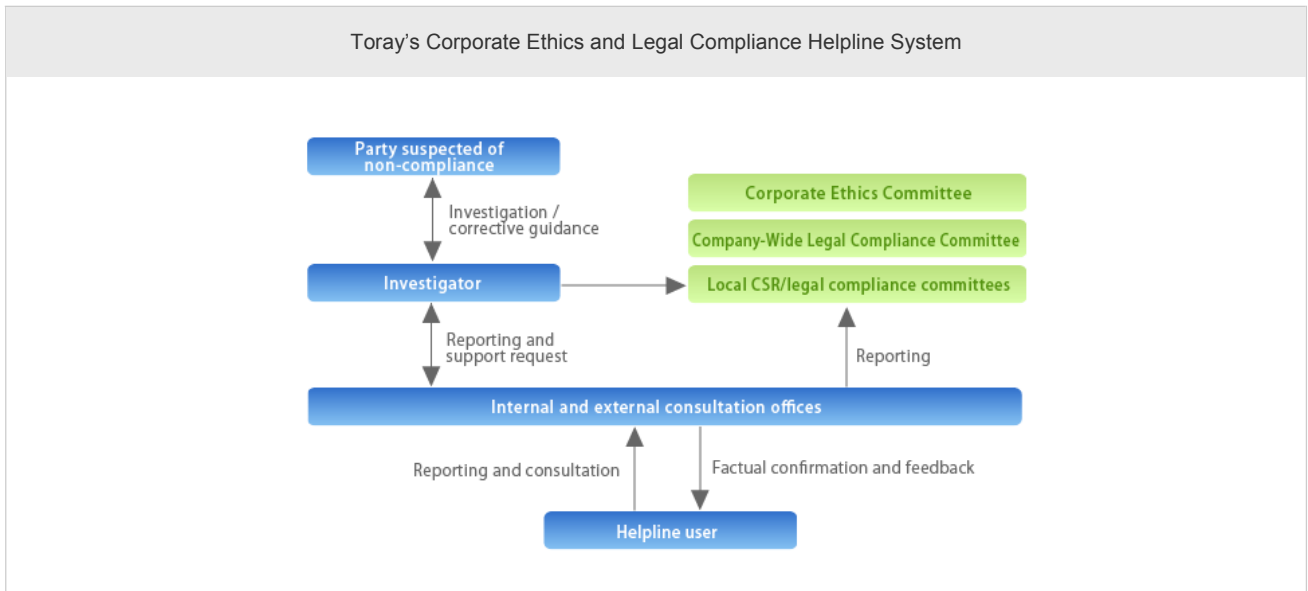
Toray implements various training activities and programs at each of its workplaces, including monthly study sessions on proper business conduct, legal regulations, and cases of corporate misconduct. The Company also set up a company-wide CSR and legal compliance electronic bulletin board on its intranet to provide employees with a source of useful information.

In addition, Toray works to raise awareness of legal compliance among all members of the Group by announcing important information about laws that directly concern business operations, including antitrust laws, insider trading regulations, labor laws, and anti-bribery rules around the world.

Beginning in fiscal 2012, Toray has provided online training courses covering corporate ethics and legal compliance for all employees, including contracted, part-time and dispatched workers. In fiscal 2013, the course addressed the theme of the Copyright Act of Japan, and employees once again learned about areas they must comply with in their daily conduct through case studies. Online training courses have also been developed using similar materials at group companies in Japan.

### Utilizing Internal Reporting Systems

Toray expects its employees to independently manage their conduct with respect to corporate ethics and legal compliance, and to consult with a supervisor at the earliest opportunity if a related problem arises. Recognizing that reporting or discussing a problem with supervisors may be difficult, Toray ensures that alternative means of reporting and consulting are available at each of its divisions, departments, offices and plants, as well as through the labor union. Employees can also use a dedicated hotline or email service to directly contact the secretariat of the Company-Wide Legal Compliance Committee. Toray established a Corporate Ethics and Legal Compliance Helpline as an internal whistle-blowing system in April 2010, which is accessible to all Toray Group companies in Japan. In addition to internal consultation offices at each company, an easily accessible external consultation service is available to employees throughout the entire Toray Group.



## Improving Training Related to Security Trade Controls

In the area of security trade controls, Toray Group encourages its employees to improve their expertise and readiness regarding emerging issues, and works to raise their awareness. In fiscal 2013, the Group provided 18 types of detailed training programs tailored to objective trade items and themes to a total of 1,451 employees. Furthermore, Toray Group has been arranging for employees to take an exam authorized by the Center for Information on Security Trade Controls in Japan to test their abilities related to imports and exports governed by security trade controls. In fiscal 2013, a total of 419 Toray Group employees passed the exam, bringing the cumulative total of Toray Group employees who have passed the exam to 2,139.

### Related Information

[Security Trade Control](#)

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## Compliance with Antitrust Laws and Anti-Bribery Rules around the World

### Training and Awareness Raising

In order to ensure thorough compliance with antitrust laws in each country, Toray Group has prepared materials such as the *Antitrust Law Compliance Program* and the *Antitrust Law Red Card* to draw attention to possible violations. The Group also periodically provides training opportunities for employees around the world.

Toray Group facilitates employees' compliance with anti-bribery rules in each country by offering seminars on prevention. Furthermore, the Group works to formulate in-house voluntary standards on entertaining and the giving of gifts.

### Antitrust Law Audits

Toray Group as a whole conducts in-house audits covering the status of compliance with antitrust laws in an effort to prevent infringements.



## Protection of Personal Information

Toray has established rules for managing personal information to ensure that the private data of customers, employees, and other individuals is securely administered and properly handled. To confirm that these rules are being followed, the Company conducts regular inspections of personal information management practices in each of its departments.

### Related Information

- > [Disclosure of Information Regarding the Ethical Treatment of Laboratory Animals](#)



## Disclosure of Information Regarding the Ethical Treatment of Laboratory Animals

Toray Industries Inc. carries out research and development on pharmaceuticals and medical device with the objective of contributing to human development and health enhancement through these productions. To evaluate the efficacy and safety of pharmaceuticals and medical device, it is necessary to conduct experiments using animals. Toray understands that such experiments must be carried out in an ethical manner from the perspective of animal welfare and the respects for life.

In order to ensure that animal experiments are conducted ethically, Toray has established its own in-house rules including the Guideline for the Animal Experiments on the basis of Japan's Act on the Welfare and Management of Animals, the Standards relating to the care and management, etc. of experimental animals, the basic policy on conducting animal experiments by organizations under the jurisdiction of the Ministry of Health, Labour and Welfare of Japan, and other related laws and guidelines. In accordance with its in-house rules, Toray has set up the Animal Care and Use Committee and strictly examines the appropriateness of animal experiments performed inside the company based on the 3R principles for animal experiments: refinement (minimization of pain), reduction (lowering the number of animals used), and replacement (preferred use of alternatives to animals).

Toray independently inspects and evaluates the results of animal experiments that have been conducted to confirm that they have been performed ethically. The company also provides its researchers with periodic training and education on animal research and ethics, and assists them in acquiring certification related to the handling of laboratory animals. Furthermore, Toray makes proactive efforts to collect relevant information by participating in academic conferences.

Finally, Toray holds memorial services every year as a way to express its respect and appreciation for the laboratory animals that have been sacrificed for its research on pharmaceuticals and medical device.

In recognition of its efforts to care for laboratory animals and conduct animal experiments in an ethical manner, as described above, Toray was certified as an organization conducting animal experiments by the Japan Health Sciences Foundation in fiscal 2012.

## Risk Management

Companies face diverse and complex risks, and corporate management involves dealing with these risks effectively. That is why Toray maintains a system of risk management extending from the identification and prevention of potential risks, to mechanisms for major crisis response.

### Management

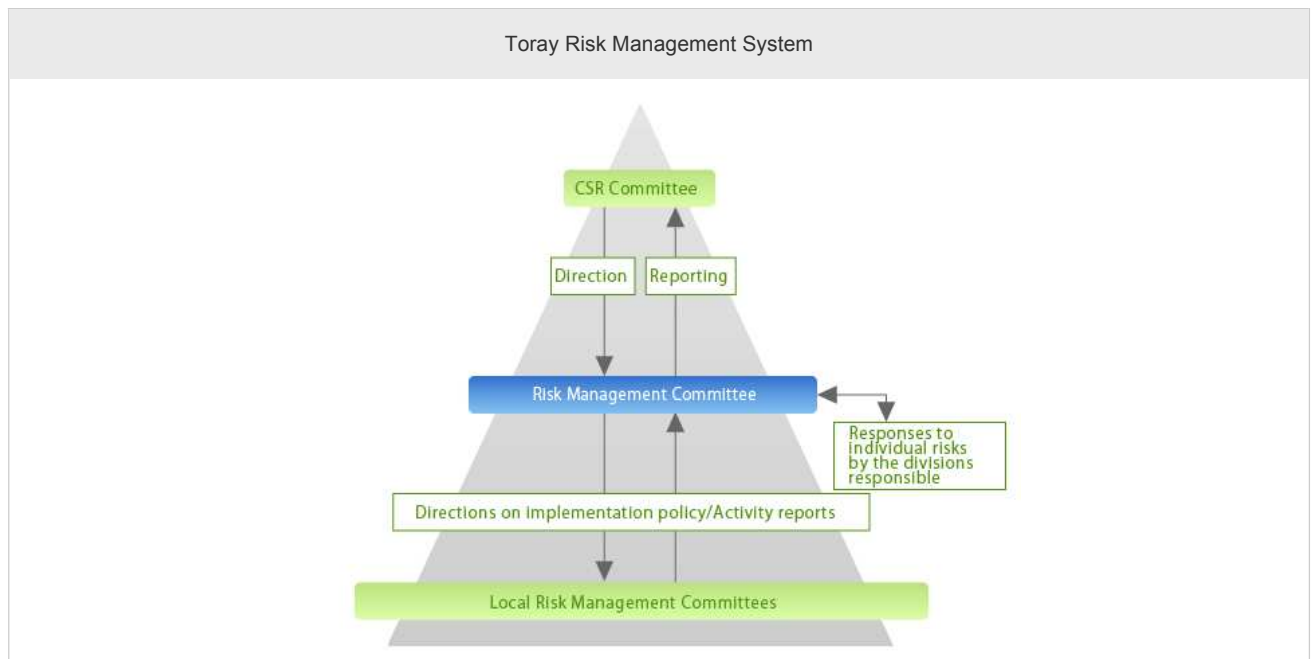
Toray Group believes risk management is a fundamental element of corporate management. It operates a Group-wide risk management system based on three-year cycles, and strives to identify and reduce potential risks. The Group has also established a set of Crisis Management Regulations. Accordingly, an Emergency Quick Response System is ready for deployment in the event of a major crisis to prevent crisis escalation and carry out rapid recovery.



## Risk Management System and Initiatives

### Developing a Risk Management System

Toray has established a Risk Management Committee under the CSR Committee to regularly monitor the progress of risk reduction measures across all group companies and conduct integrated planning and promotion of risk management measures. Under the Risk Management Committee, local risk management committees have been established at each of Toray's divisions, departments, offices, and plants. Each committee works to minimize risks specific to its respective business site, while taking measures to prevent incidents from occurring.

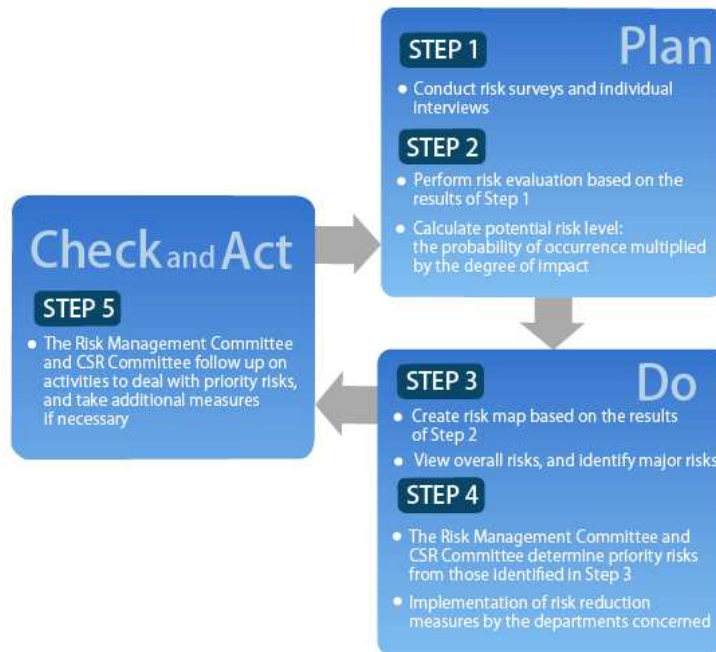


Group-wide measures determined by the Risk Management Committee are given to the subordinate local risk management committees, which then incorporate these measures in their own initiatives to reduce risks particular to their respective division, department, office or plant, while carrying out coordinated risk management activities.

Toray Group has also established a risk management system for group companies, led by their presidents. The system promotes initiatives to reduce the specific risks faced by each company. Each group company reports on the results of these initiatives to the Risk Management Committee every fiscal year. Toray Group's risk management activities operate using a PDCA cycle. Using an enterprise risk management system, the Group assesses risks from a group-wide perspective and implements countermeasures. In this way, the Group identifies priority risks and works to reduce those risks.







## Dealing with Priority Risks

Company departments responsible for risk management and working groups develop measures to reduce priority risks. Reports on the status of these priority-risk countermeasures are submitted to the Risk Management Committee on a regular basis. The committee then assesses the extent that the risks have been reduced, considering evaluations done by the directors with responsibility for each area.

Toray has set up working groups and implemented the following measures to reduce risks identified as high priority.

### 1. Maintaining information security

Toray continues to offer information security training via its online course for all employees of the Company, including contracted, part-time and dispatched workers. In fiscal 2013, 8,200 people participated in the program. As a result of the training, the rules for responding to incidents have become firmly rooted among employees. Therefore, although the number of reported incidents has increased, there were no serious information leaks. Going forward, Toray will strive to reduce the number of incidents.

### 2. Supply chain risk reduction

Toray Group conducts checks for the use of conflict minerals<sup>1</sup> in all products that it manufactures and has been working to make its responses to customers' requests for surveys quicker and more efficient by integrating data management.

<sup>1</sup> The four minerals of gold, tin, tantalum and tungsten mined in the Democratic Republic of Congo and the nine surrounding countries. The aim is to cut off sources of funding for armed groups in the Democratic Republic of Congo by imposing disclosure and reporting obligations on manufacturers that use conflict minerals.

## Addressing Existing Major Risks

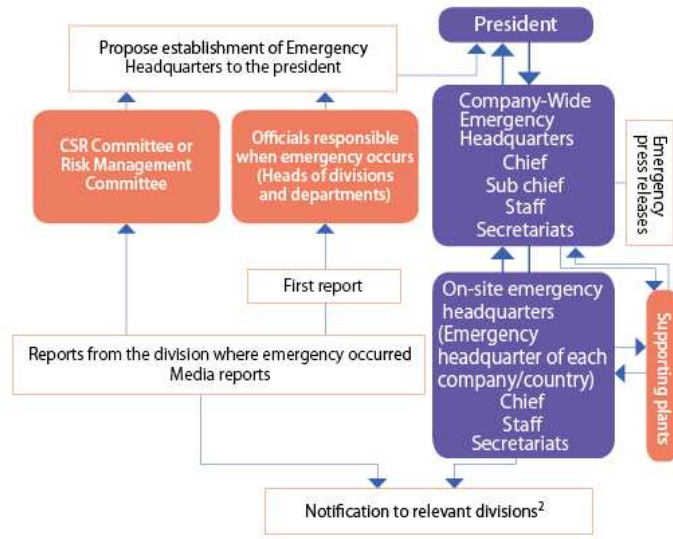
Toray is promoting ongoing risk reduction activities through group-wide committees that deal with existing major risks separately from the priority risk reduction measures. They include legal compliance, changes in raw material markets, business strategy, and fluctuations in exchange rates and economic conditions. Progress is reported to the Board of Directors as necessary.

## Crisis Management Systems

Toray has established Crisis Management Regulations, a set of clear fundamental principles that form the basis of a company-wide response in the event of a major crisis. The Company works to ensure the thorough implementation of these regulations when required.

Moreover, the Company reviews these regulations as appropriate to prepare for new risks that emerge due to changes in the social environment.

### Emergency Quick Response System



<sup>2</sup> Notification is conducted according to the Emergency Reporting Route for Significant Disasters, Environmental Accidents, and Other Crisis Outbreaks.



## Security Trade Control

Toray performs risk management of security trade controls covering the export of products, devices, materials, and samples, as well as the transfer of technologies outside Japan. Particularly strict management is necessary for TORAYCA™ carbon fiber and its composite materials, semiconductor coating agents, and water treatment membranes, which are listed as restricted items requiring export permission from the Japanese Minister of Economy, Trade and Industry. In fiscal 2013, Toray carried out the following measures to enhance risk management in this area.

### 1. Enhanced employees' capacity for accurate judgment

To correctly identify items requiring export permission, Toray worked to improve the inspection procedure and its reliability. Toray created an in-house matrix checklist and began to require each office and plant to submit the list after inspection in April 2014. Toward this, special training sessions were held at all offices and plants.

### 2. Conducted regular audits

Toray carried out paper audits and onsite audits of its group companies, and comprehensively implemented plan-do-check-act (PDCA) activities based on the results.

### 3. Enhanced information sharing and reporting

Toray integrated and centralized information on concerns such as suspicious trade inquiries, reported or consulted with the appropriate authorities as required, and took the appropriate measures. The Company also shared suspicious trade information at various company meetings, and took steps to improve its risk management.

### 4. Improved inspection systems

Toray pursued its three-year plan for improving operational efficiency, eliminating mistakes caused by human error, and developing its next security trade control system, adopting aspects that could be applied under the existing system and making steady progress.

## Business Continuity Plan Initiatives

Toray has long taken seriously the risks of a destructive earthquake, and has been carrying out initiatives based on a Major Earthquake Business Continuity Plan.

In fiscal 2013, based on a scenario in which it would be impossible to set up a Company-wide emergency headquarters at the Tokyo Head Office because an earthquake struck directly below the Tokyo metropolitan area, Toray practiced setting up a contingency Company-wide emergency headquarters in Kansai and simulated relocating the Company-wide emergency headquarters once the Tokyo Head Office was restored to functionality.

Toray has completed the introduction of a system for confirming the safety of employees at all of its offices and plants and is deploying the system horizontally at group companies in Japan. Moreover, the Company systematically carried out seismic reinforcements of plant buildings. Toray also revised its business continuity plan for key head office operations, and identified potential problems in the supply chain for each of its products.

### VOICE

#### Risk Management Training at Indonesia Management Seminar

The Indonesia Management Seminar (IMS) is an education and training program held each year for the management of Toray Group companies in Indonesia. In 2013, a total of 20 people in department manager positions at group companies took part. This year, the seminar was on the theme of risk management, and we had a lecture on Toray's policies combined with workshops where all the participants discussed the topic.

We are pursuing thorough compliance, promotion of CSR and stronger risk management at all Toray Group companies in Indonesia. At this year's IMS, participants had the opportunity to once again recognize the importance of countermeasures to a variety of risk issues, focusing on compliance. Furthermore, in addition to the CSR committees at each group company, we set up an integrated CSR Committee for all of Indonesia. At this committee, we hope to reaffirm CSR policy and upgrade risk management for the Toray Group in Indonesia as a whole.



Hasanudin  
Abdurakhman  
General Manager, P.T.  
Toray Industries  
Indonesia



[HOME](#) • [Social Responsibility](#) • [Social Initiatives](#)



Toray Group respects diversity in all areas including human rights and hiring, and strives to facilitate a work-life balance that puts people first. The Group practices socially responsible procurement in cooperation with business partners, and seeks to build trust by practicing good communication and listening to feedback from stakeholders about all of its social initiatives.

**Human Rights Promotion and Human Resources Development**

Toray Group values every one of its employees and respects human rights. The Group endeavors to create a vibrant workplace that provides job satisfaction, and encourages employees to take on challenges.

**Product Safety and Quality**

Ensuring product safety and quality is essential for gaining the trust of customers. This is why Toray Group constantly strives to improve product safety and quality assurance, true to its "customer first" and "quality first" commitments.

**Facilitating CSR Initiatives Throughout the Supply Chain**

As a materials manufacturer, Toray pursues CSR procurement throughout the supply chain, working closely with suppliers, manufacturing subcontractors, sales agents, and distribution partners.

**Communication**

For Toray Group, enhancing dialogue with stakeholders is one of the most important priorities for management. As such, the Group works to provide appropriate information in a timely manner to all of its stakeholders, including customers, employees, stockholders, and local communities, in an effort to respond to their diverse expectations while ensuring effective communication.

**Social Contribution Activities**

With an emphasis on science and technology, Toray Group actively contributes to a healthier, more sustainable society by providing support for science education for the young, helping to conserve the environment, giving assistance to local communities, and promoting sports.

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## Human Rights Promotion and Human Resources Development

Toray Group values every one of its employees and respects human rights. The Group endeavors to create a vibrant workplace that provides job satisfaction, and encourages employees to take on challenges.

### Management

#### Human Rights Promotion System

Toray has established its Company-Wide Human Rights Promotion Committee along with sub-committees at the office and plant level. These committees follow the guidance of the Company's Corporate Ethics Committee. At each workplace, the Company has appointed human rights advocates who are dedicated to making the work environment more pleasant and productive. In addition, Toray has set up a Human Rights Promotion Section in its Industrial Relations Department.

In fiscal 2013, Toray promoted human rights initiatives with a focus on educating employees about the need to respect the dignity of others by seeing human rights on an individual level, amid increased hiring diversification. The Company also focused on building vibrant workplaces with good communication.



#### Strategy for Human Resources Development

The success or failure of a company is decided by its people—employees shape its destiny. Guided by this concept, Toray Group considers securing and developing outstanding human resources as one of its most important tasks and a fundamental management priority.

The Group will execute various strategies to adapt to social change, seeking to build a positive, vibrant corporate culture that motivates all employees and rewards enthusiasm about taking on challenges.

## Committed to Human Rights

Toray Group believes that respect for human rights is a mandatory principle for corporate management. The Group works to promote and raise awareness of human rights, and in its Corporate Ethics and Legal Compliance Code of Conduct outlines the importance of respecting human rights. Discrimination of any kind based on race, creed, skin color, gender, religion, nationality, language, physical characteristics, possessions, place of birth, or any other personal characteristic is strictly forbidden in every process—from recruiting and hiring to work placement, compensation, training, and retirement. In fiscal 2014, the Group launched new initiatives to eliminate discrimination based on gender identification and sexual preference. Internationally, Toray Group takes stringent measures to comply with the related laws and regulations of each country in which it operates. Furthermore, the Group respects international standards including the United Nations Universal Declaration of Human Rights and the International Labour Organization's standards prohibiting all forced labor and child labor.

### Human Rights Training

Toray holds human rights promotion campaigns annually to help increase awareness and understanding of human rights issues. The focus in fiscal 2013 was on encouraging employees to consider human rights on a personal level, and make employees understand that anyone can be a victim or perpetrator of harassment. The Group also sent a message about the rising global emphasis on human rights in relation to the social responsibility of corporations.



Human rights promotion poster

Training sessions were held for operational and administrative supervisors at the head office, and each office and plant. Workshops were also conducted in conjunction with workplace study groups. As in the previous year, in fiscal 2013 the Human Rights Promotion Section Manager visited Toray and its domestic group companies' offices and plants as part of the campaign, and held workshops for human rights advocates.



Human rights training at Du Pont-Toray Co., Ltd.

Fiscal 2013 Human Rights Training and Seminar (Toray)		
Type of training	Number of sessions	Number of participants
Training at head office	36	2,008
Training at offices and plants	1,395	18,648
Training at outside company	65	171

### Promoting Respect for Human Rights at Suppliers

Toray requests its suppliers to ensure that human rights are respected in their operations, and has incorporated such requests in its CSR Procurement Guidelines. Toray is working to ensure that social obligations regarding human rights are fulfilled across the supply chain by conducting surveys of its suppliers and visiting their business sites to confirm that relevant measures are being implemented.

#### Information

> [CSR Procurement Guidelines](#)





## Developing and Retaining Human Resources to Create New Value

Toray makes clear the value it places on human resources in its Corporate Guiding Principles, and does not make employment adjustments according to short-term perspectives. The Company's basic policy regarding core staff is to provide stable, continuous employment based on a long-term outlook, irrespective of economic trends and company performance.

As part of future global business development, Toray Group will continue to secure and develop human resources that operate on a global level with a strong sense of commitment.

Based on the following three goals, Toray Group is promoting human resource development.

- Development of fair-minded individuals who act with high ethical standards and a sense of responsibility
- Training of professionals with advanced expertise, technical skills and originality in problem solving
- Development of leaders who act with foresight and a sense of balance

To develop human resources in this way, Toray Group conducts various kinds of training programs tailored to each of the three goals. These programs are systematic and logically organized, and they are offered to employees of all levels working in every field in the Group. With a view to strengthening international operations, Toray Group has designed the training to improve management capabilities, sales performance, production technical skills, and specialized skills.

In managerial level training, a new Executive Management Seminar was launched in fiscal 2013 to develop top management candidates for Toray and its group companies. This training is in addition to existing programs such as the Toray Management School and Toray Group Management School, which aim to foster the lead managers of the future; Manager Training for New Appointees, which is designed to teach the management skills and know-how essential for administration and professional duties; and Management Basic Training for developing future frontline leaders.

To cultivate professional expertise, the Group offers Strategic Marketing and Merchandising Training; Mid-level Engineer Training; the Practical Sales Course; and the Technical Management Course. In addition, voluntary training programs are prepared for employees who wish to develop their abilities even further.

In more recent years, Toray Group has been enhancing and pursuing the development of international human resources. In addition to its Overseas Junior Training Program, Toray Business English School opened in fiscal 2011. The Group is also working to improve its Business English Proficiency Course, and has increased the number of joint sessions of its Toray Management School and International Senior Management Seminar.

The Group is focusing on ongoing initiatives to secure and develop diverse personnel regardless of gender or nationality, and to develop a vibrant and rewarding workplace culture. As part of these efforts, Toray conducted global diversity seminars in fiscal 2013 for non-Japanese employees.

The Group is allocating more resources than ever to human resources development, including new programs and training at the divisional and departmental levels, and the amount invested per employee is rising every year.

In addition to training, the Group is adopting diverse personnel programs to develop an organization in which human resources who are ready for new challenges can play a greater and more active part in the company.

Toray's Personnel System	
Management-by-objectives system	Each employee establishes annual objectives. At the end of the fiscal year, employees and their supervisors meet to review accomplishments and the extent to which they were able to meet their objectives.
Personnel appraisal system	Designed to facilitate a fair appraisal of employee contributions in terms of duties, responsibilities, capabilities, and performance.
Individual meeting system	Employees meet with their supervisors twice a year in a one-on-one setting. Supervisors provide consultation on employee performance and new objectives.
Self-assessment system for managers, occupational specialists, and general staff	Employees are surveyed annually on topics concerning work experience and desires for interdepartmental transfer. Surveys can then be linked to individual personnel transfers and placement.
Career assessment system for general staff	Employees participate in a regular review consisting of presentations of daily operations and personnel interviews in order to focus on the direction of their future growth.
Job opening system	Employees are given an opportunity to apply for jobs inside the Company and proactively develop their career, while ensuring optimal staff assignment.

Company-Wide Training Course Enrollment in Fiscal 2013	
Training category	Persons enrolled
Management	743
Technical	724
Sales, marketing, and administration	328
Global	364
General	476
Total	2,635

## Early Leadership Development

To foster exceptional group management, Toray established the Toray Management School in 1991, designed to develop young mid-level managers into future executives. As of fiscal 2013, a total of 440 employees have participated in the school's programs over 22 terms. In addition, the Toray Group Management School was established in 2006 to foster top management successors at Toray Group companies and the next generation of leaders. Through Manager Training for New Appointees and Management Basic Training, Toray is developing outstanding frontline leaders by educating section and unit managers on coaching skills<sup>1</sup> and boosting their problem-solving skills.

The Company has also established the Toray School of Technology and Business for training mid-level employees at plants. It offers selected employees a year of full-time education in a live-in schooling environment.

<sup>1</sup> Coaching skills: Communication skills designed to promote a greater degree of autonomous action by staff.

## Establishing a Global HR Management Fundamental Policy

Toray Group established its Global HR Management ("G-HRM") Fundamental Policy in November 2011, with the goal of managing human resources from a common perspective shared by the entire Group, thereby surmounting differences between countries, regions, cultures, customs, and individual companies. Based on this policy, Toray is carrying out integrated global human resources management, working to bring measures particular to group companies around the world into a unified approach.

### Toray Global HR Management ("G-HRM") Fundamental Policy Established November 2011

True to its philosophy, "Contributing to society through the creation of new value with innovative ideas, technologies and products" and its embodiment through "Innovation," and in order to continue being a highly valuable corporate group for every stakeholder, Toray focuses on recruiting, retaining, and developing employees with high aspirations for the Toray Group, with the understanding that "Human Resources" are the most important asset in management.

As Toray Group continues to promote further business growth and expansion, we set the following four principles as the Toray G-HRM Fundamental Policy, despite all differences between countries, regions, cultures, customs, and companies in order to facilitate HR management with a common basis for all Toray Group companies around the world.

Step by step, each company is encouraged to implement and maintain a concrete HR management system in line with the following Toray G-HRM Fundamental Policy. However, at the same time, it is essential to value the merits of local HR management in each company based on the individual circumstances of country, region, culture, custom and company. Thus, it is necessary to promote the policy while integrating both approaches properly.

#### 1. Consistently recruit and retain core staff and promote long-term HR development programs

- (1) Consistently recruit core staff based on mid/long-term HR management views.
- (2) Sustain long-term HR development through promoting individual career development, implementing timely assessments of development progress, and carrying out on-the-job training (OJT), together with training programs (Off-JT) and self-development.
- (3) Promote HR development by following up on each individual through MBO (Management by Objectives) and performance appraisal systems.

#### 2. Select and develop core staff who can win a place in the global competition

- (1) Recruit highly capable staff who understand and support Toray's corporate philosophy, regardless of nationality.
- (2) Provide selected staff with opportunities for sophisticated high-level training and global careers.
- (3) Promote staff, who have skills to assume management responsibility for Toray Group companies, to top management positions of each company, and also give them opportunities for selection to executive positions as well as core positions of Toray Japan.

#### 3. Pursue a "placing the right people to the right jobs" policy while enhancing fairness, understanding (by employees) through convincing explanations, and transparency

- (1) Make the best assignment for each employee and assigned organization by focusing on his/her ability and performance.
- (2) Place importance on fairness, understanding (by employees) through convincing explanations, and transparency when determining individual compensation, such as salary and bonus, by appropriately taking account all of the roles and responsibilities of the position, the employee's ability, as well as performance appraisal results based on the MBO (Management by Objectives).
- (3) Enhance the HR development system and the compensation system to value challenges as well as enhance motivation of average-level performers who contribute to their team.

#### 4. Continue various management methods to further strengthen the company's business structure

- (1) Conduct head-count management and labor cost management as an entire company in a detailed and uniformed way.

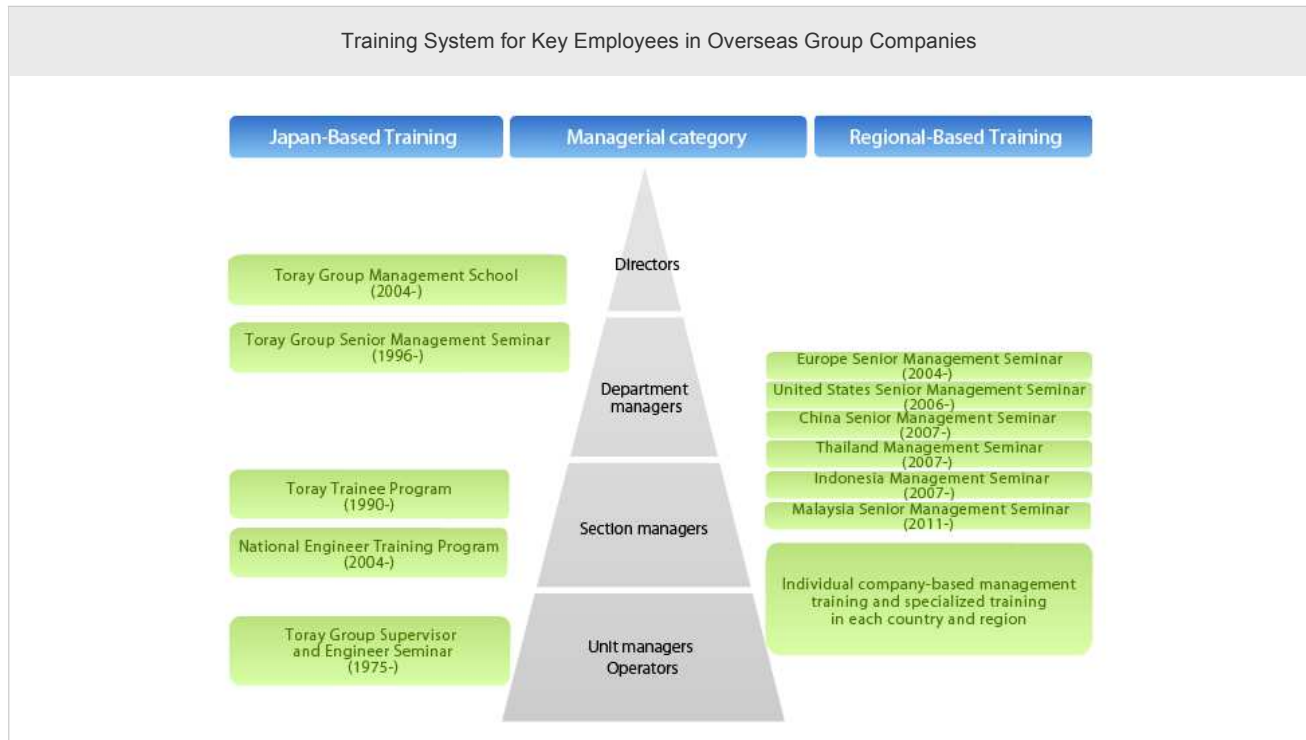
- (2) Always sustain a flat, effective organizational structure and control the appropriate proportion of managerial staff.
- (3) Maintain and strengthen competitiveness through the appropriate utilization of diversified human resources such as contract employees, temporary staff sent from agencies, and external resources.

### Developing and Promoting Staff at Overseas Group Companies

Toray Group regards the development of core staff at its overseas group companies as one of its priority management tasks. The Group makes active efforts to promote employees locally hired at these companies to executive management positions, as well as to key posts and management positions at Toray's head office. To ensure thorough understanding of Toray Group's management philosophy and policies, core staff from overseas group companies participate in training programs in Japan, organized according to managerial level. Toray Group, with direct involvement from the head office, is developing and providing training courses outside Japan specially designed for the particular circumstances and needs of group companies in each respective country. Toray launched an online e-learning system in April 2012 to train newly hired employees using standardized materials. The program contents are being continually reviewed and expanded.



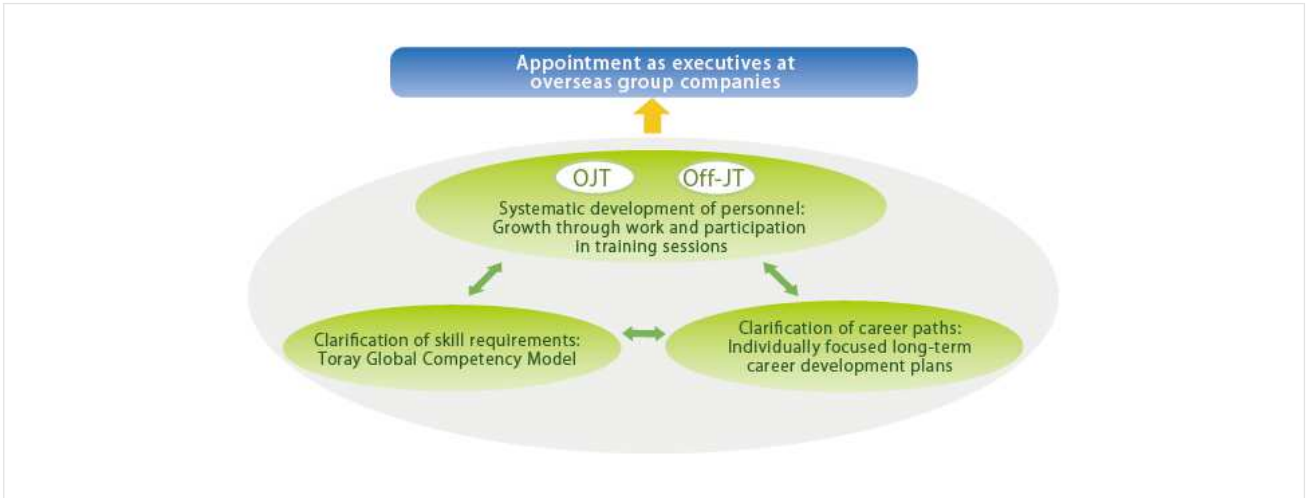
Key employees receive training at an international Toray Group company



Training Courses held for Overseas Core Staff in Fiscal 2013 (Toray Group)		Number of participants
Japan-based courses	International Executive Seminar (for directors)	15
	International Trainee Seminar (for section managers)	21
	National Engineer Training Program	2
	Toray Group Supervisors' Seminar	11
Courses held overseas	EU Senior Management Seminar	23
	U.S. Senior Management Seminar	14
	East and North China Senior Management Seminar	28
	East and North China Senior Management Seminar	25
	Indonesia Senior Management Seminar	21
	Thailand Senior Management Seminar	61
	Malaysia Senior Management Seminar	17

### Infrastructure for Developing and Promoting Local Personnel

Positions deemed critical for the global management of Toray Group have been classified into four levels based on a group-wide standard. Toray's head office is working with overseas group companies to develop and promote local staff in these positions; the employees are known as National Core Staff.



## Promoting Diversity

Toray Group is committed to promoting employee diversity to help build thriving workplaces where each individual's abilities can flourish.

### Fostering an Organizational Culture Conducive to the Career Advancement of Women

Toray has long supported career advancement for women and seeks to provide a work environment that meets their needs. The Company appointed its first female manager in 1958 and introduced a childcare leave program in 1974, almost 20 years before the related law was passed; in 2003 a Toray Group company appointed a woman as president. The Company has continued to improve its systems and programs in this area, most recently initiating the Advancement of Women Project in 2004.

As a result of the ongoing implementation of such initiatives, the number and percentage of women holding management positions at Toray continues to rise each year. As of end April 2014, 7.95% of unit manager or higher positions and 4.17% of section manager or higher positions were held by women. In addition to existing initiatives outlined in action plans, Toray assists women to develop and achieve personal career plans. Toray has set a target of placing women in at least 5% of section manager or higher positions by 2016, up from 4.17% now. By 2020, Toray will look to at least double the current percentage of women in section manager or higher positions, paving the way for women to take director positions in the future.

Number of Women in Management Positions and Women as a Percentage of Total Management (Toray) (as of end April each year)



Major Support Systems for Employee Work and Family Life Balance

Category	Description
Long-term childcare leave	<ul style="list-style-type: none"> <li>Available for employees using child care center services offering a leave of absence up to the end of March of the fiscal year in which the child turns one year of age or up to the time the child turns 18 months, whichever is longer</li> </ul>
Lower-hour work schedules for childcare	<ul style="list-style-type: none"> <li>A maximum reduction of two hours per day, calculated in 15-minute increments, available until the end of the fiscal year in which the child is in third grade of elementary school</li> <li>May be used concurrently with flextime system</li> </ul>
Long-term family care leave	<ul style="list-style-type: none"> <li>Available for a total of 365 days per situation requiring leave to provide care</li> <li>May be used concurrently with flextime system</li> </ul>
Leave to care for sick children	<ul style="list-style-type: none"> <li>Five days per year of leave per child available until the end of the fiscal year in which the child is in third grade of elementary school</li> <li>Days not taken by the end of the fiscal year may be rolled over to the following fiscal year (revised April 2013).</li> </ul>
Family care leave	<ul style="list-style-type: none"> <li>Five days per year of leave available per family member</li> <li>At maximum five additional days per year available when no other appropriate caregiver is available on those days (revised April 2013)</li> </ul>

Category	Description
Toray Smile Support Program	<ul style="list-style-type: none"> <li>Welfare point system offering a selection of programs with an emphasis on providing support for childcare and home acquisition</li> </ul>
Childcare services payment assistance	<ul style="list-style-type: none"> <li>Childcare coupons offering a 70% discount on services provided by participating companies issued as an additional Toray Smile Support Program service</li> <li>No restrictions on number of coupons or age of participating employee's child</li> </ul>
Telecommuting program	<ul style="list-style-type: none"> <li>Available for employees who meet certain requirements and have a family member requiring care or a child through the end of the fiscal year in which the child is in the third grade of elementary school (introduced April 2012)</li> <li>Available up to two days (15 hours) per week and no more than a maximum of six days (45 hours) per month for approved employees</li> </ul>
Registration system for reemployment	<ul style="list-style-type: none"> <li>Registration system providing reemployment opportunities to former employees who resigned due to personal matters such as marriage, childbirth and childcare, nursing care for family members, or a spouse's work transfer</li> <li>The registration period is ten years. Registrants may be immediately eligible for regular employee positions depending on the content of their jobs, expectations of their role in the company, and their personal situations.</li> </ul>
Commuting allowance for bullet train or other limited express travel	<ul style="list-style-type: none"> <li>Allowance for tickets for applicable distances on bullet trains or other limited express trains available for employees who wish to avoid (cease) living apart from their families due to job transfers or employees who bear personal responsibilities such as caring for family members</li> <li>In certain cases, employees may be required to pay a part of the commuting expenses out of pocket.</li> </ul>

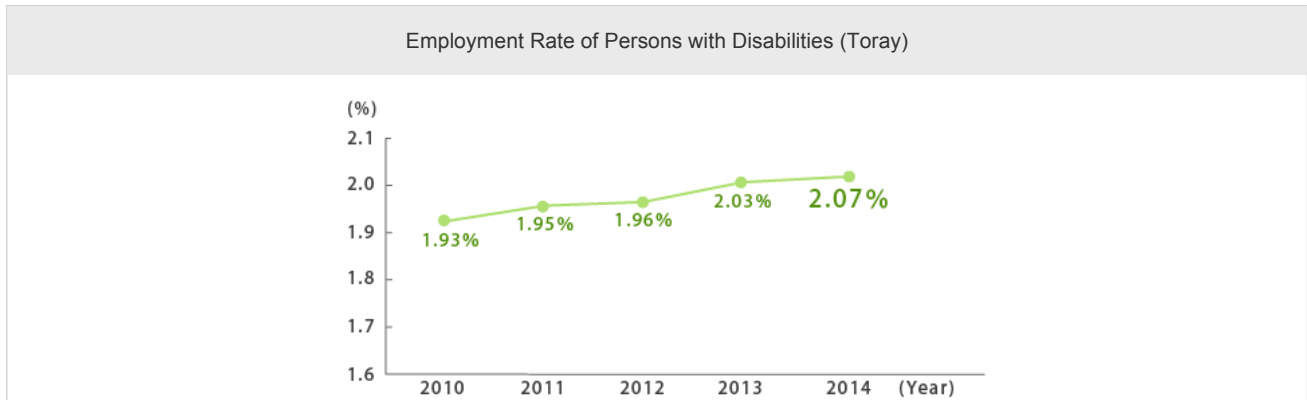
## Employing a Diverse Workforce

As Toray continues to globalize its operations, the Company aims to employ people who have a global perspective and mindset, highly specialized skills and strong language abilities. This is why the Company is recruiting Japanese university graduates who studied abroad, and non-Japanese graduates of either Japanese universities or universities outside the country. Toray is also proactively hiring highly qualified people with professional experience and expert knowledge. By making the most of each person's special skills and individuality, Toray is striving to create a more dynamic company.

## Employment of Persons with Disabilities

Toray Group fully recognizes its social responsibility to hire and employ persons with disabilities, from those with physical challenges to persons with intellectual and mental challenges. The Group is making workplace improvements to remove physical barriers for persons with handicaps as well as instituting safety measures. Additionally, the Group provides comprehensive training upon work placement and gathers feedback from persons with disabilities to make workplace improvements.

In fiscal 2013, Toray met Japan's legally mandated employment rate of 2.0%, which was raised in April 2013. In the Toray Group in Japan, 53.1% of the companies subject to the mandate achieved at least 2.0% hiring. At these group companies, Toray will strengthen efforts to achieve the rate.



Note: Toray announces its employment rate of persons with disabilities on June 1 each year.

## Reemployment System

As part of initiatives to encourage full utilization of skilled individuals over 60 years of age, in fiscal 2001 Toray introduced a re-employment system open to all of its unionized employees who wish to continue working. The Company expanded the system in December 2005 to include employees in management and specialized fields.

Toray then prepared to raise the maximum age for re-employment in accordance with Japan's Revised Law Concerning the Stabilization of Employment of Older Persons, and extended the eligible re-employment age to 65 from April 2013.

## Creating a Positive Workplace for Employees

### Helping Employees Maintain Work-Life Balance

Toray has been working to further improve systems that help employees achieve a harmonious balance between work and family life, by offering a wider variety of lifestyle options for men and women. Support systems that exceed those legally mandated for childcare, family care, and maternity protection are provided, the result of Toray's commitment to making them accessible and responsive for a diverse range of employee needs. In May 2007, Toray was granted certification as a general corporate entity meeting the requirements for supporting the development of the next generation by Japan's Ministry of Health, Labour and Welfare.

After acquiring the certification, Toray revamped its support systems in June 2010 in an effort to encourage male employees to make use of them. Then in April 2011, the Company launched the Toray Smile Support Program, a point-based system that lets employees choose from various programs that provide financial assistance for childcare and purchasing homes. Toray initiated a telecommuting program in April 2012, aimed at making it easier for employees to work while raising children or caring for family members, as well as to make workplaces more dynamic by fostering diverse working styles. Toray also expanded the scope of its commuting allowance for taking the bullet train in October 2012.

With the commencement of its fourth action plan period in April 2013, Toray improved its support systems once again, offering special leave for parents to prepare children for nursery school, and extending eligibility for leave to care for sick children. The Company also revised working hours under its reduced-time work systems for childcare and family-care.

Utilization of Childcare and Family Care Leave Systems (Toray)						
FY		2009	2010	2011	2012	2013
Employees taking childcare leave	Women	67	79	81	62	56
	Men	3	2	3	2	3
Employees taking family care leave	Women	1	2	1	2	0
	Men	0	1	0	0	1

Note: Figures show the number of employees taking leave.

As part of its commitment to workplace innovations, since the second half of fiscal 2008 Toray has implemented four key initiatives aimed at helping employees to balance work and family life. First, a series of regular discussions is held in each workplace to raise awareness of different working styles. Second, working late at night and on holidays is prohibited, in principle. Third, all lights in the workplace are turned off at 10 p.m. (9:00 pm in the head office building since fiscal 2011). Finally, company-wide "no overtime days" take place one day per month. Due to ongoing initiatives to reduce overtime hours and encourage employees to take annual paid leave, significant strides have been made to improve working conditions, with 87.9% of available annual paid leave used by employees in fiscal 2013.

In October 2010, Toray set up a Work-Life Balance Committee made up of labor and management representatives. Through this committee, labor and management have been engaged in discussions on a number of issues oriented toward helping employees balance job responsibilities with home life, as well as creating workplace environments that facilitate diverse working styles, preventing overwork and reducing excessive working hours, and enhancing mental healthcare at worksites.

Since April 2012, the AP-G 2013 Labor-Management Committee has continued to refine Toray's strategies to achieve work-life balance. The organization was renamed the AP-G 2016 Labor-Management Committee in April 2014.

#### Spotlight

##### Women in the Workplace and Work-Life Balance

Toray is committed to building a corporate culture where women are an integral part of the workforce. Toray implements the Advancement of Women Project and operates a dedicated work-life balance committee involving labor and management. Programs for women include subsidies for childcare expenses, a registration system for women who wish to rejoin the company after a hiatus, and reduced working hours for parents and caregivers. Toray also supports diverse working conditions including telecommuting, and will continue to support women in the workplace and work-life balance through various initiatives that help build a vital and rewarding workplace culture.

### Programs to Assist Parents

#### Telecommuting program

## Lower-hour work schedules for childcare

### Eligibility

Parent of child aged 1 year to the third year of elementary school

### Description

Working hours can be reduced by up to 2 hours per day, in quarter hour increments. Can be combined with flexible working hours.

### Eligibility

Parent of a child up to the third year of elementary school, who is in an eligible workplace and meets certain conditions.

### Description

Up to 6 days (45 hours) per month and 2 days (15 hours) per week. Can be taken as full days or by the hour.

## Childcare services payment assistance

### Description

Discounted childcare services are available using coupons issued by a contracted childcare service. Points received through the Toray Smile Support Program can also be applied toward childcare.

## Voice

I wanted to spend as much time as possible with my son until he turned three, so I didn't hesitate to take reduced working hours after I returned from giving birth. I admit that I had some initial concerns that working part-time would mean that I couldn't do either my work or parenting properly.

When my son was around one and required the most attention, I worked until 4:00 in the afternoon. This gave me plenty of time with my son after getting back from work, but I did feel a bit rushed to get my work done by 4:00. However, it taught me to always set priorities and try to work efficiently. I now feel more relaxed at work after two and a half years of working reduced hours. I would say I have a work-life balance that works for my situation.

If my son gets sick, I have various resources to lean on such as getting colleagues to cover for me or hiring a childcare worker subsidized by the Toray Smile Support Plan. I expect to use different options as my son grows older and will try to find a satisfactory work-life balance by using reduced working hours and other options that the company is always improving for employees.



Rie Nakamata  
Electronic & Information Materials  
Administration Department, Toray  
Industries, Inc.

I returned to work in April 2013 after taking time off to give birth, and I am currently working reduced hours.

It has made my life a lot easier because I can get home and prepare dinner or do other things, before picking up my daughter at daycare around 5:30 pm. In addition, I didn't have to leave her at daycare for extended hours from when she was an infant to age two, so she didn't get sick very much during this vulnerable age.

I am using a combination of options available to me including reduced working hours, telecommuting, and subsidized childcare expenses to balance my work and my responsibilities as a mother. My colleagues and supervisors have been very understanding, and I am grateful for their support. Due to my shorter working hours, I have had to work more efficiently and make the most of any spare time, to perform at a higher level.

As my child gets older, I plan to ease into working full-time again.



Asako Shinohara  
Legal Department, Toray  
Industries, Inc.





## Product Safety and Quality

Ensuring product safety and quality is essential for gaining the trust of customers. This is why Toray Group constantly strives to improve product safety and quality assurance, true to its “customer first” and “quality first” commitments.

### Management

Guided by its policies on product safety and quality assurance, Toray Group has established an organizational framework for consistently delivering on its “customer first” and “quality first” commitments. Specifically, Toray’s Product Safety and Quality Assurance Planning Department plans and proposes measures for the entire Group, while the Product Safety and Quality Assurance Committee deliberates on basic policies and other matters. In fiscal 2010, product safety and quality assurance tasks were determined in each of the Group’s business areas with a view to achieving growth over the medium to long term. As a result of ongoing activities, a number of business segments and group companies accomplished their tasks in fiscal 2013. Looking forward, Toray Group intends to enhance its group-wide management systems in connection with product safety and quality assurance, capitalizing on synergies between the two areas.

#### Quality Policy (revised June, 2007)

We give top priority to the product quality offered to our customers as well as to safety and to the environment in our corporate activities. We work on quality assurance with the stance of “Customer First.”

1. We make our best efforts to meet our customers’ expectations with products and services of high satisfaction.
2. We commit ourselves to abide by the “Quality First” principle, and to improve the quality and reliability of our products, in all our divisions, including sales, manufacturing and research and development.
3. We meet quality requirements at the stage of design and development, and ensure and enhance these in the manufacturing process.
4. We continuously strive to organize, maintain and improve our quality management system.

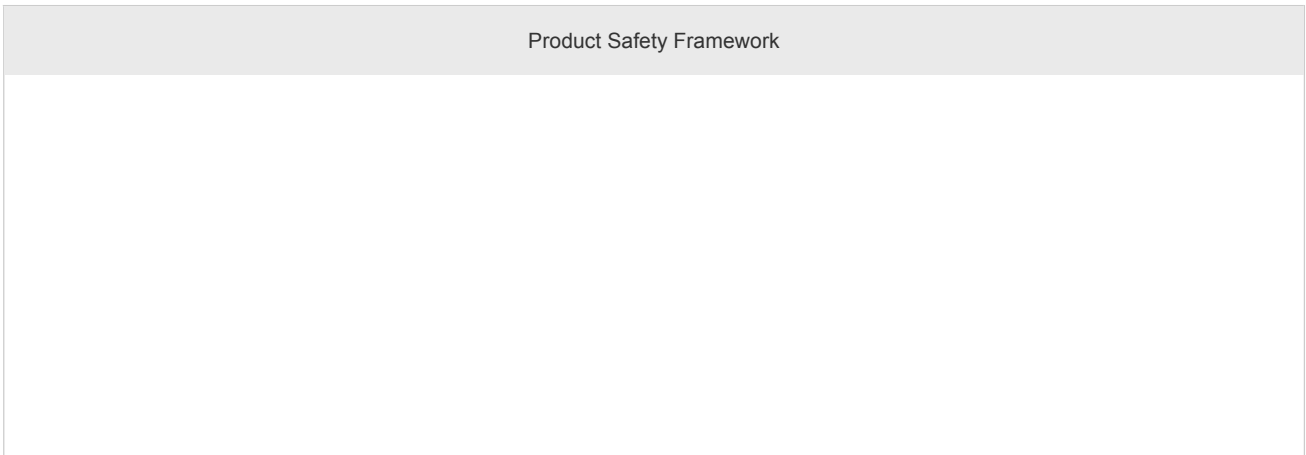
#### Product Safety Management Basic Policy (established January, 1992)

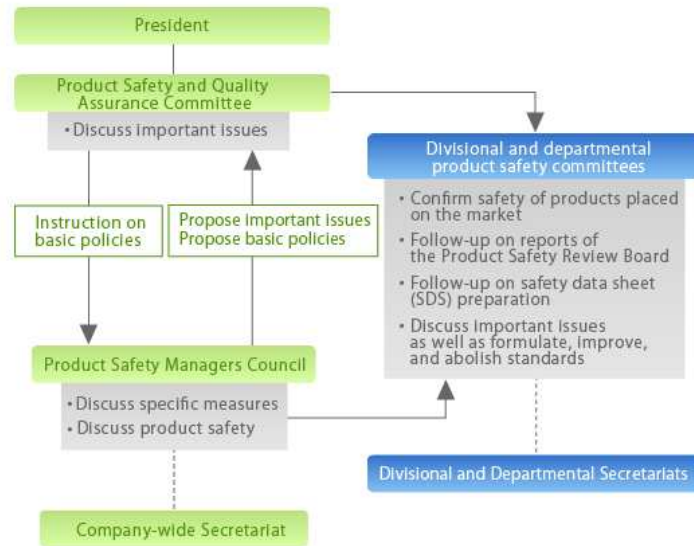
1. We shall place priority on the various measures required to ensure product safety.
2. We shall conduct adequate safety evaluations prior to marketing a new product.
3. For products already on the market, we shall take note of feedback from customers and the general public and always remain attentive to safety.

### Implementation of Product Safety Activities

Toray’s product safety framework is shown in the diagram below. Based on Product Safety Control Regulations, Toray’s Product Safety Managers Council promotes and implements annual group-wide product safety themes that are established by the Product Safety and Quality Assurance Committee. Each divisional and departmental product safety committee further breaks down the product safety themes, based on deliberations of the Product Safety Managers Council. Under this arrangement, implementation issues are identified by each relevant division and department every year, and the production, engineering, and sales divisions cooperate in efforts to thoroughly implement and improve product safety management.

#### Product Safety Framework





Toray established a group-wide system in fiscal 2011 for standardizing and analyzing data concerning the occurrences of accidents involving its products and the progress of product safety reviews.

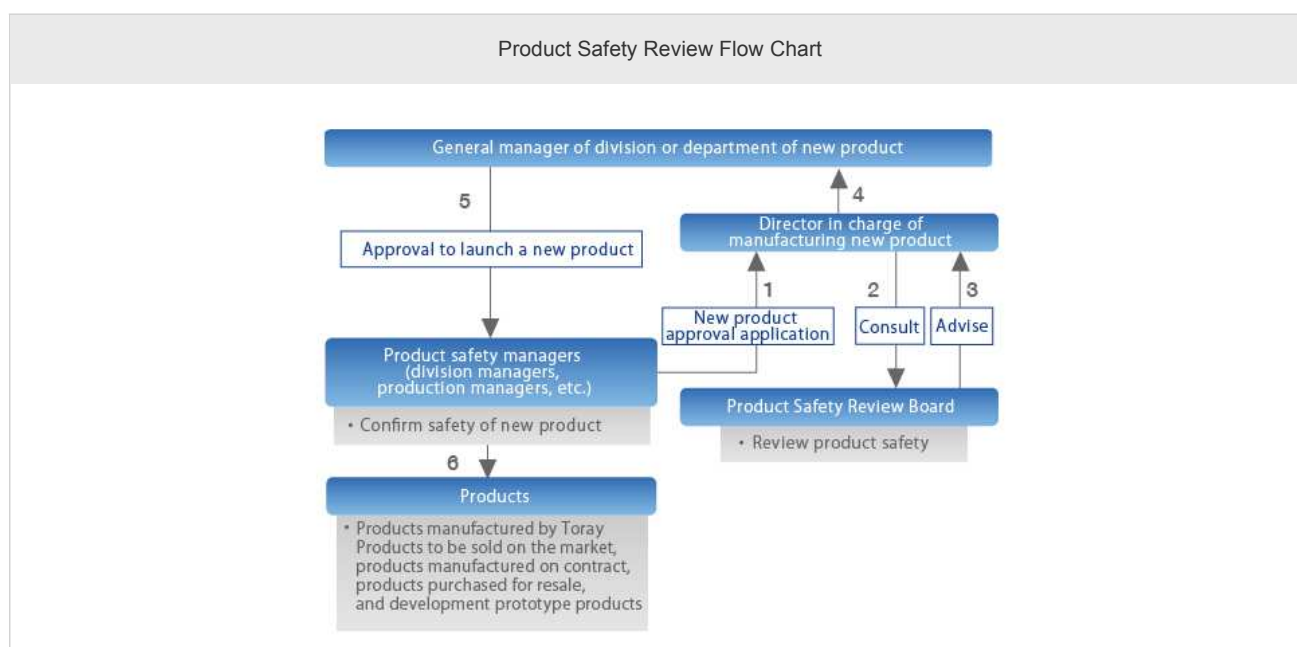


## Initiatives for Product Safety and Quality Assurance

### A Stronger Product Safety Review System

Safety reviews for new products are implemented under the responsibility of the directors in charge of manufacturing at Toray and the relevant directors at its group companies. These reviews encompass safety checks for the product itself as well as reviews of safety information supplied to customers such as safety data sheets, <sup>1</sup> instruction manuals, warning labels, and catalogs. The reviews also examine the product's impact on the environment. If any doubts about product safety are identified, the Product Safety Review Board convenes a meeting comprised of impartial experts, including people from outside the Group when necessary. The product must then pass their review before being released to the market.

<sup>1</sup> Since fiscal 2012, Toray Group has been phasing in safety data sheets (SDS) based on revised JIS standards that comply with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).



### Product Safety Education and Training

Toray provides training every year for newly appointed department and section managers at the Company and its group companies in Japan. Sessions are focused on the importance of product safety, the relationship between product safety and quality assurance, relevant laws and regulations, and Toray Group's product safety review system. In fiscal 2013, Toray also ensured that each business division and group company implemented a training program tailored to their specific activities.

### Responding to an Accident Caused by a Product Defect

Two noteworthy accidents from product defects occurred in fiscal 2013. One involved a construction worker who suffered cuts to the fingers while handling waterproof membrane imported by Chori Co., Ltd., due to a knife blade that had become embedded in the product during manufacturing. The other accident involved flooring that had warped because of a leaking under-sink water purifier made by a manufacturing subcontractor and sold by Toray, due to human error during manufacturing. Toray has already given instructions to related parties and implemented measures to prevent any recurrence of this issue in manufacturing. Toray will also pursue other initiatives to ensure the safety of materials and products procured from outside of Japan and to prevent accidents attributable to manufacturing subcontractors.

### Providing Product Safety Information

Toray Group provides product safety information along with its many products and services in a manner appropriate for each of its businesses. In its efforts to create a convenient environment for customers, Toray makes available toll-free numbers for customers to call and inquire about its mainstay consumer products such as home water purifiers and contact lenses.

### Perfecting Systems in Support of Quality Assurance Activities

Every year, the Product Safety and Quality Assurance Committee determines company-wide tasks on the basis of quality assurance management rules. Each worksite works on the tasks under the direction of a Quality Assurance Manager Council.

In fiscal 2013, Toray launched an initiative to prevent forgetfulness about past quality problems. For major product complaints that occurred in previous years, relevant personnel conducted follow-up checks on the progress of investigations and effectiveness of countermeasures taken by the departments responsible. Through these processes, Toray reconfirmed that the true root causes of complaints had been identified and appropriate countermeasures were taken. Toray also provides ongoing guidance to help group companies improve quality systems and regular quality assurance. All group companies in Japan finished the expected improvements in fiscal 2012, while 9 out of 12 group companies outside Japan with room for improvement finished in fiscal 2013. Toray is also making further improvements by reviewing existing quality assurance management systems for the increasing number of global products produced in more than one factory in and outside of Japan.

## Respecting the Eight Basic Consumer Rights

Protecting the rights of consumers while ensuring open, just and equitable trade is essential for a sound consumer culture. Toray engages in a wide variety of businesses for the benefit of both business operators and consumers. In dealing with a diverse customer base, the Company has adopted as its fundamental principles the eight basic rights of consumers, and works diligently on this basis to ensure the safety and quality of its products.

### The Eight Basic Consumer Rights Excerpted from the Consumers International website

1. The right to satisfaction of basic needs
2. The right to safety
3. The right to be informed
4. The right to choose
5. The right to be heard
6. The right to redress
7. The right to consumer education
8. The right to a healthy environment

## Voice

### Continuously Improving Quality Through Management Systems

Toray Resin Company (TREC) is a US company based in Indiana, where I work as manager for quality control. At TREC, we compound engineered resins (PA6, PA66 and PBT) for the automotive industry as well as the electrical & electronic industry. We produce PBT resin primarily used for electrical components, such as wire harness connectors. We also produce PA resin which is typically molded into power-train applications such as radiator tanks and air intake manifolds.

In 2004, TREC successfully obtained certification of compliance with the TS16949 standard. With the implementation and continued maintenance of the TS16949 standard, we have reduced the amount of rejects as well as the number of customer complaints.

TREC has had ISO14001 environmental management certification since 2006. As a member of the cross-functional team, we focus on waste and energy reduction. Our current plan will get us to approximately 97% landfill-free by the end of 2014.



Jason Kaiser  
Quality Control Manager, Quality Control Department, Indiana Plant, Toray Resin Company



## Facilitating CSR Initiatives Throughout the Supply Chain

As a materials manufacturer, Toray pursues CSR procurement throughout the supply chain, working closely with suppliers, manufacturing subcontractors, sales agents, and distribution partners.

### Management

Toray Group works with suppliers and distribution partners to ensure that its supply chain meets social expectations. The Group has created CSR Procurement Guidelines to ensure that it is providing customers with environmentally friendly and socially responsible materials and products.

#### CSR Procurement Guidelines (Adopted in December 2004)

1. Establish an internal CSR organization and be committed to CSR
2. Work to enhance corporate ethics and comply fully with all laws and regulations
3. Position safety, accident prevention, and environmental preservation as a management priority and practice green procurement and purchasing whenever and wherever possible
4. Put crisis management systems into place, including capabilities for responding swiftly in unexpected situations, and disclose accurate information
5. Encourage dialogue and cooperation among all stakeholders
6. Ensure product safety as a precondition for supplying products
7. Respect human rights, eliminate discrimination, and improve workplace environments; prohibit forced labor, slave labor, child labor, and unfair low-wage labor
8. Maintain the confidentiality of information and respect others' intellectual property rights

## Toray Group's CSR Procurement and Purchasing

While providing materials and products as a manufacturer of advanced materials, Toray Group emphasizes the needs of its product users as the starting point for its management of production facilities and procured raw materials and resources. Accordingly, the Group has established its Basic Purchasing Policies to realize this approach and ensure that the transactions it conducts are fair.

### Basic Purchasing Policies (Revised in December 2004)

1. Toray does its utmost to select suppliers and determine actual purchases fairly and on the basis of economic rationality, with consideration for price, quality, capability to provide stable supplies, technological capabilities, reliability, and other factors.
2. In selecting suppliers, Toray opens its doors to a wide range of companies inside and outside Japan. Toray does not rely solely on vendors it has existing or past relationships with, or on members of its corporate group.
3. In making purchases, Toray complies with relevant laws and regulations while taking environmental preservation and fulfilling corporate social responsibility (CSR) issues into account. Toray actively pursues green procurement and purchasing as part of its environmental efforts.
4. Toray works to maintain and improve the quality of purchased products through cooperation with its suppliers.
5. Toray works to uphold its corporate social responsibilities on a company-wide basis.

### Implementing CSR Procurement

As part of its ongoing efforts, Toray regularly surveys its suppliers to determine the status of their CSR initiatives. After collecting and analyzing their replies, Toray evaluates the results and provides them to the suppliers as feedback. Toray requests improvements with a view to further strengthening its partnerships with suppliers while checking the progress of each company's CSR initiatives, including making visits to certain suppliers. All of these activities are performed in a plan-do-check-act (PDCA) cycle.



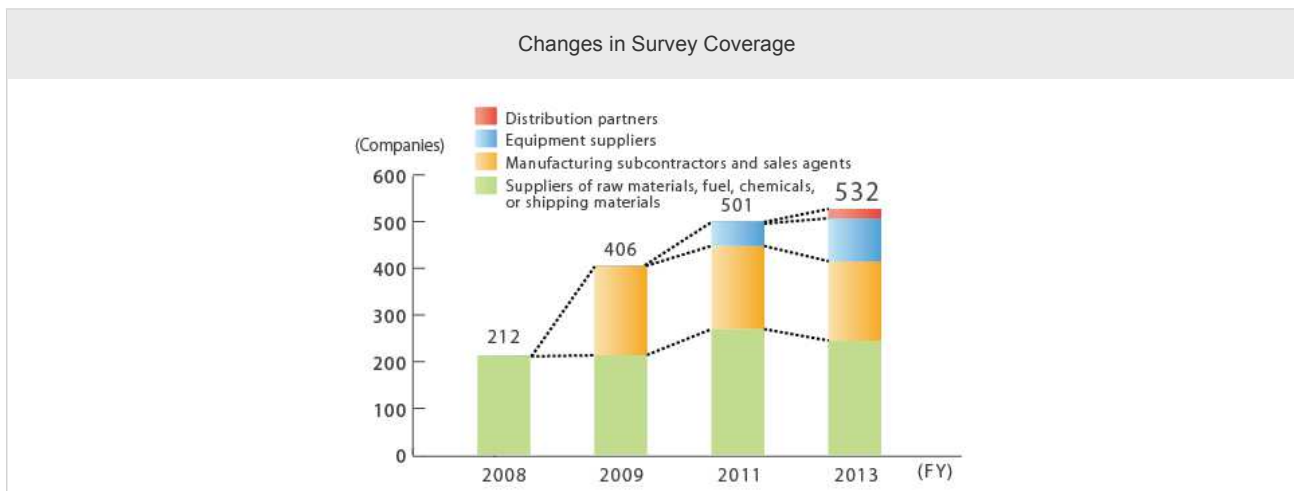
### Surveying Suppliers about CSR

Toray asks its main suppliers and subcontractors to practice CSR procurement, targeting 90% compliance among business partners. Compliance is monitored through a biannual survey on the status of CSR initiatives. The survey currently covers main suppliers, manufacturing subcontractors, and sales agents that account for 90% of Toray's total procurement by value, and it is being expanded to other business partners. In fiscal 2013, the survey covered 532 companies and for the first time included distribution partners. After surveys are collected, responses are tabulated and analyzed to provide feedback to business partners and for internal use.

The survey consists of a questionnaire to determine the level of compliance with Toray-issued guidelines on CSR procurement. The questionnaire also addresses issues such as biodiversity conservation and conflict minerals, which are increasingly prominent issues today.

Expanding Survey Scope				
Type of supplier surveyed	FY2008	FY2009	FY2011	FY2013

Suppliers of raw materials, fuel, chemicals, or shipping materials	✓	✓	✓	✓
Equipment suppliers			✓	✓
Manufacturing subcontractors		✓	✓	✓
Sales agents		✓	✓	✓
Distribution partners				✓



### New Survey System

The most recent CSR survey was implemented using a new system that was jointly developed by Toray, Asahi Kasei Corporation, Teijin Limited, and FiberFrontier Co., Ltd.<sup>1</sup> The new system removes certain limitations so that the surveys can now also be implemented for manufacturing subcontractors, sales agents, and distribution partners, in addition to main suppliers. The system has other advantages including offering more answer choices and providing automatic analysis and feedback. These features enhance the user experience and add functionality that improves survey quality and efficiency.

<sup>1</sup> FiberFrontier was jointly established by Toray and other synthetic fiber manufacturers to run member-based ecommerce sites.

Comparison of New and Previous Survey System		
	Previous system	New system
Distribution	Requires assigning ID	No restrictions
Questions	Up to three choices	No limit
Analysis	Not automated	Automated
Feedback	Not automated	Automated

### CSR Procurement across the Supply Chain

Toray has added conditions to its basic supplier agreement, regarding social responsibility in the areas of legal compliance, respect for human rights, environment, and safety. Both new suppliers and existing suppliers are asked to meet these conditions including upon contract renewal. Existing suppliers are also asked to sign written pledges.

Furthermore, as a supplier, Toray continues to respond to all surveys on CSR status from companies to which Toray sells products. Toray will facilitate CSR initiatives together with various business partners across the entire supply chain.

### Addressing Conflict Minerals

In August 2012, legislation in the United States was adopted requiring companies registered with the Securities and Exchange Commission to disclose their usage of conflict minerals. This does not directly apply to Toray since the Company is not registered with the commission. Nevertheless, Toray conducts an in-house survey to determine whether or not conflict materials are entering its supply chain and eventually being used in Toray Group's products. In cases where minerals being used are of the kind that is sometimes used to fund conflict, Toray is requesting suppliers to complete detailed questionnaires to confirm the location of the mines and smelter sites.

### CSR Procurement at Group Companies in Japan

Toray Group encourages all group companies in Japan to prepare a framework for ensuring CSR procurement. As of the end of fiscal 2013, 95% of group companies in Japan had such frameworks in place.

The Group shares basic knowledge and presents its action policies to group companies at CSR procurement seminars. The purpose of the seminar is to raise awareness of CSR procurement, as well as to assist group companies with preparing their own procurement rules and CSR surveys.



CSR procurement seminar for group companies in Japan

## CSR Procurement at Group Companies Outside Japan

Every year, regional representatives of group companies outside Japan gather in a meeting to share information on general CSR-related issues and report on CSR procurement activities. The participants are making progress toward establishing a framework for ensuring CSR procurement across the entire Toray Group.

Overview of Initiatives for CSR Procurement	
Toray	<ul style="list-style-type: none"> <li>• Determine the status of suppliers' progress in CSR</li> <li>• Conduct meetings and onsite inspections of suppliers that do not meet set standards</li> </ul>
Group companies in Japan	<ul style="list-style-type: none"> <li>• Expand CSR procurement activities and initiatives</li> <li>• Determine the status of suppliers' progress in CSR</li> </ul>
Group companies outside Japan	<ul style="list-style-type: none"> <li>• Establish a CSR procurement framework</li> </ul>

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## Toray Group Distribution Initiatives

Toray's Basic Distribution Policies emphasize environmental preservation, together with fair and equitable transactions. While continuing to work to improve quality and reduce environmental impact, Toray also promotes understanding of its distribution policies. This is done through Basic Distribution Policy Briefings, held annually for distribution-partner companies.



Basic distribution policies briefing

### Basic Distribution Policies (Adopted in December 2004)

1. We shall select our transport and warehousing providers and determine individual agreements impartially and based on factors such as economic rationality with consideration given to price, quality, supply stability, technological capabilities, reliability, and efforts to reduce environmental impact.
2. We shall be open in selecting our transport and warehousing providers, rather than relying exclusively on companies with which we have done business in the past or companies affiliated with Toray Group.
3. We shall comply with relevant laws and regulations, consider environmental preservation, and fulfil our corporate social responsibilities in outsourcing our transport and warehousing operations.
4. We shall cooperate with our transport and warehousing providers in gauging and reducing the environmental impact of our transport and warehousing operations.

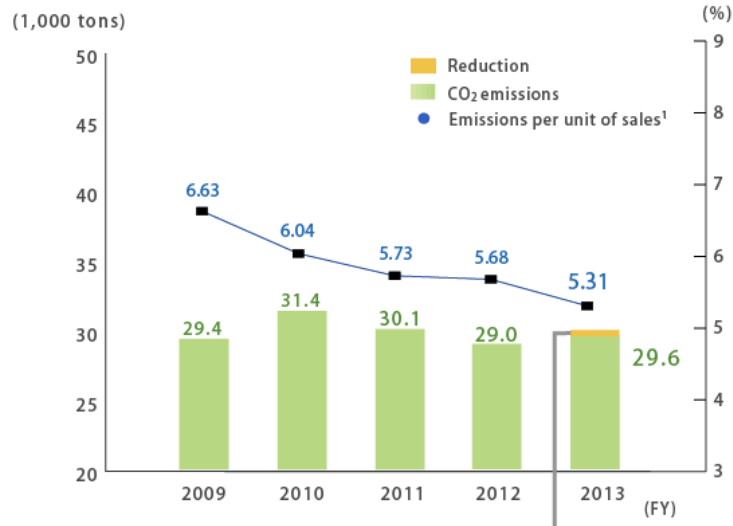
### Going Beyond Emissions Reduction Requirements as a Specified Consignor under the Revised Law Concerning the Rational Use of Energy

Toray Group is actively pursuing initiatives to achieve its stated target of reducing CO<sub>2</sub> emissions from transport of freight by 3% compared with fiscal 2010 levels, by fiscal 2013. These initiatives include reviewing inventory locations and reducing transport distances by using regional ports, as well as adopting low-impact rail transport (modal shift). Ongoing logistics improvements enabled the Group to reduce CO<sub>2</sub> emissions from transport of freight to 29,600 tons in fiscal 2013, down by 6% compared with fiscal 2010 levels and well ahead of the target. Under the Revised Law Concerning the Rational Use of Energy, the Group is designated as a specified consignor and required to reduce its energy intensity (ratio of energy consumption to net sales) by an average of at least one percent every year. By that measure, the Group reduced CO<sub>2</sub> emissions energy intensity by 7% year-on-year.

Moving forward, the Group will use its All Toray Logistics Alliance System (Atlas) logistics platform, which tracks and calculates CO<sub>2</sub> emissions from transport, to expand its initiatives to cover group companies in Japan, so that CO<sub>2</sub> emissions are tracked and reduced on a consolidated basis.

#### CO<sub>2</sub> Emissions Resulting from Distribution Activities (Toray)

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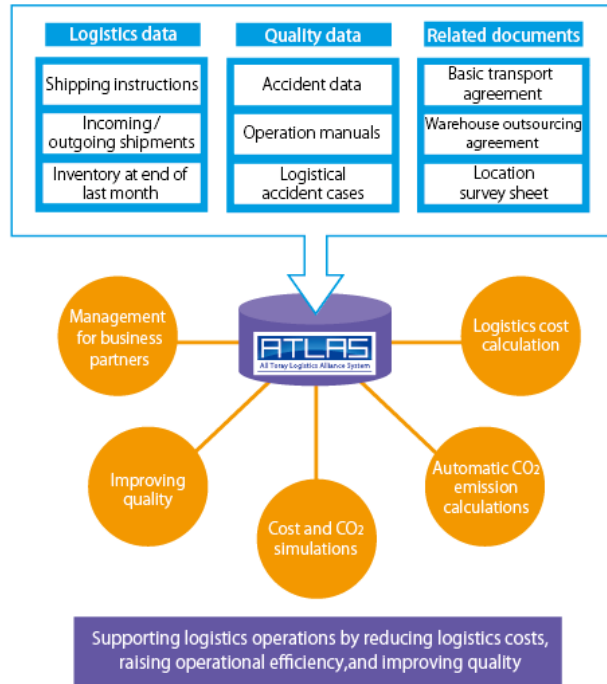


Effective 400 ton reduction in volume of CO<sub>2</sub> emission

Breakdown of reductions

Details of initiatives	CO <sub>2</sub> Reduction (1,000 tons)
Recognized actual reductions more precisely due to improved calculation accuracy for maximum loading capacities, average loading rates, and other values	0.04
Modal shift	0.06
Full-load transport (strategic positioning of warehouses, etc.)	0.06
Shortened transport distances (loading at the nearest port, etc.)	0.28
<sup>1</sup> CO <sub>2</sub> emissions at the transport stage divided by sales on a per unit basis	0.44

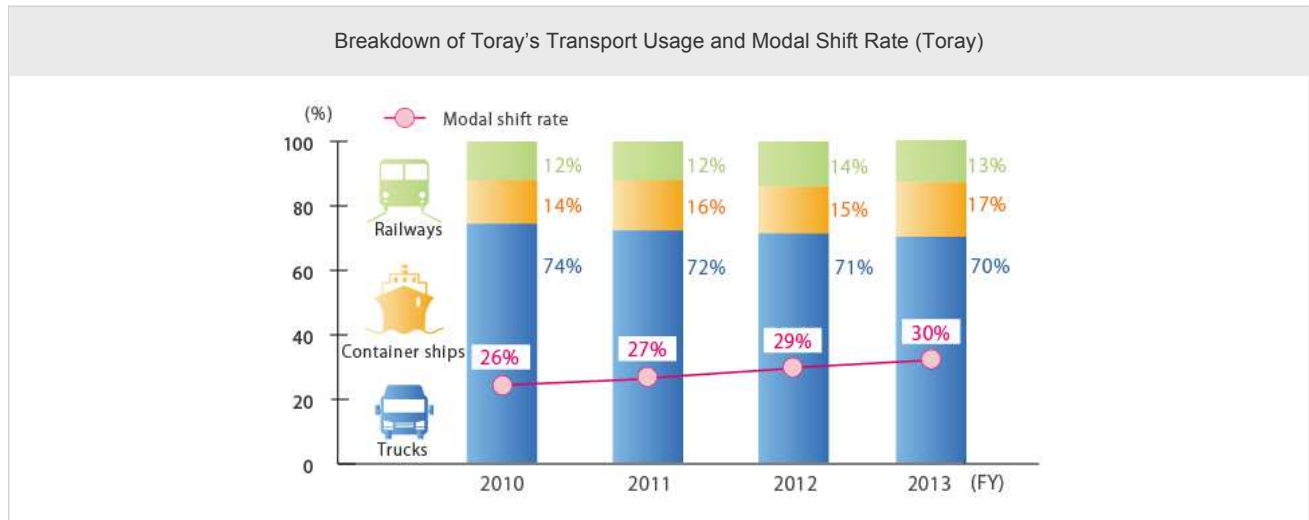
Benefits of the Atlas Logistics Platform



Eco Rail Mark Acquisition

In March 2011, Toray was certified as an Eco Rail Mark Company by Japan’s Ministry of Land, Infrastructure, Transport and Tourism and the Railway Freight Association. This recognizes Toray’s active efforts to use rail freight transport, a relatively environmentally friendly means of transportation. The Company also obtained Eco Rail Mark Product certification for its TORAY TETORON™ polyester fiber. Moving forward, Toray will actively use rail transport and pursue other strategies to achieve at least a 40% modal shift in transport by fiscal 2016, calculated

<sup>2</sup> Data was converted from a weight calculation to ton-kilometer calculation in order to match public baseline indexes from external sources.



**Promoting a Modal Shift**

**Toray acquires certification as an Eco Rail Mark Company**

Certification criterion:  
Usage of rail for over 15% of total land transport of 500 kilometers or more

**TORAY TETORON™ certified as an Eco Rail Mark Product**

Certification criterion:  
Usage of rail for over 30% of total land transport of 500 kilometers or more

**To further promote a modal shift, Toray is implementing an in-house environmental logistics project with the goal of achieving a modal shift rate of 40% by fiscal 2016.**

### Initiatives to Improve Safety and Quality in Distribution

Toray is working with distribution partners to improve transport quality. The project involves sharing accident analysis data, distributing newsletters and training videos, and conducting logistics accident hazard prediction training using the Atlas platform. Partners that make outstanding contributions to improving quality are recognized through annual awards.<sup>3</sup> These initiatives are aimed at reducing the number of problems such as those involving breakage, and reducing transport delays and incorrect shipments of Toray products.

The number of incidents had been declining over the last few years as a result of these ongoing efforts, but the number of problems increased by 17% year-on-year in fiscal 2013.

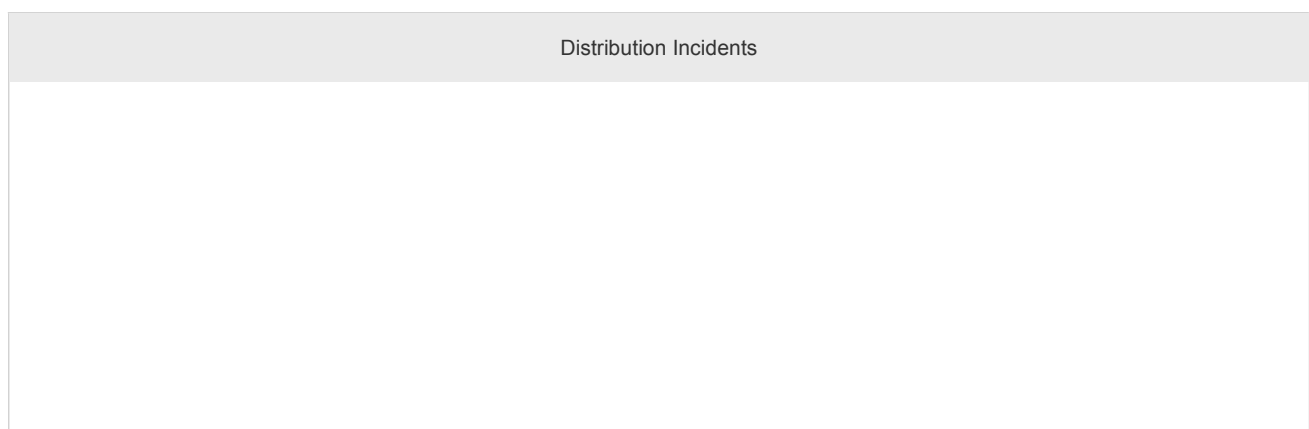
To address this, Toray is surveying distribution partners about improving transport quality and conducting safety education workshops to further enhance logistics safety and quality, with a target of reducing incidents to half the number of problems (600 or less) compared with the baseline of fiscal 2005.

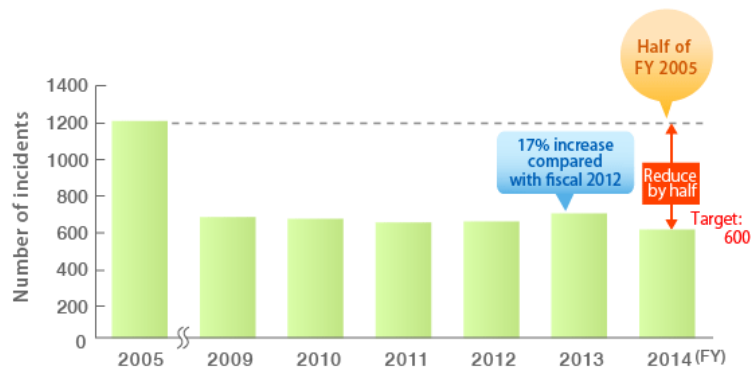


Safety education workshop for distribution partners

<sup>3</sup> Distribution-partner companies receiving awards in fiscal 2013 (alphabetical order):

- Amano Kaisoten, Ltd., Daisei Warehousing & Transportation Co., Ltd., Enshu Truck Co., Ltd., Iyoshoun Co., Ltd., Meirin Group, NRS Corporation, Okayamaken Freight Transportation Co., Ltd., Shikoku Meitetsu Transport Co., Ltd., Toyo Logistic Service Co., Ltd., Yamada Unso Co., Ltd.





## Safety and Energy Conservation Initiatives

Toray is encouraging its distribution partners to install digital tachographs in their vehicles to help them conserve energy and achieve safer operations as shipping companies. Digital tachographs record and output vehicle operation data that can be used to provide guidance on safe driving. By using them, Toray's distribution partners have improved their drivers' skills, raised safety awareness, prevented dangerous driving habits, reduced the number of accidents, and improved mileage via more fuel-efficient driving.

## Yellow Card Emergency Response Measures

Drivers of shipping vehicles carry a yellow card<sup>4</sup> detailing emergency measures to be taken to minimize damage in the event of an accident. Toray has also established an emergency communication system and carries out emergency training in case of an accident during transport. In the unlikely event of such an accident, Toray has procedures in place enabling the necessary staff to be dispatched as swiftly as possible to the accident site for assistance.

<sup>4</sup> Cards summarizing the names of any hazardous substances, applicable laws and regulations, hazardous properties, emergency accident procedures, emergency reporting and contact information, methods for minimizing the spread of damage, and other accident response information.

## Initiatives to Prevent Overloading

The overloading of trucks causes vibration, noise, damage to roads and facilities, and also creates driving hazards. Consequently, Toray is putting considerable effort into the prevention of overloading in order to fulfill its social responsibilities in the transport of goods.

## Compliance and Security Measures for Importing and Exporting

As a measure to ensure the legality and safety of imports and exports as part of Toray Group's expanding global operations, a US subsidiary of Toray International, Inc. enrolled in the Customs-Trade Partnership Against Terrorism (C-TPAT)<sup>5</sup> with the aim of strengthening global supply chain compliance. In order to realize more efficient imports and exports of materials and to strengthen supply chain compliance and security measures, Toray is also encouraging its worldwide distribution partners to obtain Authorized Economic Operator (AEO)<sup>6</sup> status.

<sup>5</sup> A voluntary program introduced by United States Customs and Border Protection in November 2004. The aim of the program is ensure and strengthen security through the global supply chain, based on international cooperation with private operators importing goods into the US.

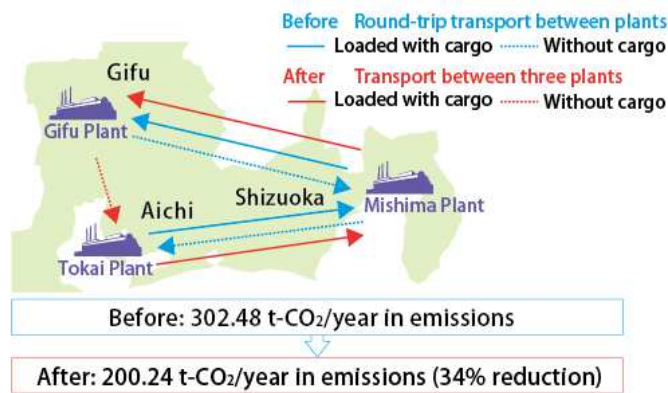
<sup>6</sup> A status implemented by the EU in December 2006 that gives priority in customs procedures to importers and exporters with a high level of compliance for cargo security. The Japanese Customs Act was also revised in 2007, and a similar qualification system was established to provide priority in customs procedures to highly compliant operators.

## Environmentally Friendly Distribution

### Improving Efficiencies in Transport between Business Locations

Toray Group uses special trucks to transport large quantities of plastic chips for film manufacturing between plants. In order to prevent contamination, the trucks have thus far transported only the same kind of chips, returning empty after unloading their cargo.

To address this inefficiency, Toray experimented with allowing each truck to carry different kinds of chips on different runs, and tested to ensure that cargo quality was not adversely affected. Trucks are also now being diverted to a second plant in the vicinity to load cargo, which has significantly reduced the distance traveled without cargo. These changes resulted in a 34% reduction of CO<sub>2</sub> emissions.

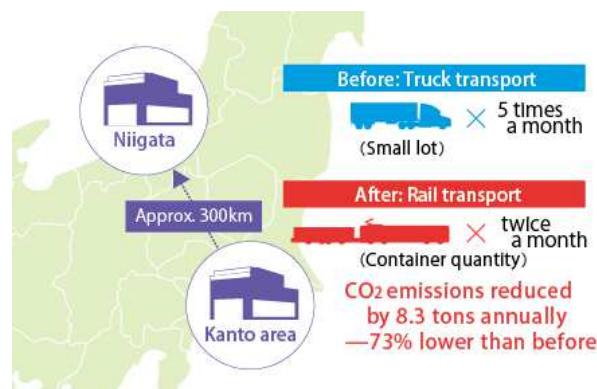


Note: Estimated based on transport data from fiscal 2013

### Incorporating Rail Transport over Medium Distances

Toray faced logistical challenges in securing truck transport for plastic products from a warehouse in the Kanto area to Niigata, due to a shortage of drivers and tighter restrictions on working hours. Switching to rail transport was not cost effective due to the small lot orders and frequency of shipments, and due to the medium-length distance of 300 kilometers. However, Toray worked with the customer to increase the volume per shipment and overcame the break-even point for transport costs, which enabled a switch to reliable rail transport.

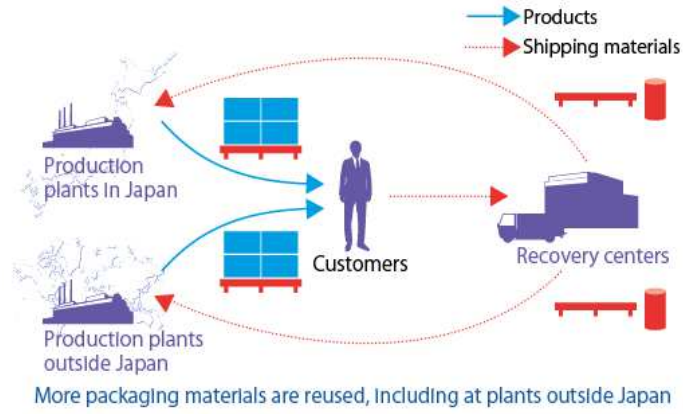
This resulted in an annual reduction of 8.3 tons of CO<sub>2</sub> emissions, making the total 73% lower than truck transport. Toray will look at other routes where securing truck transport is difficult, in order to overcome break-even points for transport costs and facilitate the integration of rail transport.



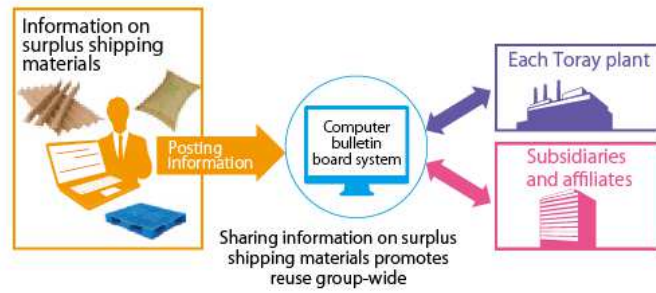
### Expanded Collection and Reuse of Packaging Materials

Toray Group is establishing a framework in Japan to collect and recycle packaging and shipping materials that come with products used by customers, in order to increase reuse and recycling. The Group also uses recycled packaging and shipping materials at plants in and outside of Japan to meet the demands of its global business.

Group companies in Japan use a bulletin board system for posting information on surplus packaging and shipping materials that other companies may wish to use. This is one way in which the Group as a whole is increasing the reuse of materials.



### Toray Group's Bulletin Board System for Sharing Surplus Shipping Materials



## Communication

For Toray Group, enhancing dialogue with stakeholders is one of the most important priorities for management. As such, the Group works to provide appropriate information in a timely manner to all of its stakeholders, including customers, employees, stockholders, and local communities, in an effort to respond to their diverse expectations while ensuring effective communication.

### Management

Toray Group has established Basic Policies to Promote Dialogue with Stakeholders, designed to ensure that its management gives serious consideration to each type of stakeholder when deciding on basic management objectives. These policies guide Toray Group's efforts to communicate with stakeholders across the spectrum of its business activities. A management-led Corporate Communications Committee meets twice a year to regularly report on and discuss communication activities.

#### **Basic Policies to Promote Dialogue with Stakeholders** (adopted September 2005)

1. Toray Group will promote dialogue and collaboration with all stakeholders, including customers, stockholders and investors, business partners, employees, government, local communities, NPOs, citizens, the global community and the media.
2. Each company in Toray Group, through dialogue and collaboration with stakeholders, will take steps to carry out reforms designed to increase the satisfaction level of everyone.
3. All Toray Group employees, in their respective workplaces, shall identify and strive to solve issues affecting stakeholder satisfaction as part of their CSR activities.

## Facilitating Communications with Stakeholders Worldwide

Fiscal 2013 year marked the final year of the medium-term management program, Project AP-G 2013. The Group sought to communicate its target achievement and progress through various platforms including in-house newsletters, corporate websites, and mass media, reaching out to stakeholders in and outside the company. Under the Asia and Emerging Country Business Expansion Project outlined in the Project AP-G 2013, the Group is expanding its global web presence by setting up websites for the United States, Malaysia, and Thailand in fiscal 2012, and for India and Taiwan in fiscal 2013. This effort aims to strengthen the Toray brand and leverage websites as marketing tools, while stimulating dialogue with various communities.

Local employees tailor websites to their country or region, gathering and conveying information that serves the needs of stakeholders in their regions. Moving forward, the Group will launch websites for Singapore, Europe, Brazil, and South Korea.

For the corporate website, the Group uses responsive web design to ensure proper viewing on the proliferation of devices and screen sizes used today including computers, smartphones, and tablets, which helps make the sites accessible to all stakeholders.



Toray Group's global website



## Communication with Customers

Toray believes that customers come first, and as part of this commitment conducts regular customer satisfaction surveys. In fiscal 2013, approximately 70% of major customers around the world responded to the survey, similar to the survey from two years ago. These surveys provide valuable input and feedback from customers outside of everyday business dealings. Feedback is circulated internally through board meetings and in-house newsletters to help employees understand the importance of customer satisfaction and strive to maximize it in their work.

### Voice

#### Customer Satisfaction Surveys

The Corporate Marketing Planning Department commissions a survey firm to conduct regular customer satisfaction surveys so that we can improve our marketing and sales activities. The survey itself comprises a questionnaire with some 40 questions covering five categories (Toray staff interaction, technology and development, products and quality, orders, corporate image and management), with responses collected from around 500 companies. The survey responses are thoroughly and objectively analyzed to identify strengths and weaknesses, and the results are reported to employees. We also conduct an employee attitude survey around the same time, which enables us to determine if there are any gaps between customer needs and employee perceptions.

These surveys are extremely important to enhancing employee motivation and improving sales-oriented work. The customer satisfaction surveys can sometimes contain harsh criticism, but we view them as opportunities for every employee to work on improving our business activities, putting the customer first at Toray.



Shigekazu Morie  
General Manager on  
Special Assignment,  
Corporate Marketing  
Planning Department,  
Toray Industries, Inc.

## Communication with Stockholders and Investors

In accordance with its Information Disclosure Policy, Toray makes sure to disclose information required under laws and regulations in an accurate, timely and appropriate manner, as well as a broad range of additional information beyond these requirements. Toray's Investor Relations Department operates directly under the president as a liaison between the Company and its stockholders and investors. The department takes every opportunity to communicate with stockholders and investors while reflecting their viewpoints in management and business activities.

### Holding Investor Relations Events to Meet Directly with Stockholders and Investors

Toray hosts quarterly briefings for institutional investors and securities analysts on the same day that it announces financial results. It also participates in company briefings held by stock exchanges in order to communicate directly with individual investors. Toray's major IR activities in fiscal 2013 are shown below.

Activities	Attendees from Toray	Number of events	Number of participants/frequency
Briefings on business results announcements	President, Director in charge of Investor Relations Department, Director in charge of Finance and Controller's Division	4	529
Briefings on business strategies	President, Director in charge of Corporate Strategic Planning Division, Director in charge of Investor Relations Department, and Director in charge of Finance and Controller's Division	2	285
Meetings and conference calls with investors and analysts	Director in charge of Investor Relations Department, General Manager and staff of the Investor Relations Department	As required	724

Through these briefings and ongoing investors meetings, the opinions of Toray's stockholders and investors are acknowledged and regularly reported to the Company's Board of Directors and the Corporate Communications Committee. The Group works to reflect them in management and business initiatives.

### External Evaluation of Information Disclosure to Investors

In the "Investor Relations" section of its corporate website, Toray provides useful information about its financial results and management policies and strategies for stockholders and investors. In an effort to disclose information fairly, Toray promptly posts financial data and presentation materials, including English translations, used in its briefings for institutional investors. In fiscal 2013, Toray's publications were evaluated externally by a number of organizations, as shown below.

Evaluations	Organization Details
Daiwa Investor Relations Co., Ltd.	Awards for outstanding websites in 2013
Nikko Investor Relations Co., Ltd.	Most outstanding site in a completeness ranking of listed company websites in 2013
MerComm, Inc.	2013/2014 Mercury Excellence Award in Annual Reports—Overall Presentation (Bronze in the field of advanced materials)
B to B Advertising Association Japan	2014 B to B Advertising Awards Bronze award in annual report and CSR/environmental report category

### Evaluations from the Perspective of Socially Responsible Investment

Toray was selected as a "Nadeshiko Brand" company that has made outstanding achievements in advancing women's roles in the workplace by the Tokyo Stock Exchange and Japan's Ministry of Economy, Trade and Industry for the second consecutive year, on March 31, 2014. The selection was part of the Tokyo Stock Exchange's +You project, through which it selects listed stocks based on special indexes and criteria, and promotes them to attract new investors in an effort to bolster the Japanese economy.



- Dow Jones Sustainability Index Asia Pacific
- MSCI Global Climate Index
- Ethibel Pioneer & Excellence labels
- Morningstar Socially Responsible Investment Index (MS-SRI)

## Convenient General Stockholders Meetings

For the convenience of its stockholders, Toray avoids holding its general meeting of stockholders on a date when many other companies in Japan hold their meetings. Toray also sends out notices of its general meetings of stockholders as early as possible to give sufficient time for stockholders to plan their attendance. In fiscal 2013, 1,664 stockholders attended the Company's ordinary general meeting of stockholders, compared to 1,279 in fiscal 2012.

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## Communication with Business Partners

Toray Group holds policy briefings and carries out CSR procurement surveys for business partners to foster mutual understanding and closer collaboration.

### Related Information

- > [Facilitating CSR Initiatives Throughout the Supply Chain](#)



## Communication with Employees

In Toray Group, various forms of media such as in-house newsletters, the Toray Navi intranet, and company-wide bulletin boards are employed to stimulate communication among employees. Messages from the company president appear in all of these media. The in-house newsletter *People* is distributed to employees throughout the Group as a means of sharing information and raising awareness about management and business issues as well as the details of Toray's projects. In addition to the usual Japanese and English editions, the Company started to publish a Chinese edition in fiscal 2013.

### Circulation of Toray Group's publications

- Japanese edition of *People* in-house newsletter: Around 15,000 copies per issue (published six times per year)
- English edition of *People* in-house newsletter: Around 3,000 copies per issue (published four times per year)
- Chinese edition of *People* in-house newsletter: Around 6,500 copies per issue (published four times per year)
- *Toray Management* newsletter for managers: About 6,000 copies per issue (published five times per year)



Toray conducted a biannual survey of employee attitudes in fiscal 2013 including personnel assigned to Group companies in Japan. The survey measured employees' levels of motivation, communication, and sense of belonging, as well as their awareness of and involvement in the medium-term management program, Project AP-G 2013. Surveys were collected from approximately 90% of employees and results were positive overall. All employees will be made aware of the results through in-house newsletters.

## Communication with the Media

Toray recognizes that public relations and corporate communication activities have a role in fulfilling responsibilities for information disclosure as well as influencing public opinion. Accordingly, Toray's Corporate Communications Department reports directly to the president, and actively engages with a wide range of media organizations, linking the Company with the public. Based on Toray's Information Disclosure Principles, the department provides fair and impartial information, even if it may cast the Company in a bad light, in a timely and appropriate manner.

Toray's main public relations activities in fiscal 2013 are shown below.

Press conferences	Press interviews given
189	373

### Related Information

- > [Toray's Information Disclosure Principles](#)



## Communication with Local Communities

Toray Group strives to engage in active dialogue with nearby residents in a variety of settings. Some examples of these activities include regular community meetings with local residents, participation in events sponsored by local governments, and inviting local residents to summer festivals held on sporting grounds on plant premises.



Plant tour conducted by Ogaki Fuso Spinning Co., Ltd. for children in the community



Summer celebration organized by Toray's Tsuchiura Plant for employees and their families



Plant tour conducted by P.T. Indonesia Synthetic Textile Mills for instructors and students from a university

## Social Contribution Activities

With an emphasis on science and technology, Toray Group actively contributes to a healthier, more sustainable society by providing support for science education for the young, helping to conserve the environment, giving assistance to local communities, and promoting sports.

### Management

Toray Group established the Toray Group Social Initiative Policies in 2005 to articulate its approach to voluntary, ongoing efforts to contribute to society as a responsible corporate citizen. These policies were formulated based on the Group's corporate philosophy of "contributing to society through the creation of new value with innovative ideas, technologies and products."

#### Toray Group Social Initiative Policies (adopted May 2005)

1. Based on its Corporate Philosophy of "Contributing to society through the creation of new value with innovative ideas, technologies, and products," we will contribute to sustainable development of local and global society as a good corporate citizen, while continuously supporting social initiatives among employees.
2. We will pursue original programs dedicated to the improvement of social welfare in local communities, international exchange through traditional culture, sports promotion, and especially the advancement of science.
3. Using company awards and other measures, we will create a culture that encourages employees to participate in society in constructive ways such as engaging in voluntary activities with an eye to local needs.
4. We will examine all marketing and advertising activities from the perspective of social contribution before finalizing them.
5. We will contribute funds amounting to about 1% of our consolidated ordinary income to social initiatives.

Since fiscal 2013, Toray Group has been encouraging all of its companies to take social action in four priority areas: education, the environment, local communities, and employees.

#### Priority Areas for Social Contribution





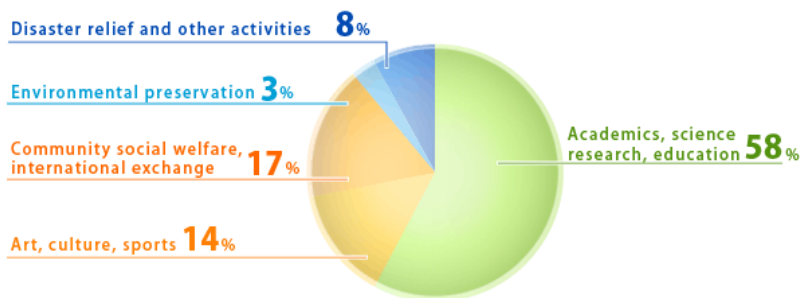
## Social Contribution Expenditure in Fiscal 2013

As a member of the 1% Club, an organization founded in 1990 by Nippon Keidanren (Japan Business Federation), Toray has pledged to invest about 1% of its consolidated ordinary income into social contribution activities.

In fiscal 2013, Toray invested some 1.1 billion yen on a consolidated basis (1.0% of consolidated ordinary income) and some 800 million yen on a non-consolidated basis (1.8% of non-consolidated ordinary income), to achieve the one percent target.

The main beneficiaries were the Toray Science Foundation in Japan and three ASEAN countries (Malaysia, Thailand, and Indonesia), nature conservancy efforts for the Genbei River in the City of Mishima, Shizuoka Prefecture, community cleanup efforts, and new facilities. In fiscal 2013, Toray Group companies used a database to share information on some 2,500 social initiatives. Toray Group companies will continue to share information in order to further advance their social initiatives.

Breakdown of Expenditure in Fiscal 2013



### Spotlight

#### Promoting Science and Technology

Toray established the Toray Science Foundation in 1960 to fund basic research in science and technology, and to contribute to scientific, technological, and cultural progress. The foundation is noted for being one of the first private-sector research assistance organizations to be established in Japan, and it is still highly regarded today. The 54th presentation ceremony of the Toray Science Foundation was held on March 18, 2014 in Tokyo. At the event, two people were presented with the Toray Science and Technology Prize, seven people received the Toray Science Education Prize, which includes the Culture, Education, Sports, Science and Technology Minister's Prize, and 10 people were awarded a Toray Science and Technology Grant. In addition, the Toray Science Foundation held its 63rd installment of the Toray Science Lecture Meeting on September 20, 2013. From 1993 to 1994, Toray established foundations in Malaysia, Thailand, and Indonesia that work to facilitate science and technology progress in their respective countries.



Toray Science Foundation's 54th presentation ceremony

### Related Information

> [Development of Science Technology](#)

## Education

For many years, as part of its efforts to promote science and technology, Toray Group has been carrying out various educational programs for people pursuing science and engineering. The Group has broadened these activities to include elementary and junior high school students in recent years. Incorporating information on its products into teaching materials, the Group is implementing educational programs and other initiatives as it works to actively support education around the world.

### Showing Children the Fun of Studying Science and the Appeal of Manufacturing

#### Supporting Science in the Classroom

In fiscal 2013, Toray Group employees visited classrooms in 27 elementary and junior high schools in Tokyo, Kanagawa, Chiba, Aichi, Osaka and Hiroshima, Japan, and also in the United States, to conduct science workshops. The Group also responded to 20 requests for learning materials from schools in Hokkaido, Aomori, Gifu, Mie and Saga prefectures in Japan, as well as in Thailand. Together with other initiatives such as a workshop for science teachers sponsored by the education board of the city of Mitaka, the Group met its target of implementing 60 activities—double the number of science education activities implemented in fiscal 2010.



Toray Group employee leads a classroom science workshop



An employee of Toray Composites (America), Inc. conducts a workshop

#### Talking about the Environment

On March 11, 2014, the Global Environment Business Strategic Planning Department of Toray conducted a lecture for some 170 first-year junior high school students in the city of Fuchu, Tokyo. The lecture examined climate change and other global environmental issues facing youth in the 21st century and made a strong impression on students. Afterward, many students offered positive comments on the lecture, saying for example, "It stirred my interest in the global environment, because I realized that this is not someone else's problem, but one that affects us all," and "I learned the facts and process behind global warming; after talking with my family about what we could do, we immediately set our heater to a lower temperature."



Students diligently taking notes



A student representative thanks the speaker

#### Talking about the Joy of Manufacturing

On July 16, 2013, Toray President Akihiro Nikkaku spoke to some 1,100 senior high school students in Ishikawa Prefecture about the power of advanced materials to change the world and the appeal of Toray craftsmanship. Products made from advanced materials were displayed at the venue in an effort to spark interest in manufacturing and show Japan's advanced technology. Toray's Ishikawa Plant participated November 16–17, 2013 in a children's event organized by the City of Nomi in Ishikawa Prefecture, conducting fun science experiments that were designed to foster children's interest in science.



Lecture by Toray President Akihiro Nikkaku



Toray's science experiment classes held at Ishikawa Plant

#### Workshops at the Science Museum in Tokyo

Toray conducts regular workshops at the Science Museum in Tokyo every day the museum is open, reaching some 7,000 people in fiscal 2013. Starting in May 2014, Toray added a new workshop on the wonders of fiber, in addition to an existing workshop on filtration and the importance of water to Earth. These workshops provide fun opportunities to learn about the relevance of science and technology to society.



Talking about the wonders of fibers

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## The Environment

Recognizing that raising awareness among a wide array of stakeholders is critical to building a more sustainable society, Toray Group is carrying out initiatives intended to solve issues concerning the environment and water resources. Among these are tree-planting and cleanup activities surrounding worksites and plants, exhibitions, workshops, and collaborations with non-profit organizations.

### Raising Employees' Awareness of Nature through Environmental Preservation Activities

#### Community Cleanup Efforts

Since 2013, Toray has partnered with the non-profit organization, Fujisan Club, which is dedicated to nature conservancy in the Mt. Fuji area. Under the partnership, new employees participate in cleanup efforts along the Tagonoura coastline (city of Fuji, Shizuoka Prefecture) as part of their introductory training. Toray Group offices and plants are involved in ongoing community cleanup efforts that serve to keep communities attractive and raise environmental awareness among employees.



New employees of Toray participate in a shore cleanup in April 2014



Employees of Toray Sanko Precision (Zhongshan) Ltd. clean up the neighborhood around their plant

### Disseminating Environmental Technology through International Exchange

#### International Students and Trainees Invited for Lecture

On September 30, 2013, Toray invited some 40 students from Japan and South Korea for a lecture. The students are involved in a foreign exchange program at Osaka Prefectural Koza High School. The high school is designated for the promotion of science by the Japanese government. Staff from the Water Treatment System Department and Global Environment Research Laboratories gave a lecture on water treatment membrane technology and its potential for improving the global environment.

On November 29, 2013, staff from the Water Treatment System Department taught trainees from Papua New Guinea about using membrane technology to solve water issues, under a program operated by the Japan International Cooperation Agency.



High school students listen to Toray engineers and researchers



A trainee practices filtration using hollow membranes

### Discussing the Significance of Science and Technology with the Public

#### Environmental Education at Eco-Products 2013

Toray Group exhibited at Eco-Products 2013, which was held December 12–14, 2013 at the Tokyo Big Sight convention center. The exhibit highlighted the Group's advanced materials that are helping to address global environmental problems and resource and energy issues. Staff also distributed informational materials to help children learn about the environment.



Toray employee briefs visitors



Toray Green Innovation pamphlet

### Collaborating with an NGO to Improve Water Infrastructure in Indonesia

Toray has been working with the non-governmental organization, Japan Water Forum, since 2011 to improve water infrastructure at elementary schools in Lombok island in Indonesia. In fiscal 2013, toilet facilities were built and improved at five elementary schools and students were taught about the importance of water and hygiene.



New toilet facilities



Teaching students about the importance of water and hygiene



## Local Communities

Toray and its group companies pursue growth in balance with community development, striving for good corporate citizenship by honoring community ties and responsibilities.

### Making Local Communities More Livable As a Good Corporate Citizen

#### Supporting Local Education

Toray Plastics America, Inc. (TPA) provides scholarships at the University of Rhode Island, receiving an award from the university president in October 2013.



Signing ceremony attended by president of the university with officials of TPA

#### Supporting Career Choices

Toray Group supports initiatives that give students broader career choices.

On November 21, 2013, Toray employees talked with second-year students at the Hirano Senior High School attached to Osaka Kyoiku University about working at a corporation, speaking from first-hand experience. The talk was well received by the school for giving students a broader perspective on career opportunities.

On February 26, 2014, employees of Toray International, Inc., visited with second-year junior-high students at Nihonbashi Jogakkan Junior & Senior High School. The school works with companies in the Nihonbashi area to provide students with information about career choices for women. The students asked Toray International employees about their work and the different departments they work in.

On March 14, 2013, employees from Toray Fluorofibers America, Inc. spoke with students in the freshman class at West Morgan High School's college and career planning class to talk about career opportunities in the chemical and fiber industries, and the education needed to enter these industries.



Employee of Toray International speaks to Japanese high school students



Employee from Toray Fluorofibers America talks with students

### Reaching Communities through Sports

#### Sports Lessons

Toray employees who belong to corporate judo and *kendo* (Japanese fencing) clubs have long been involved in holding lessons for children in their communities. The Toray Arrows professional volleyball teams have also been holding volleyball lessons for children across Japan. In fiscal 2013, lessons were given 14 times by the women's team and 13 times by the men's team.



*Kendo* athletes coached by an employee of Toray's Okazaki Plant. The team took 2nd place honors in the junior high school class of a national youth *kendo* tournament.



Volleyball lesson led by the Toray Arrows volleyball team

#### River Cleanup by Rowing Club

The Toray Shiga Rowing Club has 14 members who are Toray Group employees. It was established in 1949 and has remained a powerhouse in Japan delivering top results in numerous domestic competitions. On October 27, 2013, club members participate in cleanup



Cleanup (left) and training (right) at Seta River

## Communities and Disaster Relief

As a good corporate citizen, Toray Group is actively engaged in disaster relief efforts around the world, striving to assist communities by leveraging the special characteristics of each group company.

### Supporting Recovery after the Great East Japan Earthquake

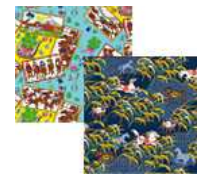
#### Assisting an NGO with Humanitarian Activities

Toray continues to financially support the non-governmental organization, Japan Platform, which links non-governmental organizations, business communities, and government agencies to provide emergency humanitarian assistance to areas struck by disasters such as the Great East Japan Earthquake. The financial donations support the development of a humanitarian assistance platform by non-profit organizations in Japan.



#### Donating to UNESCO Japan's Children Support Fund

Since fiscal 2012, Toray has raised funds to assist children affected by the Great East Japan Earthquake, donating a portion of proceeds from the sale of TORAYSEE™ microfiber cleaning cloths with seasonal designs. Proceeds are donated to a children's fund operated by the National Federation of UNESCO Associations in Japan.



TORAYSEE™ microfiber cleaning cloths in seasonal designs

#### Great Forest Wall Project

Toray Group company Ichimura Sangyo Co., Ltd. has pledged to donate one percent of its annual operating income to assist restoration from the Great East Japan Earthquake. In fiscal 2013, the company donated the profits to the Great Forest Wall Project<sup>1</sup> for the second year in a row.

On October 6, 2013, the president and eight other employees of Ichimura Sangyo participated in a tree planting event in the tsunami-devastated city of Minamisoma.



Employees of Ichimura Sangyo Co., Ltd. plant trees

<sup>1</sup> The Great Forest Wall Project builds on the ideas of Akira Miyawaki, professor emeritus at Yokohama National University and a plant ecology expert. The project is working to build a lifeguarding forest of tide embankment around coastal areas struck by the Great East Japan earthquake, by erecting an embankment from soil and debris created by the earthquake and planting trees on it

#### Bringing Smiles to Temporary Housing Residents

Since 2012, Toray Group company Chori Co., Ltd. has been involved in a unique initiative that brings smiles to people in the Sendai area who have been displaced and are living in temporary housing due to the Great East Japan Earthquake.

In November 2013, employees conducted a natural cloth-dyeing workshop for temporary housing residents, combining Chori's unique technologies with traditional techniques. The company will continue to help bring them smiles by providing fun crafting opportunities.



Making prints using local plant dyes

#### Bringing Live Music to Children in Disaster-affected Areas

Since 2003, Toray has sponsored the Fureai Trio, a group of professional musicians who give classical music performances at educational and social welfare settings across Japan. In May 2013, the trio performed at the Wabuchi Elementary School in the city of Ishinomaki, Miyagi prefecture, bringing live music to children affected by the Great East Japan Earthquake. The trio performed in front of the entire student body of 120 children and some 200 community residents, much to the delight of the audience.



Children attempt to play violin

## Philippines Disaster Relief

### Donated Water Treatment Units to Typhoon-affected Area in the Philippines

Toray donated two compact emergency water treatment units to the Philippines, which were hit hard by Typhoon Haiyan in November 2013. The units were transported to the Philippines by the international NGO Operation Blessing Japan, which spearheaded relief on the ground. They are used to turn contaminated well water into fresh water, and they are supplying daily drinking water for some 2,500 local residents.



These compact emergency water treatment units are used in disaster-affected areas to supply fresh drinking water. The units are manufactured and marketed by Toray Group company Suido Kiko Kaisha, Ltd., using Toray's proven reverse osmosis (RO) membrane, which is also used for applications such as seawater desalination. They remove impurities from different sources of water to provide a supply of safe drinking water.

### 1 Training for NGO Relief Staff

Toray donated two units and trained NGO relief workers at the Atsugi Plant of Suido Kiko Kaisha



### 2 Transport

The units were delivered from Narita International Airport to the Philippines, then transported by land and ferry from Manila to devastated areas



### 3 Emergency Water Treatment Units in Disaster-affected Areas

Pagnamitan Village in Samar Island, Philippines  
(unit put in service on January 21, 2014)



One of the first areas hit by Typhoon Haiyan, that suffered catastrophic damages to the water supply and sewers



Distributing freshwater filtered from contaminated well water

Banting Village in Panay Island, Philippines  
(system put in service on February 27, 2014)



Nine out of 10 homes in this remote island were destroyed by Typhoon Haiyan. Drinking water had to be brought in by small boat.



Children bring containers to receive freshwater for their families



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Toray Group gives top management priority to safety, accident prevention and environmental preservation. The Group strives to uphold safety and health for society and its employees and to preserve the environment in all processes—from the procurement of raw materials to the manufacture, supply and disposal of products.

Toray Group is striving to eliminate worksite accidents, fires and explosions while working to achieve the goals of its Fourth Medium-Term Environmental Plan and prevent environmental accidents.

**Safety, Accident Prevention and Environmental Preservation**

Toray Group formulates an annual safety, health, accident prevention and environmental activity policy and pursues a range of activities accordingly on a global basis.

**Environmental Data**

Environmental impact overview, chemical substance emissions and transfer data, etc.

**Third-Party Assurance**

Assurance statement on greenhouse gas emissions

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» Safety, Health, Accident Prevention and Environmental Preservation Management

## Safety, Health, Accident Prevention and Environmental Preservation Management

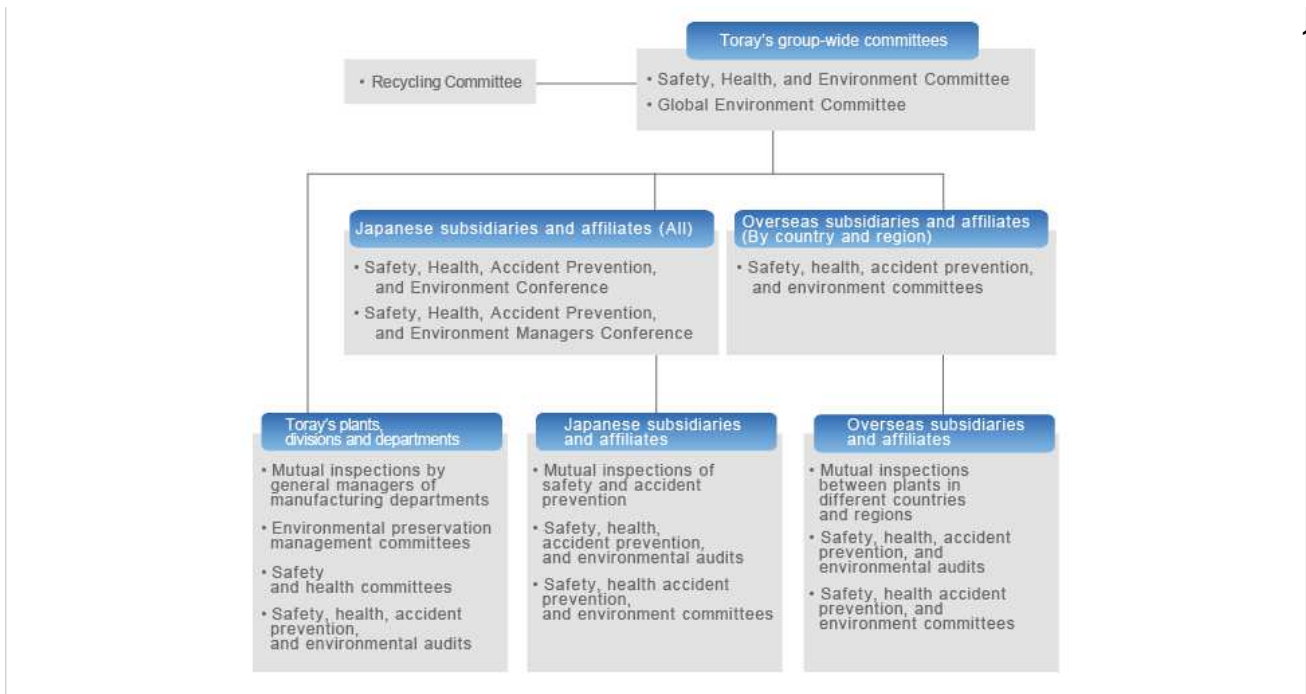
Under a basic policy of practicing integrated global management, Toray Group formulates a safety, health, accident prevention, and environment activity policy every year, after considering the previous year's achievements. The Group implemented 12 main initiatives under this policy in fiscal 2013. The Safety, Health, and Environment Committee decides on future strategies and measures, serving as the decision-making body for the entire Group. It also monitors the progress of activities in these areas at all group companies, offices and production plants.

Safety, Health, Accident Prevention, and Environment Activity Policy of Toray Group in 2013		
Action policy		Main activities
Common	Accomplish risk management	<ul style="list-style-type: none"> <li>• Undertake measures to reduce risks</li> </ul>
Safety	Ensure safety is given the highest priority	<ul style="list-style-type: none"> <li>• Promote "power-up 3Z"<sup>1</sup> activities</li> <li>• Encourage employees to think carefully before taking action</li> <li>• Strengthen high risk countermeasures in each worksite</li> <li>• Comprehensively implement measures for hazardous and toxic substances</li> <li>• Strengthen safety management of Toray Group's onsite subcontractors</li> </ul>
Health	Enhance and strengthen management of chemical substances Emphasize occupational health management	<ul style="list-style-type: none"> <li>• Enhance and strengthen management of mutagenic substances and nanomaterials</li> <li>• Take countermeasures against pandemic influenza</li> <li>• Enhance mental health management</li> </ul>
Accident prevention	Strengthen accident prevention measures	<ul style="list-style-type: none"> <li>• Step up measures to respond to a major earthquake and tsunami, and enhance business continuity plans</li> <li>• Improve natural disaster countermeasures</li> <li>• Accomplish Fire Prevention Project's second phase</li> </ul>
Environment	Implement the Fourth Medium-Term Environmental Plan	<ul style="list-style-type: none"> <li>• Reduce greenhouse gases</li> <li>• Reduce atmospheric emissions of chemical substances</li> <li>• Achieve waste reduction targets</li> <li>• Implement strict measures to prevent environmental accidents</li> </ul>

<sup>1</sup> As part of Toray Group's medium-term management program implemented in fiscal 2011, Power-up 3Z activities are intended to help realize the goals of zero accidents, zero problems, and zero claims.

### Safety, Health, Accident Prevention, and Environmental Preservation Promotion System

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At the same time, the Global Environment Committee discusses and determines strategies for expanding the Green Innovation Business, promoting product recycling, and fighting global warming.

Every year, Toray Group investigates progress and management at its manufacturing companies using a common internal audit sheet for objective assessments. Based on the results, directors or other persons responsible visit sites and conduct a safety, health, accident prevention, and environmental audit.

In 2013, audits were carried out at all of Toray's manufacturing sites in Japan (12 plants and 1 research laboratory), at 46 plants at 24 group companies in Japan, and at 53 plants at 41 group companies outside Japan. Throughout, the focus was on thinking carefully before taking action, comprehensive inspections of all ductwork and simultaneous inspections related to preventing environmental accidents.



Audit at Toray Advanced Film Kaohsiung Co., Ltd.



Audit at P.T. Easterntex

## ISO 14001 Certification

Toray Group is pursuing the acquisition of ISO 14001, the certification for environmental management system, by all of its group companies, offices, and plants. Toray had completed accreditation for all 12 of its plants by the end of 2000 and subsequently went on to pursue accreditation at affiliated companies. By fiscal 2013, 36 plants at 22 group companies in Japan and 42 plants at 34 group companies outside Japan were certified.

## Responsible Care Program

Under Responsible Care programs, chemical companies pursue voluntary management of chemical substances, transparent disclosure, and communication with the public. Companies committed to Responsible Care take safety, health, and environmental measures across the entire product lifecycle—from development, manufacturing, distribution and consumer use to the disposal—and then disclose the results of their efforts. Toray participates in the Japan Chemical Industry Association Responsible Care Council. For priority issues in fiscal 2013, Toray implemented its Fourth Medium-Term Environmental Plan. It also improved its compliance with the United Nations' Globally Harmonized System of Classification for safety data sheets (SDS) for products and strengthened disaster-prevention countermeasures via the second phase of its Fire Prevention Project.

Moreover, the Company has enhanced safety management in the handling of chemical substances at the manufacturing stage, primarily for nanomaterials and mutagenic substances, which it also confirms in safety, health, accident prevention, and environmental audits.

## Complying with REACH and Other International Chemical Substance Regulations

All of Toray's operational divisions and its group companies both in and outside Japan have implemented respective projects and systems to comply with Europe's regulations on the Registration, Evaluation, Authorization and Restriction of Chemical Substances (REACH).

All substances subject to these regulations were registered before the deadline of May 31, 2013, and Toray Group is now working to register designated substances with deadlines of May 31, 2018.

In addition, Toray Group is collecting information on other countries' regulations governing chemical substances and making it widely available throughout the Group. In this regard, Toray and some of its group companies in Japan use the LOLI (List of Lists) Database,<sup>3</sup> a comprehensive database of chemical hazard and toxicity information and regulations in countries around the world, to ensure that they handle chemical substances safely and in compliance with relevant laws and regulations worldwide.

## Complying with Japan's Chemical Substances Control Law

With the revision of Japan's Chemical Substances Control Law<sup>4</sup> in April 2011, companies have been required to report on the manufacture, import, and utilization of general chemical substances. Toray and its group companies in Japan systematically responded to the revision and completed their report covering fiscal 2012 in June 2013.

4 Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

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 **Toray Group**

## Occupational Safety and Accident Prevention Activities

All employees of Toray Group work to ensure safe operations on a daily basis in accordance with the first of Toray's Corporate Guiding Principles: "Placing top priority on safety, accident prevention and environmental preservation, ensuring the safety and health of our employees, our customers and local communities, and actively promoting environmental preservation." With a spirit of respect for all people, the Group's employees, executives and managers recognize that safety is paramount for protecting the precious life of each individual. The entire Group is working together to carry out "zero accident" safety activities with the aim of completely eliminating worksite accidents.

Each year Toray Group selects a group-wide safety slogan. As in the previous year, the Group focused on encouraging employees to think carefully before taking action under the slogan shown below. Toray Group uses the unique term, "Anzen Koh-Doh" ("thoughtful safety action") as a keyword to promote its approach in every country and region where it operates.

### 2013 Safety Slogan

AP-G 2013 — We Should Achieve "Zero Accidents," Keep the Basics and Do "Anzen Koh-Doh!"



2013 Toray Group Safety Convention in Toray Human Resources Development Center

Every year, company presidents, directors, and worksite and plant managers from Toray and its group companies around the world meet at the Toray Group Safety Convention. Safety policies and important measures are presented at the convention, affirming the importance of safety among participants and facilitating the implementation of activities group-wide. Thus, the Group's employees are all united under the leadership of top management in working on safety activities with the aim of achieving zero accidents.

In addition, safety conferences are held and safety committees set up at each group company and plant of the Group. This promotes a common awareness of the Toray Group safety slogan, policies, and priority measures, enabling centralized management of safety activities across the Group.



Safety conference at Toray Gifu Plant



Safety conference at Toray Fine Chemicals Co., Ltd.

### Toray Group Safety Record

Data on occupational accidents has been compiled by Toray since 1980 and by Toray Group as a whole since 1990. Accident information is shared group-wide, and is valuable for measures aimed at preventing the occurrence of similar accidents. Accordingly, group companies in and outside Japan have improved safety records to the level achieved by Toray. In 2013, the occupational accident frequency rate (including both those resulting in lost work time and no lost work time) per million man-hours worked was 0.37 for Toray, 0.53 for subsidiaries and affiliates in Japan, and 0.13 for subsidiaries and affiliates outside Japan.

Meanwhile, the frequency rate for occupational accidents resulting in lost work time for Toray Group overall was 0.18 in 2013. Although this is a positive result compared with that of Japan's manufacturing industry (0.94), the target of 0.05 or lower was not achieved, nor was there improvement compared with the previous year. Therefore, Toray Group will seek to scrutinize the essential causes of individual accidents to comprehensively prevent the occurrence of similar accidents in addition to encouraging employees to think carefully before taking action and promoting risk reduction measures at each worksite. The Group will pursue a wide variety of activities to improve safety levels further, aiming to achieve the goal of zero accidents.

Toray Group incorporates occupational safety and accident prevention training into the curriculums of its specialized and job grade-specific organizational education programs. In addition, the Group emphasizes hands-on accident training by having employees participate in crisis situation simulations to raise hazard awareness.

In the area of occupational safety, trainings are designed to simulate various accidents involving equipment, such as becoming entangled in rollers or getting a hand caught between equipment and another object, getting hit by projectiles or falling objects, receiving electric shocks, and experiencing blow-outs of gas or liquid during pressure reduction. In the area of accident prevention, Toray has been conducting fire and explosion demonstrations since the mid-1970s so that employees can directly experience the terrible impact such an accident could have. Toray intends to continue using sophisticated training methods and programs like these to make a clear impression on employees at its own plants and those of its group companies

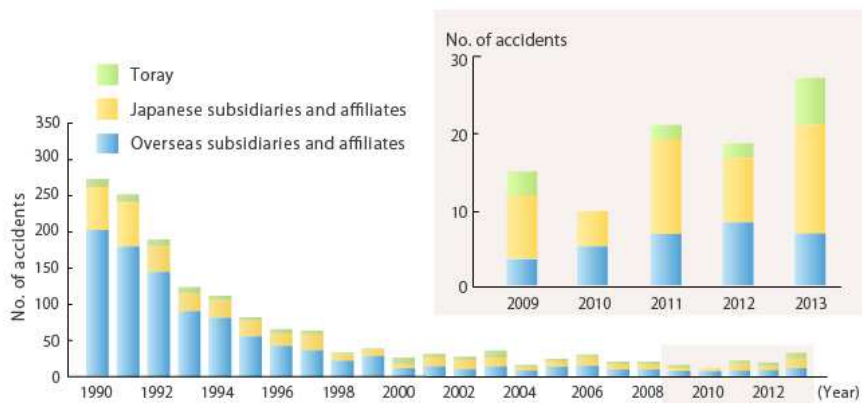


A demonstration simulating getting caught in machinery at Toray's Mishima Plant

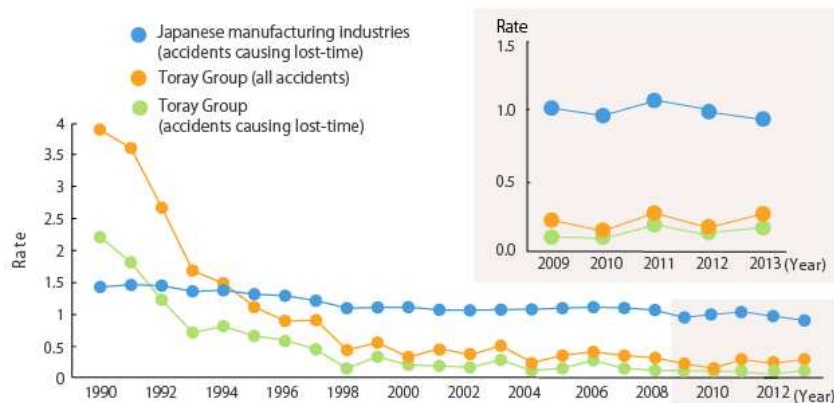


A fire and explosion demonstration at Toray's Shiga Plant

Number of Occupational Accidents: Toray Group (Lost work time and non-lost work time)



Occupational Accident Frequency Rate: Toray Group



In addition, a broad array of information concerning safety and accident-prevention is featured in Toray Group's in-house newsletter, *People*. In 2013, informative articles covering fires and explosions appeared in the newsletter, reflecting the growing number of such accidents in Japan's chemical industry in recent years.



*People*, Toray's in-house newsletter



Mascot for safety and disaster prevention activities: Mr. Safety

Implementing Safety Management Together with Subcontractors

Toray Group carries out its operations with many subcontractors working onsite. Recognizing its duty to ensure the safety of these subcontractors, the Group undertakes safety activities in collaboration with them.

For example, representatives from subcontractors are invited to participate in monthly meetings of Toray's Safety and Health Committee. Safety meetings and jointly held conferences are also held regularly as a means to ensure

that subcontractors are fully aware of Toray Group's policies, plans, and measures related to safety. In addition, Toray encourages its subcontractors to actively participate in general safety activities, such as by submitting ideas for safety posters and entering slogan contests.



Safety meeting at Toray's Ishikawa Plant

The risk of accidents is high in workplaces where forklifts operate alongside people. To separate them spatially, safety fences are placed around forklift operation areas. To separate them temporally, non forklift-operators are prohibited from entering warehouses during certain working hours. In fiscal 2013, Toray Group and its subcontractors worked together to identify risks in actual operations and revised the improvement plan.



Risk inspection on forklift at Toray's Tsuchiura Plant

### Preparing for Accidents through Fire-Prevention Drills

All companies and plants in Toray Group are making efforts to improve their disaster-preparedness capabilities by carrying out fire-fighting drills specifically intended for fires and explosions. At all sites, employees practice using fire hoses in the drills, and at plants situated along coastlines, participants practice installing fence booms to prepare for a potential oil spill.



First-aid fire-fighting drill at Toray's Tsuchiura Plant



Oil fence boom installment drill at Toray's Tokai Plant

### Initiatives for Improving Fire-prevention Capabilities

In recent years, a spate of accidents and explosions has occurred at major chemical companies in Japan. Since July 2012, Toray Group has been implementing the second phase of its Fire Prevention Project to step up its disaster-prevention capabilities. In 2013, the Group worked on: (1) systematic inspection of all ductwork and promotion of countermeasures; (2) horizontal deployment of five tasks based on issues identified in 2012 across Toray Group companies and plants; and (3) the four key measures based on accident prevention inspections and discussion of issues by a committee of experts.

#### Five Tasks Horizontally Deployed across Toray Group in 2013

- (1) Inspect the interrelated impact of power and fuel supply interruption and establish response plan
- (2) Manage interlock operations that are important for fire prevention and provide training
- (3) Enhance monitoring systems for key fire-prevention data
- (4) Prepare process flow charts and manage the latest editions
- (5) Review surveillance systems for temporary storage tanks and other facilities

In addition, the four key measures in the table below were taken at group companies and plants beginning in January 2014, aiming to improve accident prevention capabilities with a focus on firmly establishing them first.

Four Key Measures Discussed by the Expert Committee		
Key measures	Details/objectives	Results of initiatives
Utilize fire-prevention checklist	Enhance and effectively utilize fire-prevention checklist	1. Based on knowledge acquired from expert committee, adopted content of Japan Chemical Industry Association's Safety and Accident Prevention Guidelines to improve fire-prevention checklist 2. Created checklist utilization handbook 3. Appointed key person and created training plan for departments operating the checklist
Enhance management of manufacturing process change	Standardize manufacturing conditions, work and equipment change procedures	1. Created framework proposal of company-wide standards for Manufacturing Conditions, Work Methods and Workers and Equipment (change management procedures)

Strengthen work security	Standardize hot work rules and procedures	<ol style="list-style-type: none"> <li>1. Created Hot Work Safety Guidelines based on results of fact-finding studies at each plant</li> <li>2. Deployed rules and procedures company-wide via engineering department meetings</li> </ol>
Enhance employee training	Review and issue fire prevention textbook; prepare and implement company-wide fire prevention training system	<ol style="list-style-type: none"> <li>1. Comprehensively revised fire prevention textbook issued in 1987 (adding fire prevention technology standards, etc.)</li> <li>2. Improved explosion demonstration equipment (added two static electricity explosion demonstrations)</li> <li>3. Introduced a training plant (small-sized distillation tower)</li> <li>4. Mapped out a training system (including first training session for engineers and accident prevention technology training)</li> </ol>



Employees learning at the training plant (Tokai Plant, Toray Industries, Inc.)



Fire-prevention training for engineers at Toray Human Resources Development Center

### Distribution Safety Initiatives

Toray is working to ensure safe distribution in its operations. In an effort to manage safety when transporting hazardous substances, Toray concludes security agreements with certain customers, raw material manufacturers, and shipping companies to designate their specific safety responsibilities and roles with regards to safety.

### Voice

#### Creating a culture of safety in the workplace to raise individual awareness of safety

We are a young company with 2,187 employees, whose average age is 29. For the purpose of ensuring individual safety, all the employees have been divided into 167 groups, and we have actively developed small group activities. Chinese employees have independently pursued safety activities, including identification of hazardous tasks and processes in the workplace (using a safety suggestion system), comprehensive management of non-routine work (pre-work applications, attendance of supervisor during work, post-work reporting), safety training for new recruits from heads of departments, safety interviews with the factory manager for employees who have a perceived decline in safety consciousness, and other measures based on thorough implementation of the "3S" (neatness, orderliness, cleanliness) activities.

I believe that my mission as the Knitwear Factory manager is ensuring the safety of my subordinates. I think the most important part of promoting safety activities is raising employees' awareness of safety. If someone is injured, it is the individual themselves and their loved ones who will suffer. Therefore, I suggested that employees should stick a photograph of their families in their pocketbooks or set up the wallpaper on their phones so that they can look at their families every day before work to affirm their feelings for them. By doing this, we have succeeded in creating a culture of safety in the workplace in which every individual's awareness of safety increases autonomously.

To date, we have recorded 8,150,000 work hours with zero accidents, as each individual plays a part in carrying out various safety activities. Going forward, we will try our best to pursue an even greater transformation in the awareness of safety, always aiming to maintain our zero accident record.



Xing Debing  
Director, Knit Factory,  
Toray Sakai Weaving &  
Dyeing (Nantong) Co.,  
Ltd



I carry a family photograph and the safety basics in my pocketbook.

### Health Effects and Response to Asbestos

Toray Group has manufactured and imported building materials containing asbestos in the past. In addition, certain buildings and facilities were constructed using such materials and thermal insulation containing asbestos.

Starting in 2005 when asbestos-related health hazards became a social concern in Japan, Toray took action to address the issue of its own asbestos-containing facilities. The health program offers medical examinations to an accumulated total of 3,928 current and former employees who handled even



small amounts of asbestos and wish to undergo an examination. Toray Group is working in good faith with individuals diagnosed with asbestos-related health issues by assisting with their applications for workers' compensation and providing an ongoing program of medical examinations. The Group has not been contacted about health issues by residents living near affected plants.

The health effects on former and current Toray Group employees as of March 31, 2014 are described in the table below.

Certified occupational accidents (Toray Group) : 66 (48)  
Certified health victims based on the Asbestos Law (Toray Group) : 8 (8)

Number of individuals (figures in brackets refer to fatalities)



## Implementing the Fourth Medium-Term Environmental Plan

Toray Group formulated its First Three-Year Environmental Plan in 2000 as a medium-term environmental strategy for promoting autonomous initiatives. Since that time, Toray has continued to work on the fight against climate change and sought to help build a recycling society. Stepping up its efforts even further in fiscal 2011, Toray Group launched its Fourth Medium-Term Environmental Plan. The plan sets new targets for reducing greenhouse gas emissions, atmospheric emissions of chemical substances and waste, seeking to further improve Toray Group's environmental performance. In fiscal 2013, the Group made improvements in its initiatives for achieving zero waste emissions and reducing atmospheric emissions of chemical substances. Aiming to reach its targets for fiscal 2015, the final year of the plan, the Group is dedicated to making further progress going forward.

Implementing the Fourth Medium-Term Environmental Plan		
Area	Toray Group fiscal 2015 target	Fiscal 2013 results
Curb global warming	Toray: Maintain greenhouse gas emissions at least 10% below the fiscal 1990 level <sup>1</sup>	14% reduction
	Toray Group (Japan): 15% or greater reduction in greenhouse gas emissions per unit of sales compared to fiscal 1990 <sup>1</sup>	12% reduction
Management of chemical substances	Atmospheric emissions of PRTR Law-specified substances: 70% reduction compared to fiscal 2000	71% reduction
	Atmospheric emissions of volatile organic compounds (VOCs): 70% reduction compared to fiscal 2000	74% reduction
Waste reduction	Zero emissions goal: Achieved at 30 Toray Group plants	Achieved at 33 plants of 19 companies
	Simply disposed waste rate: 25% or lower	25.1%
	Maintenance of a recycling rate of 85% or more	88.1%
	Landfill waste rate, Toray Group (Japan): 2% or lower	1.1%

<sup>1</sup> Target will be revised if there is an increase in the CO<sub>2</sub> emissions coefficient for purchased electricity in the aftermath of the nuclear power plant accident in Fukushima

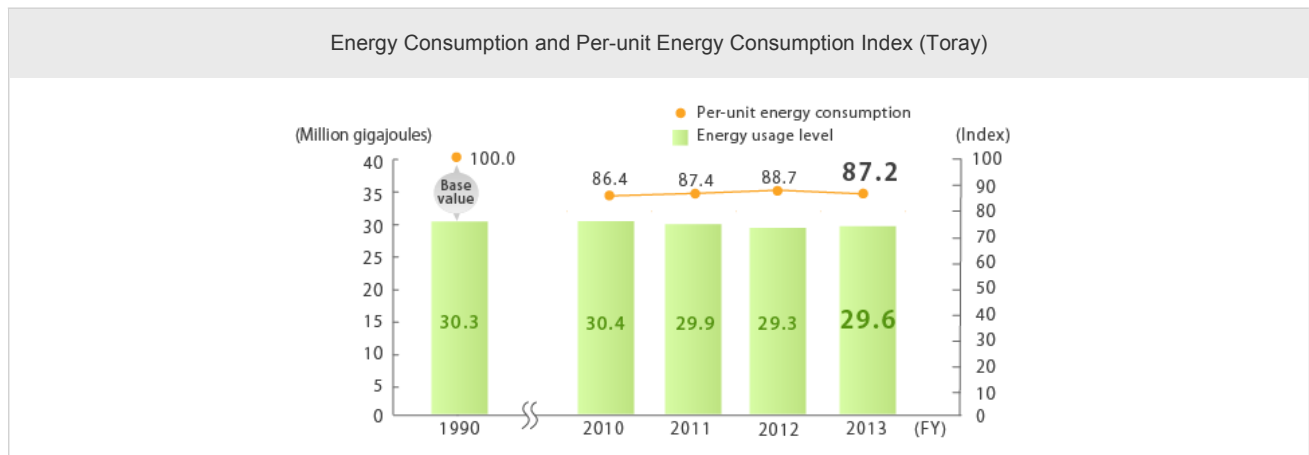


## Initiatives to Fight Global Warming

With a view to help realize sustainable, low-carbon societies, Toray Group is pursuing initiatives for reducing greenhouse gas emissions. Toward this end, the Group is saving energy by improving manufacturing processes and introducing cogeneration in accordance with its Fourth Medium-Term Environmental Plan, which was launched in fiscal 2011.

### Toray Energy Conservation Activities

Toray is actively working on energy conservation activities, with the goal of a 2% annual reduction in the per-unit energy consumption rate. In fiscal 2013, energy usage increased by 1.0% from the previous fiscal year, but the per-unit energy consumption rate improved by 1.7% from the previous fiscal year and by 12.8 % from the base year of fiscal 1990, the result of promoting such measures as persistent energy conservation programs at each plant and energy conservation diagnostic activities by in-house experts in addition to an increase in efficiency due to higher production.



### Promoting Energy Conservation Diagnostics

As Toray Group strives to reduce greenhouse gas emissions, it organizes energy conservation teams to help carry out annual energy conservation diagnostic activities at plants around the world. In fiscal 2013, these activities were conducted at four of Toray's plants, along with five group company plants at in Japan and one outside Japan. The energy saved during the year was equivalent to about 10,000 tons of CO<sub>2</sub>.



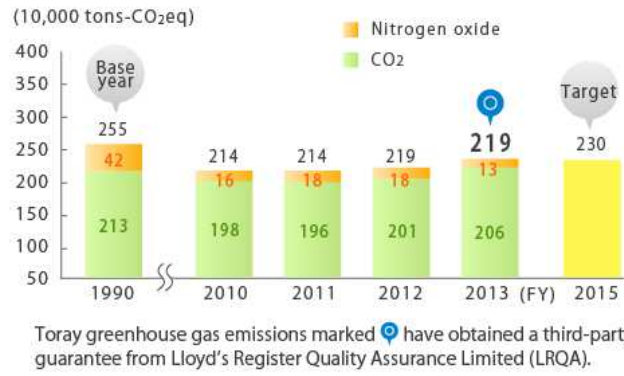
Items inspected during energy conservation diagnostic activities at Toray's Gifu Plant

### Toray's Efforts to Fight Global Warming

Toray is steadily carrying out initiatives to reduce its greenhouse gas emissions, aiming to maintain annual emissions at least 10% below the fiscal 1990 level through fiscal 2015.

In fiscal 2013, Toray's greenhouse gas emissions were flat compared to the previous fiscal year, at 2,190,000 tons, which was 14% below fiscal 1990, maintaining better-than-targeted performance. CO<sub>2</sub> emissions increased by 50,000 tons compared to the previous fiscal year because of factors that included the higher CO<sub>2</sub> emissions coefficient for purchased electricity due to nuclear power plant shutdowns across Japan. However, reductions from catalytic cracking of nitrogen oxide (N<sub>2</sub>O), a byproduct of production processes at Toray's Tokai Plant, were equivalent to 93,000 tons of CO<sub>2</sub> on an annualized base.

#### GHG Emissions (Toray)



Looking ahead, while production increases are expected in line with business expansion, Toray will strive to keep achieving its targets.



N<sub>2</sub>O catalytic cracking facility at Toray's Tokai Plant

### Introducing Gas Cogeneration Facilities

Toray Group is steadily switching over to natural gas for its fuel and introducing cogeneration facilities for the purpose of conserving energy, and installation was completed at Toray's Okazaki Plant and at Toray Battery Separator Film Co., Ltd. in fiscal 2013. These measures will achieve their full effect in fiscal 2014, accounting for an annual reduction in CO<sub>2</sub> emissions of approximately 30,000 tons expected.



Cogeneration facilities at Toray's Okazaki Plant



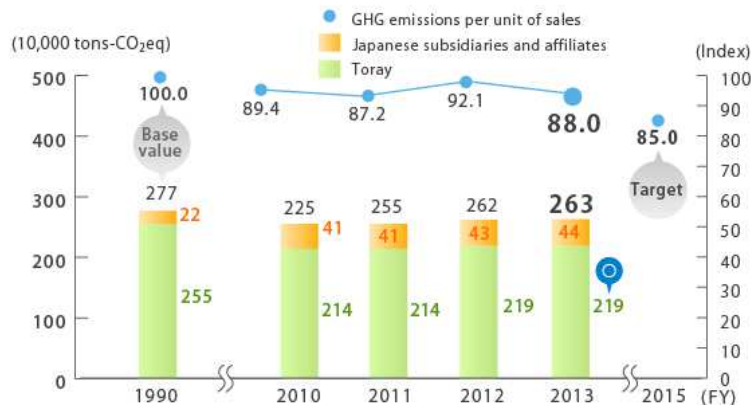
Cogeneration facilities at Toray Battery Separator Film Co., Ltd.

### Greenhouse Gas Emissions (Toray Group in Japan)

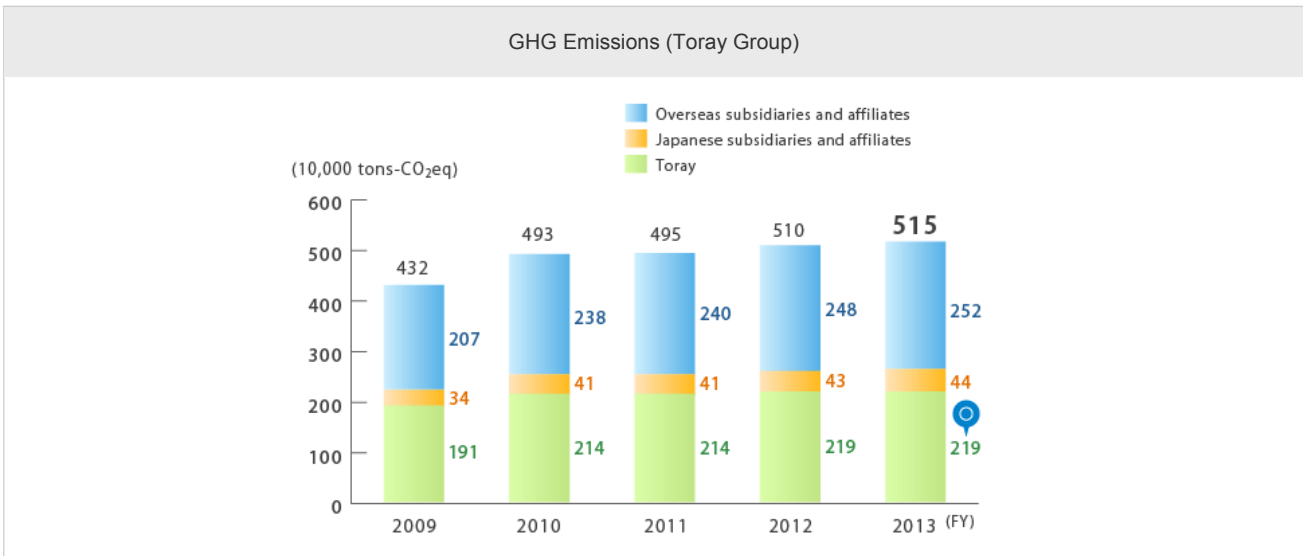
Toray and its group companies in Japan are working to curb global warming with the goal of reducing greenhouse gas emissions by 15% on a per-unit-of-sales basis by fiscal 2015 compared to the fiscal 1990 level.

Greenhouse gas emissions increased by 0.4% in fiscal 2013 compared to the previous fiscal year. Nevertheless, greenhouse gas emissions per unit of sales improved by 4.1 points compared to the previous fiscal year and were down by 12.0% compared to the base year.

GHG Emissions and GHG Emissions Per Unit of Sales (Toray Group in Japan)



### Greenhouse Gas Emissions (Toray Group)



**Related Information**

> [CO<sub>2</sub> Emissions Resulting from Toray's Distribution Activities](#)

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## Initiatives to Protect the Ozone Layer

Toray successfully ceased using chlorofluorocarbons (CFCs) in all manufacturing processes in 1994. The Company has also stopped purchasing CFCs for use in refrigeration equipment, and has been working to replace existing CFCs with alternative compounds.

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[Voluntary Initiatives to Reduce Atmospheric Emissions of Chemical Substances](#)

## Voluntary Initiatives to Reduce Atmospheric Emissions of Chemical Substances

For Toray Group, one of the most important tasks for decreasing its environmental impact is reducing atmospheric emissions of chemical substances. Accordingly, the entire Group is working to make progress in this direction.

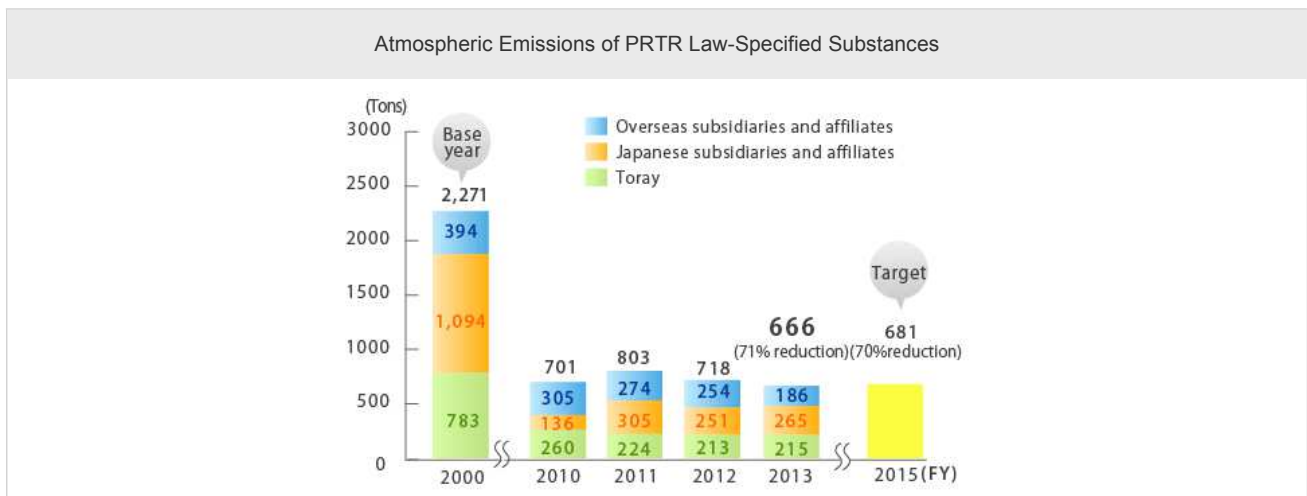
Toray Group works steadily to reduce emissions of volatile organic compounds (VOCs) as well as substances specified under Japan's Pollutant Release and Transfer Register Law (PRTR Law). Since 2011, the Group has been working to achieve these reduction targets for fiscal 2015 set in its Fourth Medium-Term Environmental Plan.

### Reducing Atmospheric Emissions of PRTR Law-Specified Substances

Absorption and recovery equipment for exhaust gas continued to be upgraded at Toray Battery Separator Film Co., Ltd., resulting in a 12-ton reduction in atmospheric emissions in fiscal 2013. Meanwhile, Toray Plastics (Malaysia) Sdn. Berhad has been implementing annual measures to recover a higher amount of organic exhaust gas emissions. Measures carried out at the end of fiscal 2012 achieved their full effect in fiscal 2013, resulting in a reduction of atmospheric emissions of 70 tons.

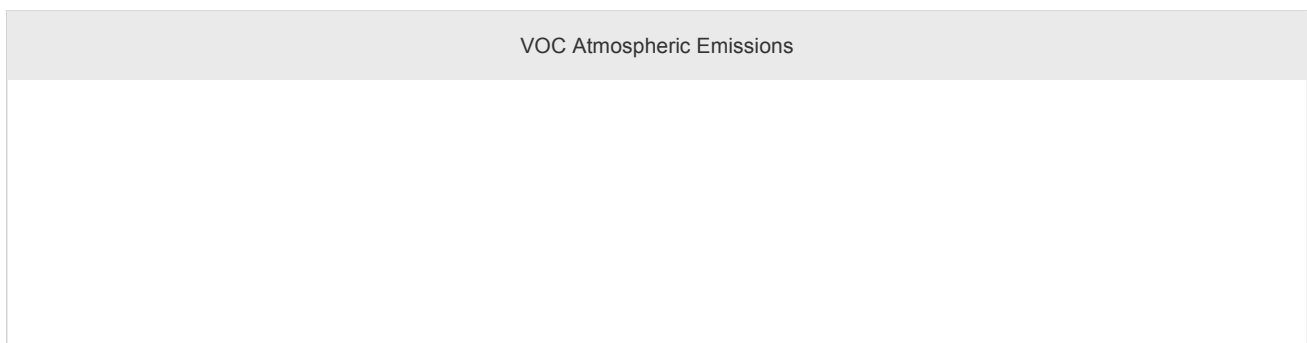
In fiscal 2013, Toray Group reduced its atmospheric emissions of substances specified under Japan's PRTR Law by 7% year on year, or 71% lower than the base value set in fiscal 2000, thus achieving its fiscal 2015 target of a 70% ahead of schedule.

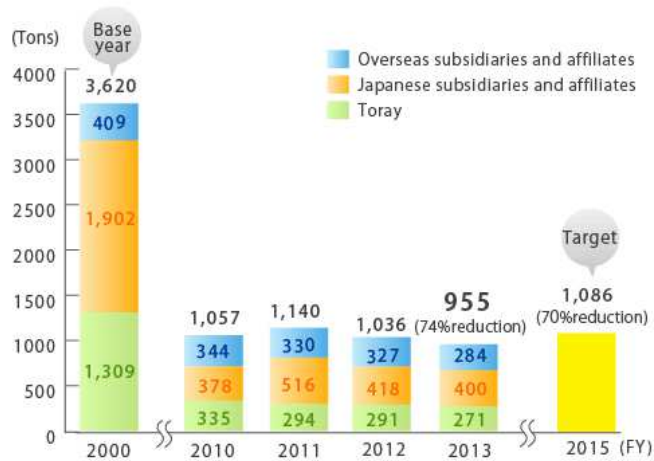
Toray Group will keep striving to reduce these atmospheric emissions by, for instance, upgrading absorption recovery equipment and making improvements in recovering exhaust gas, as it carries out the Fourth Medium-Term Environmental Plan. Through efforts like these, the Group is aiming to achieve further reductions.



### Reducing Atmospheric Emissions of VOCs

Toray Group reduced atmospheric emissions of VOCs by 8% in fiscal 2013 compared to the previous fiscal year. The major factor in this was the effort of Toray Coatex Co., Ltd., to reduce its emissions by 27 tons by cutting the number of products made with VOCs. The Toray Group result represents a 74% reduction compared to the base year of fiscal 2000, beating the Group's fiscal 2015 target of a 70% reduction well in advance. Toray Group will work to maintain this level by effectively operating VOC recovery equipment and by pursuing reductions via systematic facility operations.





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## Initiatives to Prevent Air and Water Pollution

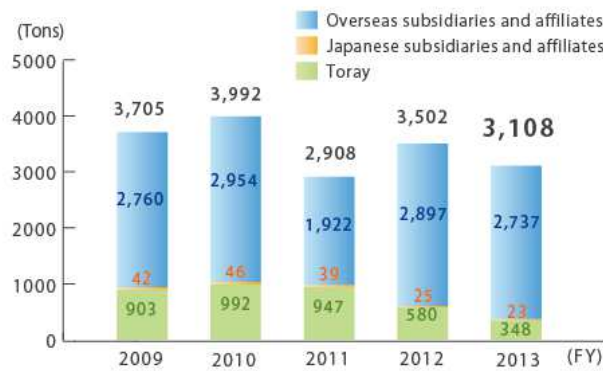
Toray Group has ongoing environmental protection initiatives in place for the prevention of air and water pollution at its manufacturing facilities. In recent years, the Group's production plants around the world have been cutting sulfur oxide (SOx) emissions by installing desulfurization equipment and switching to cleaner fuels, and reducing chemical oxygen demand (COD) emissions by increasing wastewater treatment capabilities.

### Air Quality Management

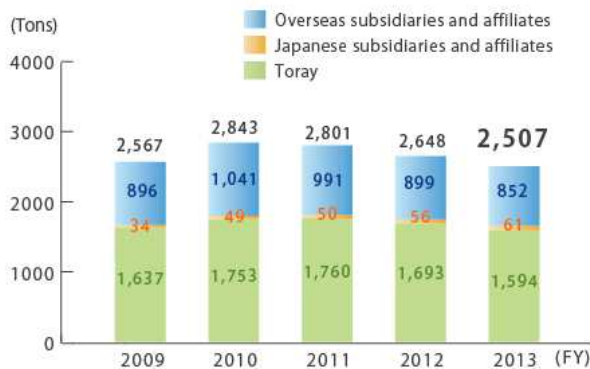
Toray Group's emissions of SOx, NOx and particulates were 3,108 tons, 2,507 tons and 314 tons respectively in fiscal 2013, which were reductions of 11%, 5% and 19%, respectively, compared to the previous fiscal year due to such factors as stronger management of boiler operation.

At Toray, fiscal 2013 SOx emissions were 348 tons, down 40% compared to the previous fiscal year, NOx emissions were 1,594 tons, down 6%, and dust emissions were 110 tons, down 28%, due to measures that included changing the boiler fuel at the Gifu, Ishikawa and Okazaki plants.

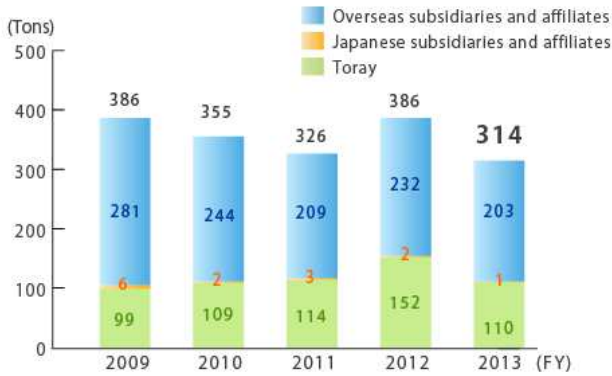
Atmospheric Emissions (SOx)



Atmospheric Emissions (NOx)



Atmospheric Emissions (Dust)\*2



### Water Quality Management

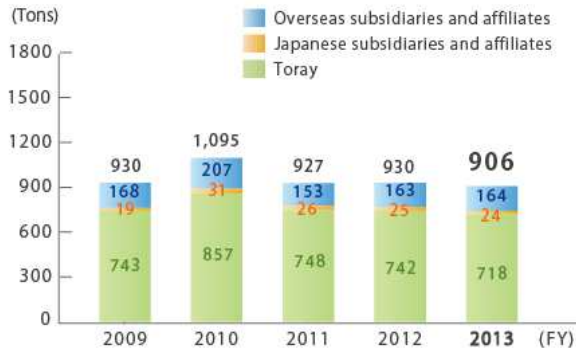
In fiscal 2013, Toray Group BOD and COD emissions were 906 tons, down by 3% compared to the previous fiscal year, and 2,439 tons, up by 11%, respectively, due to an increase in production volumes despite stepped up treatment of wastewater.

Toray Group worked to stabilize wastewater treatment operations by taking measures to prevent the outflow of abnormal wastewater at its Ehime Plant, Chiba Plant in Japan as well as expanding wastewater facilities at overseas group company Toray Sakai Weaving & Dyeing (Nantong) Co., Ltd. Seeking to further improve its wastewater facility management, Toray brought 25 key personnel responsible for wastewater at 8 plants and 8 personnel from 5 group companies in Japan together to share ideas and information on their management efforts and study regulatory updates.

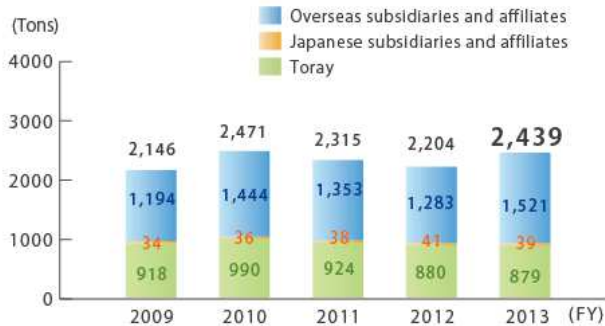


Toray experts responsible for wastewater meet to share best practices

#### Water Emissions (BOD)



#### Water Emissions (COD)





Gas boiler at Toray's Gifu Plant



Wastewater facility at Toray Sakai Weaving & Dyeing (Nantong) Co., Ltd.

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 **Toray Group**

## Initiatives for Managing Water Resources

Toray Group is working to provide solutions to the water resource problems facing several regions around the world through its water treatment business, based on the following policies. The Group also works to manage the water resources used in its own business activities properly, including effectively reusing water.

1. Toray Group recognizes that water is one of the most important resources for humanity, and that people are confronting problems related to water resources in many areas of the world.
2. Toray Group is committed to helping to solve global water resources problems through its products, technologies and services.
3. Toray Group continuously monitors the state of regional water resources, and conducts appropriate management of water resources according to the basic principle of sharing precious water resources with the local communities where the Group operates.

### Water Usage

Toray Group used 247 million tons of water in fiscal 2013, an increase of 1% from the previous fiscal year due to production increase. Compared to the amount used per unit of sales in fiscal 2001, set to a base value of 100, usage in fiscal 2013 was equivalent to 70.7 points, down 4.9 points from the previous fiscal year.

#### Related Information

> [Water usage data](#)

Comparative Water Usage per Unit of Sales (Toray)						
	FY2001	FY2009	FY2010	FY2011	FY2012	FY2013
Comparative water usage per unit of sales	100.0	86.5	79.6	76.7	75.6	70.7

## Initiatives to Reduce Waste

Toray Group is carrying out zero emission initiatives as it works toward the realization of a sustainable, recycling-based society. Under the Fourth Medium-Term Environmental Plan, the Group is working to achieve its fiscal 2015 targets for rates of simply disposed waste,<sup>1</sup> landfill waste<sup>2</sup> and recycled waste,<sup>3</sup> which have been set as indicators for measuring progress toward attaining zero emissions.

1 (Incineration + landfill) / Total waste

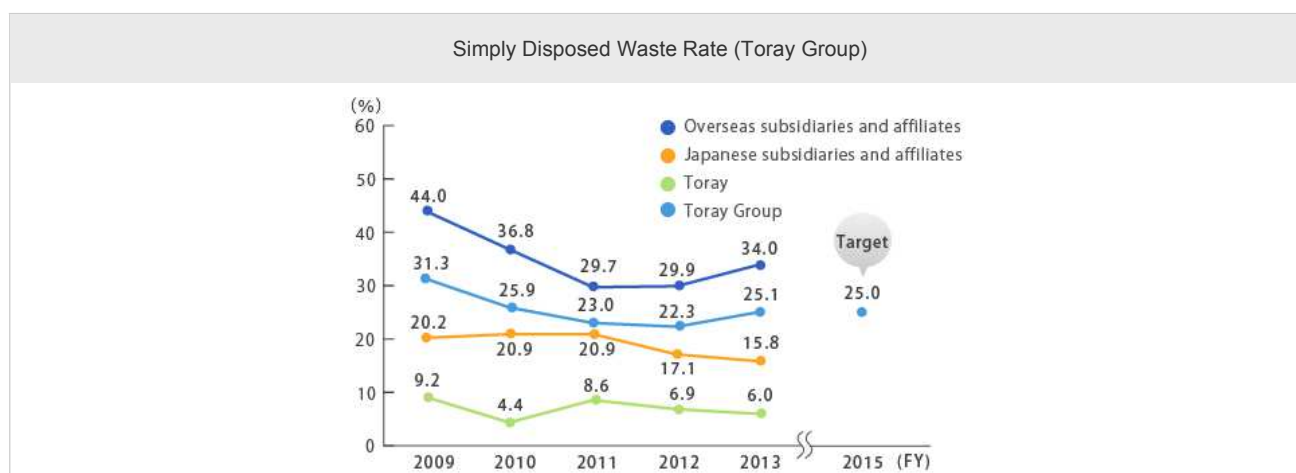
2 Landfill waste/Total waste

3 (Recycled resources + resources with monetary worth) / (Total waste + resources with monetary worth)

### Results in Fiscal 2013

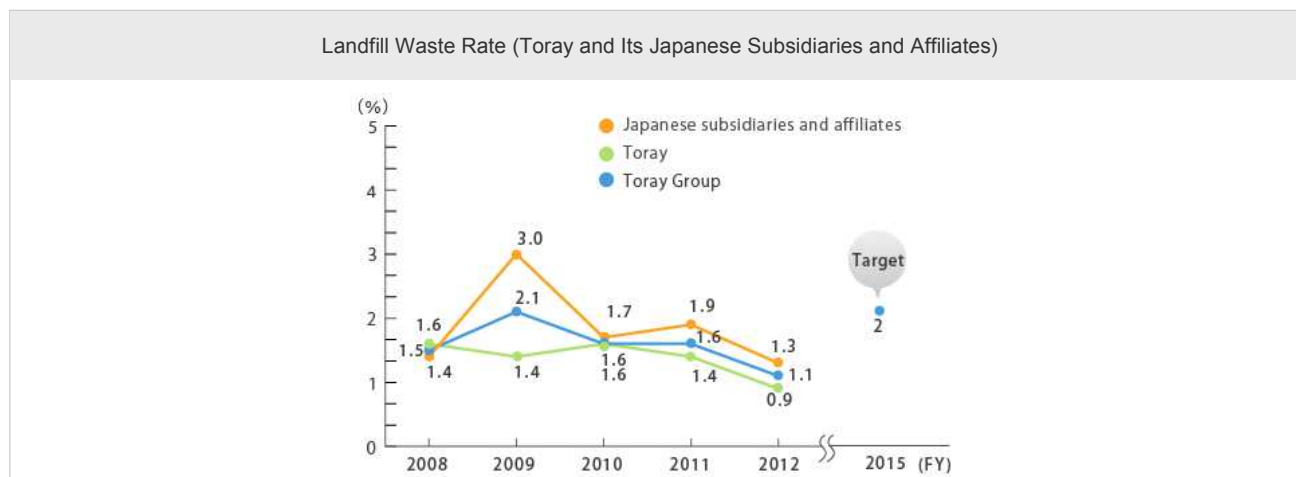
#### Simply Disposed Waste Rate

While simply disposed waste decreased at subsidiaries and affiliates in Japan, it increased at Toray and its subsidiaries and affiliates outside Japan. As a result, the simply disposed waste rate for Toray Group rose 2.8 percentage points year on year to 25.1% in fiscal 2013.



#### Landfill Waste Rate

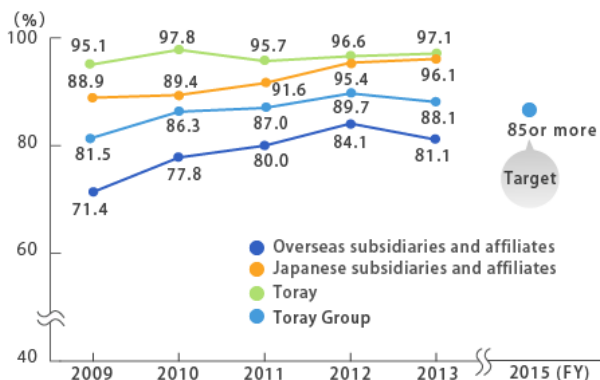
As a result of reductions at Toray and its Japanese subsidiaries and affiliates, the landfill waste rate for Toray Group improved by 0.5 percentage points compared to the previous fiscal year to 1.1%.



#### Recycling Rate

Despite an increase at Toray and its Japanese subsidiaries and affiliates, the recycling rate for Toray Group fell by 1.6 percentage points compared to the previous fiscal year to 88.1% as a result of a decline at overseas subsidiaries and affiliates.

Recycling Rate (Toray Group)



Zero Emissions Initiatives at Companies and Plants

Toray Group is aiming to achieve zero emissions at 30 or more plants by fiscal 2015. A plant is considered to have achieved zero emissions when the amount of simply disposed waste accounts for 1% or less of its total waste generated. Six more plants achieved zero emissions status in fiscal 2013, bringing the total to 33 plants at 19 companies.

Companies and Plants with Zero Emissions Status in Fiscal 2013 (Toray Group)	
Toray	Shiga Plant, Seta Plant, Ehime Plant, Aichi Plant, <b>Okazaki Plant</b> , <b>Mishima Plant</b> , Chiba Plant, Tsuchiura Plant, Gifu Plant, Ishikawa Plant
Japanese subsidiaries and affiliates	Ogaki Fuso Spinning Co., Ltd. [Fuso], Toray Coatex Co., Ltd., Maruichi Fiber Co., Ltd., Toray Monofilament Co., Ltd., Toray Hybrid Cord, Inc., Toray Engineering Co., Ltd. [Shiga, Seta], Toray Engineering Co., Ltd. [Shiga, Seta], Toray Precision Co., Ltd., Toray Opelontex Co., Ltd., <b>Du Pont-Toray Co., Ltd.</b> , Soda Aromatic Co., Ltd. [Koriyama], Toyo Plastic Seiko Co., Ltd. [Mishima, Okazaki], Toray PEF Products Inc. [Konan], Toray Advanced Film Co., Ltd. [Nakatsugawa, Mishima, Takatsuki, Fukushima], <b>Toray Fine Chemicals Co., Ltd. [Moriyama]</b>
Overseas subsidiaries and affiliates	Toray Plastics (America), Inc. [Virginia], Toray Jifa (Qingdao) Textile Co., Ltd., <b>Toray Plastics (Shenzhen) Ltd</b> , <b>Toray Advanced Film Kaohsiung Co., Ltd.</b>

Notes:

\* Names in green indicate companies and plants that achieved zero emissions in fiscal 2013 for the first time

\* Information in brackets refers to the names of the plants

Voice

Du Pont-Toray Actively Working to Reduce Waste and CO<sub>2</sub>

Du Pont-Toray is a company that manufactures and sells polyester elastomer Hytrel®, polyimide film Kapton® and aramid fiber Kevlar®. The company manufactures Kapton® and Kevlar® and conducts technical development at its Tokai site located within Toray's Tokai Plant. This site produces the largest volume of waste and CO<sub>2</sub> emissions of any Toray group company in Japan, and reducing these has been a major environmental issue.

Oil, which is a byproduct of the Kapton® manufacturing process, accounts for the majority of the waste. The byproduct oil has a heating value that would allow it to be used as fuel but in the past was disposed of as waste. The formulation of Guidelines on Appropriate Utilization of Recycled Resources by Aichi Prefecture in 2008 provided the opportunity for a series of negotiations with the local government and other related authorities, resulting in approval to use the oil as fuel in March 2011. We installed a boiler to use the byproduct oil as fuel, and eventually commenced operation in August 2013. As a result, we have been able to reduce waste by approximately 1,000 tons compared to the previous fiscal year, not to mention reducing disposal costs, which has made a considerable contribution to business revenues.

We have also worked to achieve CO<sub>2</sub> reductions by using less energy thanks to rationalizing the number of revolutions for electric motors, as well as reviewing and streamlining operating methods. As a result, CO<sub>2</sub> reductions were down 10,000 tons in fiscal 2013 compared to the previous fiscal year.

Looking to the future, we will develop business activities in harmony with the environment and contribute to the environment.



Masahiro Ogawa  
Environment & Safety  
Department, Tokai Site, Du Pont-Toray Co., Ltd.



Boiler that uses byproduct oil as fuel

Hytrel®, Kapton® and Kevlar® are registered trademarks of E.I. du Pont de Nemours and Company



## Environmental Risk Management

### Soil and Groundwater Pollution Prevention

Toray Group constructs protective embankments around its facilities and storage tanks for handling hazardous chemicals, and takes precautions to ensure that none of these dangerous substances leak or discharge into the surrounding area or contaminate the soil onsite.

In fiscal 2013, ongoing efforts to clean up groundwater contamination discovered at Toray Monofilament Co., Ltd. as well as soil contamination at the Nagoya Plant, made progress using remediation equipment.

Toray Group is committed to conducting voluntary surveys, reporting and otherwise disclosing survey results, and undertaking adequate cleanup measures in the event that any pollution is discovered.

### Incidents Involving Environmental Disasters, Legal Compliance, and Worksite Accidents

In fiscal 2013, Toray Group received a single administrative disposition due to violations of laws or ordinances. To be specific, Toray's Chiba Plant was issued with a modification order for outdoor firefighting water piping. Modifications were made immediately following the order.

The Group also experienced one environmental accident in fiscal 2013. In this accident, industrial use water was mixed with tap water for an apartment building neighboring Toray Advanced Film Co., Ltd. for a brief period. The cause of the accident was that an industrial use water and tap water pipe were connected by mistake. The pipe was disconnected immediately. At the same time, residents of the apartments where the industrial use water was mixed were given apologies and visited individually to check that there had been no impact on health. It was also confirmed that the industrial use water, in fact, met tap water quality standards (all 50 items).

In addition to this incident, there were three times when regulatory standards were slightly exceeded in fiscal 2013. In each case, reports were submitted to government authorities and countermeasures designed to prevent recurrence were implemented.

In addition, Toray Group received and addressed eight cases of complaints or requests from residents living near production plants regarding odors, noise, or other matters. These cases were taken seriously and improvements made as necessary.

Environmental Incidents in Fiscal 2013 (Toray Group)	
Administrative disposition due to violations of laws or ordinances <sup>1</sup>	1
Accidents (fires, explosions, environmental accidents, etc.)	1
Slight but temporary exceeding of standard values <sup>2</sup>	3
Complaints/requests (noise, odor, etc.)	8

<sup>1</sup> Includes improvement orders and fines. Improvement guidance and recommendations are included in accident figures.

<sup>2</sup> No improvement guidance or recommendations were received from authorities, as there was no harm to the environment.



## Environmental Accounting

Toray introduced environmental accounting in fiscal 1999 to record and calculate the effectiveness of investments and costs relating to environmental preservation, energy conservation, and recycling.

### Fiscal 2013 Environmental Accounting Report (Toray)

In fiscal 2013, Toray's environment-related investment amounted to 1.67 billion yen, a 0.35 billion yen increase compared to the previous year. Major contributions to this total included measures to reduce atmospheric emissions of chemical substances, wastewater treatment facilities, and equipment for waste reduction.

Cost totaled 7.45 billion yen, an increase of 0.88 billion yen compared to the previous year. Major expenses were air pollution prevention costs totaling 2.19 billion yen and water pollution prevention costs amounting to 2.58 billion yen. These amounts were mainly comprised of operating costs for previously installed exhaust gas and wastewater treatment equipment.

On the effectiveness front, Toray succeeded in reducing energy costs by 0.15 billion yen and waste disposal costs by 0.02 billion yen, while gaining 0.59 billion yen from the sale of recycled resources with monetary value.

Fiscal 2013 Environmental Accounting Report (Toray)				
Expenses				
Item		Subcategory and description	Investment (million yen)	Cost (million yen)
Business area costs	Pollution prevention costs	Air (including CFC countermeasures)	316	2,183
		Water quality	878	2,581
		Noise and vibration	2	6
		Greening	0	254
		Odors and other	128	199
	Global environment conservation costs	Energy conservation and combating global warming	310	-
	Resource recycling costs	Waste reduction, recycling, disposal, and PCB waste disposal services	14	1,540
Upstream and downstream costs		Product recycling	18	40
		Container and package recycling	0	1
Management activity costs		Indirect labor costs, ISO certification and maintenance, environmental communications, and education	0	358
Social initiative costs		Regional initiatives, support for organizations, etc.	0	49
Environmental remediation costs		SOx fines, soil purification, etc.	0	235
Total			1,666	7,446

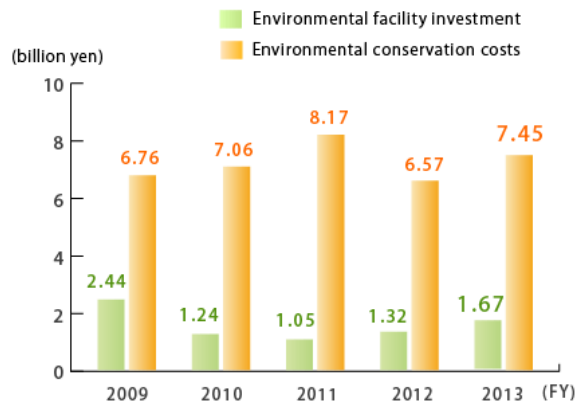
Effectiveness		
Item		Amount (million yen)
Financial effects	Reduction in energy costs	146
	Reduction in waste disposal costs	24

Quantitative environmental effects

Reduction of greenhouse gas emissions

3,000 tons-CO<sub>2</sub> eq

## Environmental Facility Investment and Environmental Conservation Costs (Toray)



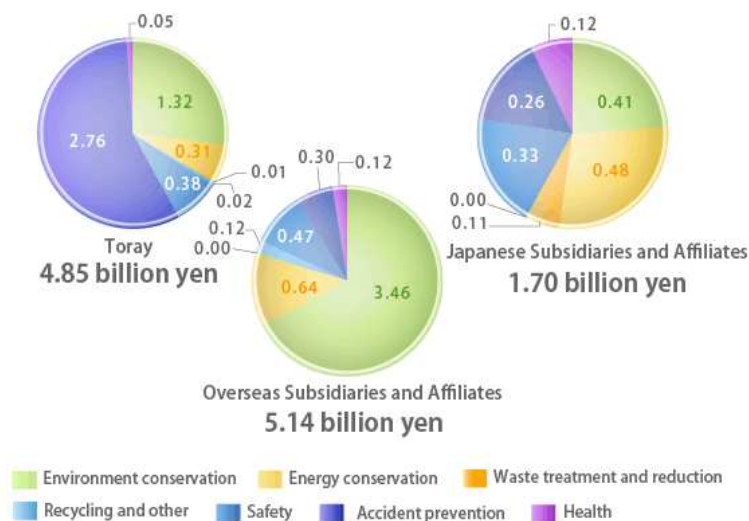
### Facility Investment in Safety, Health, Accident Prevention, and Environmental Preservation Projects (Toray Group)

In addition to its environmental accounting activities, Toray Group reports on its investments relating to safety, accident prevention, and health.

The total amount of equipment investment in fiscal 2013 was 4.85 billion yen for Toray, 1.70 billion yen for Japanese subsidiaries and affiliates, and 5.14 billion yen for overseas subsidiaries and affiliates.

In the area of safety, Toray continued to make investments including equipment security upgrades and disaster prevention projects such as seismic reinforcement of buildings. Investment in environmental conservation projects in Japan included measures to reduce industrial waste at Du Pont-Toray Co., Ltd. Outside Japan, measures were undertaken to prevent leakage of chemical substances and upgrade wastewater treatment facilities at Toray Sakai Weaving & Dyeing (Nantong) Co., Ltd.

#### Fiscal 2013 Facility Investment in Safety, Health, Accident Prevention, and Environmental Preservation Projects (Toray Group)



### Toray Environmental Accounting Standards

- Some categories were changed based on the Ministry of the Environment's Guidelines for FY 2005.
- Some categories were changed based on the Ministry of the Environment's Guidelines for FY 2005.
- Capital investment also includes facility investments for which environmental preservation is not the main objective. Capital investment resulting from leases is also included. Expenses include labor costs and depreciation. However, internal labor costs related to local volunteer activities are not included.
- Energy cost reduction figures show the amount of reduction for the 12 months after the completion of an energy conservation facility. Expenses are not recorded as they are deducted when the effect is calculated.
- Waste disposal cost reduction figures show the amount of reduction achieved through waste reduction efforts and resource recycling for 12 months after the measures are undertaken.
- Effects of reducing greenhouse gas emissions are measured over a 12-month period following the completion of measures or facilities to conserve energy.



## Biodiversity Initiatives

Toray Group formulated the Biodiversity Initiatives in fiscal 2010 to position the protection of biodiversity as an important theme in its initiatives for reducing greenhouse gases and confronting global environmental problems. Guided by this policy, the Group is promoting initiatives to protect biodiversity and use natural resources in a sustainable manner.

### Biodiversity Initiatives (Adopted December 2010)

#### Basic Concept

Toray Group appreciates the gifts of nature that biodiversity provides, and strives to realize the conservation and sustainable use of biodiversity. The Group contributes to society through the development and dissemination of products and technologies which advance conservation of biodiversity.

#### Action Guidelines

1. We take into consideration the impact of our business activities on biodiversity, and strive to realize the conservation and sustainable use of biodiversity.
2. We endeavor to develop environmentally friendly technologies and products, and contribute to the conservation of biodiversity by making them available for use.
3. We practice fair use of genetic resources on the basis of relevant international agreements.
4. We recognize the influence of biodiversity within the supply chain, and pursue coexistence with nature.
5. We strive to raise employee awareness on biodiversity, and contribute to the building of a society that nurtures biodiversity through our communication with stakeholders.

Note: Toray Group respects Nippon Keidanren's Declaration of Biodiversity (Guide to Action Policies) and the Japanese Ministry of the Environment's Guidelines for Private Sector Engagement in Biodiversity.

The Group is a promotion partner of Nippon Keidanren's Declaration of Biodiversity.

### Working Group Considers Initiatives for Biodiversity

Since classifying Toray Group's activities under the Biodiversity Initiatives formulated in fiscal 2010, Toray Group has been formulating three-year road maps and implementing measures in order of priority. Fiscal 2013 was the first fiscal year for the activities in the second roadmap focusing on increasing green areas as the three-year plan for fiscal 2013 to fiscal 2015, and the Group also launched initiatives to address new challenges.

### Main Initiatives in Fiscal 2013

#### Conserving Biodiversity Across the Supply Chain

Under its CSR procurement initiatives, Toray Group conducted a questionnaire-based survey on the status of biodiversity conservation initiatives at 532 suppliers, and then provided feedback after assessing the current situation at each of the companies.

#### Procuring Raw Materials

The Group began consideration of a function for checking the presence of biological resources in the raw materials it uses as well as the impact on biodiversity.

#### Increasing Green Areas

In 2012, Toray Group revised its policies on greenery adopted in 1973 to formulate Toray Group's Basic Policy for Increasing Green Areas. This responded to recent public expectations for companies to give consideration to biodiversity as well as protect green areas made up of natural forests<sup>1</sup> at plants that have been protected since operations began. Under the policy, in 2013, each Toray plant formulated a policy and plan with a view to 2020 and initiated efforts aimed at sustainable preservation activities.

Looking ahead, the entire Group will continue to work on these activities, striving to maintain and nurture valuable green areas and to help preserve the environment of the local communities where it does business.



A lush forest has been planted on the premises of Toray's Basic Research Center in Kamakura.

<sup>1</sup> Natural groves or forestation by species based on potential native vegetation

## Toray Group's Basic Policy for Increasing Green Areas (Established in June 2012)

- A. Toray Group contributes to the preservation of the natural environment by promoting tree planting using planting methods suitable for the biodiversity of local habitats.
- B. Toray Group aims to surround its production plants with greenery by giving priority to tree planting in areas at the boundaries of factory sites.
- C. Toray Group sets goals for making each of its production plants greener while considering how to attain harmony with the surrounding environment as well as regulations concerning green space ratios in each respective country or region.

### Contributing to Society

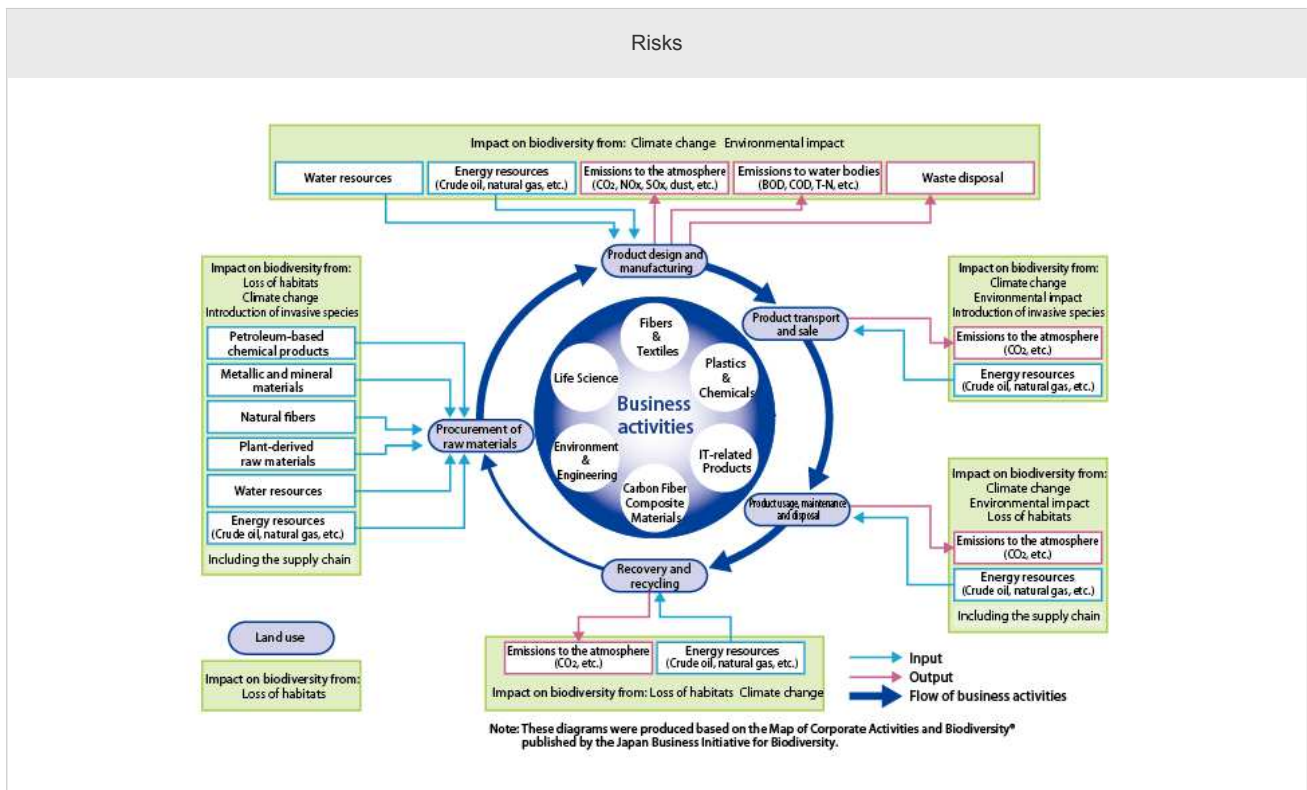
Toray has long engaged in activities aimed at protecting the natural environment surrounding its offices and production plants, including social contribution activities aimed specifically at protecting biodiversity.

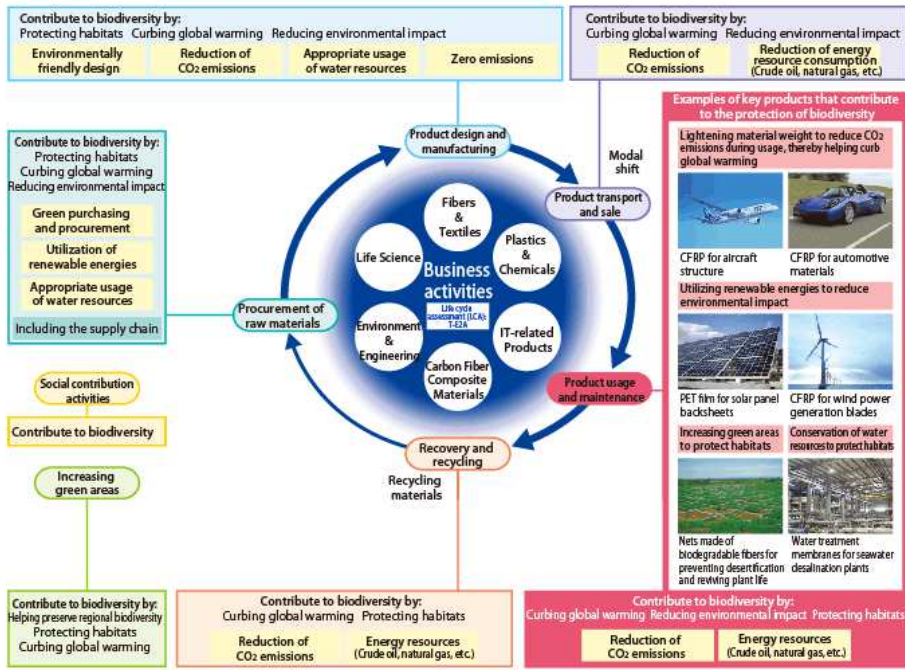
Toray's Mishima Plant, for example, meets minimum requirements for groundwater usage, purchasing surface water from the Kakitagawa River for use, and helps conserve the natural environment of the Genbei River, a leisure spot for residents of Mishima and also the water source for a pond in the city's Rakujuen Park. Clean water from the plant's temperature control equipment has helped stabilize river levels since 1992. The Mishima Plant is also actively involved in the project<sup>2</sup> to make Mishima into a garden city.

- 2 The project aims to help citizens, NPOs, and businesses collaborate with the local government to create a beautiful city. This involves making flower gardens a sightseeing attraction for residents and tourists alike, and a wonderful new asset for the city, along with its clean water, forests, culture and history.

### Toray Group's Approach to the Relationship between Corporate Activities and Biodiversity

Starting from the procurement of raw materials, the entire lifecycle of Toray Group's business activities has a wide range of effects on biodiversity. The two diagrams below conceptualize the relationship between the Group's business activities and biodiversity in terms of the two aspects of risks and opportunities.





## Environmental Data

- ▼ Environmental Impact Overview Fiscal 2013
- ▼ Chemical Substance Emissions and Transfer Data
- ▼ Sites with ISO 14001 Certification (as of March 2014)
- ▼ Environmental Data for 12 Toray Plants and Principal Subsidiaries and Affiliates

### Environmental Impact Overview Fiscal 2013

Environmental Impact Overview Fiscal 2013(PDF:50.5KB)

	Toray			Japanese Subsidiaries and Affiliates			Overseas Subsidiaries and Affiliates		
	FY2012	FY2013	Compared to the previous year (%)	FY2012	FY2013	Compared to the previous year (%)	FY2012	FY2013	Compared to the previous year (%)
<b>INPUT</b>									
Energy (1,000,000 kilowatt-hours)	29.3	29.6	1.0	7.2	6.9	-4.2	40.5	40.6	0.2
Water (1,000,000 tons)	183	184	0.5	14	14	0.0	38	40	36.1
<b>OUTPUT</b>									
GHG (10,000 tons CO <sub>2</sub> e)									
5 gases including CO <sub>2</sub>	219	219	0.0	43	44	2.3	248	252	1.6
PRTR Law-specified substances (tons)									
Atmospheric emissions	213	215	0.9	251	265	5.6	254	189	-26.8
Water emissions	36	30	-16.7	0	0	0.0	0	0	0.0
Waste transfers	997	898	-9.9	1,407	1,249	-11.2	827	919	11.0
Air pollutants (tons)									
SOx	580	348	-40.0	25	23	-8.0	2,895	2,737	-5.5
NOx	1,693	1,584	-5.8	56	61	8.9	899	852	-5.2
Dust	152	110	-27.6	2	1	-50.0	231	203	-12.1
Industrial wastewater (1,000,000 tons)									
	177	180	1.7	10	10	0.0	22	50	127.3
Water pollutants (tons)									
BOD	742	718	-3.2	25	24	-4.0	163	194	0.6
COD	880	879	-0.1	41	39	-4.9	1,283	1,521	18.6
Nitrogen	431	440	2.1	18	18	0.0	-	-	-
Phosphorus	29	30	3.4	1	1	0.0	-	-	-
Waste (1,000 tons)									
Recycled	28.1	28.9	2.8	13.5	12.2	-9.6	50.5	53.6	5.5
Incrinerated and other	1.6	1.6	0.0	2.5	2.1	-16.0	6.9	12.8	85.5
Direct landfill disposal	0.4	0.3	-25.0	0.3	0.2	-33.3	14.8	14.9	0.0
Coal ash (1,000 tons)									
Recycled	68.6	68.9	0.4	-	-	-	25.9	87.8	239.0
Direct landfill disposal	2.0	3.4	70.0	-	-	-	6.6	0.4	-93.9

Note: Toray greenhouse gas emissions marked ● have obtained a third-party guarantee from Lloyd's Register Quality Assurance Limited (LRQA).

#### Aggregate Environmental Impact Data by Company Type and Location

	Toray	Japanese Subsidiaries and Affiliates	Overseas Subsidiaries and Affiliates
GHG	All 12 plants and 1 research laboratory	51 plants at 26 companies	50 plants at 41 companies
PRTR Law-specified substances	All 12 plants and 1 research laboratory	50 plants at 26 companies	50 plants at 41 companies
SOx, NOx, dust	All 12 plants and 1 research laboratory	39 plants at 22 companies	50 plants at 41 companies
BOD	All 12 plants and 1 research laboratory	39 plants at 22 companies	26 plants at 18 companies
COD <sup>1</sup>	10 plants and 1 research laboratory (including 6 plants subject to Total Water Pollutant Load Control)	38 plants at 22 companies (including 7 plants at 7 companies subject to Total Water Pollutant Load Control)	26 plants at 18 companies
Nitrogen and phosphorus	All 12 plants and 1 research laboratory	39 plants at 22 companies	None
Waste	All 12 plants and 1 research laboratory	50 plants at 26 companies	50 plants at 41 companies

<sup>1</sup> COD figures for Toray, Japanese subsidiaries and affiliates, and facilities in Korea are given in COD<sub>Mn</sub> (using the potassium permanganate method). COD figures for other overseas subsidiaries and affiliates are given in COD<sub>Cr</sub> (using the potassium dichromate method).

#### Index of Environmental Impact Per Unit of Sales

	Toray and its group companies in Japan			Toray Group companies outside Japan			Total		
	FY2012	FY2013	Year-on-year comparison (ratio)	FY2012	FY2013	Year-on-year comparison (ratio)	FY2012	FY2013	Year-on-year comparison (ratio)
GHG emissions	74.9	71.5	-3.4	90.9	70.2	-20.7	88.0	76.4	-9.6
PRTR atmospheric emissions	32.7	32.2	-0.5	33.9	18.9	-15.0	33.4	27.3	-6.1
SOx emissions	10.8	6.2	-4.4	26.4	18.9	-7.5	24.5	19.1	-5.4
Water usage volume	83.1	79.5	-3.6	67.0	70.3	3.3	75.6	70.7	-4.9
BOD emissions	49.9	45.9	-4.0	23.2	17.7	-5.5	41.3	35.4	-5.9
Landfilled waste volume	15.2	9.4	-5.8	55.5	42.1	-13.4	63.4	54.7	-8.6

Note: The amounts per unit of sales shown in the table are referenced to an index value of 100 set for the base year of fiscal 2011.

### Chemical Substance Emissions and Transfer Data

#### PRTR Law-specified substance<sup>1</sup> Emissions and Transfer Data for Fiscal 2013

Chemical Substance Emissions and Transfer Data(PDF:97.6KB)

Substance name	Toray (tonne eq/100)			
	Atmospheric emissions	Water emissions	Solid emissions / Company level	Waste transfers
Methyl acetate	0.1	0.0	0.0	0.0
Acrylonitrile	38.7	4.3	0.0	2.8
Acrylamide	3.3	0.0	0.0	0.0
Acrylonitrile	0.0	0.0	0.0	3.0
Acrylonitrile and cobalt	0.0	0.0	0.0	0.4
Ethylbenzene	0.0	0.0	0.0	0.0
Ethylene glycol monoethyl ether	0.1	0.0	0.0	0.1
Hexafluoride	0.0	0.0	0.0	1.8
H-Cyanuric acid	0.7	14.9	0.0	0.0
Hydroquinone	11.1	0.0	0.0	0.0
Chlorobenzene	0.5	0.0	0.0	9.6
Phenol	2.2	0.0	0.0	18.0
Isobutyl alcohol	0.0	1.1	0.0	4.3
4,4'-diaminodiphenyl ether	0.0	0.0	0.0	0.1
Isophthalic acid	44.9	0.0	0.0	0.0
1,4-Dioxane	0.0	4.3	0.0	0.0
2-Chlorobenzene	4.1	0.0	0.0	2.8
Dichloromethane	2.0	0.0	0.0	3.9
1,4-Dioxane	1.1	0.0	0.0	0.0
N,N-Dimethylacetamide	0.0	0.0	0.0	403.3
N,N-Dimethylformamide	18.1	0.5	0.0	174.0
Styrene	12.7	0.0	0.0	7.3
Terephthalic acid	0.0	0.0	0.0	57.5
Isophthalic acid	0.0	0.1	0.0	0.8
Dioxane	4.4	0.0	0.0	84.1
Nickel	0.0	0.0	0.0	18.0
Polystyrene	0.0	0.0	0.0	56.7
Hexahydro	0.0	0.2	0.0	0.0
Phenyl	0.0	0.0	0.0	1.9
Phenyl	0.0	2.8	0.0	0.0
Phenylamine	0.0	0.0	0.0	0.0
Phenol	0.0	0.0	0.0	2.3
Phenol	3.2	0.8	0.0	0.0
Phenol and boron compounds	0.0	0.0	0.0	0.3
Poly (oxyethylene) alkyl ether	0.4	0.1	0.0	13.5
Manganese and manganese compounds	0.0	0.4	0.0	1.9
Methylolacrylate	0.0	0.0	0.0	2.8
Methyl methacrylate	14.8	0.0	0.0	8.1
Methylmethacrylate	0.0	0.0	0.0	27.6
Dioxane	0.8	12.6	0.0	53.1
<b>Total</b>	<b>210</b>	<b>30</b>	<b>0</b>	<b>888</b>

Note: The list shows emissions and transfers of 29 substances (out of Toray's 69 PRTR Law specified substances) exceeding 50 kg and dioxane

Substance name	Toray (tonne eq/100)			
	Atmospheric emissions	Water emissions	Solid emissions / Company level	Waste transfers
n-butyl acetate	0.1	0.0	0.0	0.2
Acrylonitrile	0.0	0.0	0.0	1.2
1,4-Dioxane	0.0	0.0	0.0	8.2
Ethylbenzene	9.7	0.0	0.0	12.9
Ethylene oxide	1.1	0.0	0.0	0.4
Ethylene glycol monoethyl ether	0.1	0.0	0.0	0.4
Ethylmethacrylate	0.1	0.0	0.0	0.1
Hexachlorocyclopentadiene	0.1	0.0	0.0	4.1
Hydroquinone	8.2	0.0	0.0	13.2
Hydroquinone	17.8	0.0	0.0	0.0
N,N-Dimethylacetamide	0.0	0.0	0.0	0.4
N,N-Dimethylformamide	17.0	0.0	0.0	364.6
N,N-Dimethylformamide	15.5	0.0	0.0	192.8
Phenol	0.0	0.0	0.0	0.1
Hexamethylenetetramine	0.0	0.0	0.0	0.1
Toluene	33.1	0.0	0.0	631.4
Carbon disulfide	0.8	0.3	0.0	0.0
Hexane	1.9	0.0	0.0	24.0
Poly (acrylonitrile) alkyl ether	0.0	0.0	0.0	38.0
Formaldehyde	0.3	0.0	0.0	0.0
Misc. anhydride	0.0	0.0	0.0	1.8
Methyl methacrylate	0.1	0.0	0.0	0.0
n-butyl methacrylate	0.1	0.0	0.0	0.0
Methyl methacrylate	5.0	0.0	0.0	0.0
n-Butylpyridine	1.3	0.0	0.0	36.0
n-Butylpyridine	0.0	0.0	0.0	0.1
Miscellaneous and unspecified compounds	0.0	0.0	0.0	0.4
Dioxane	4.1	0.4	0.0	4.3
<b>Total</b>	<b>125</b>	<b>0.7</b>	<b>0</b>	<b>1248</b>

Note: The list shows emissions and transfers of 27 substances (out of the 62 PRTR Law specified substances for domestic subsidiaries and affiliates) exceeding 50 kg and dioxane

Sites with ISO 14001 Certification (as of March 2014)

Toray: All 12 plants

Shiga, Seta, Ehime, Nagoya, Tokai, Aichi, Okazaki, Mishima, Chiba, Tsuchiura, Gifu, Ishikawa

Japanese subsidiaries and affiliates: 36 plants at 22 companies\*

Du Pont-Toray Co., Ltd. [Tokai], Toray Opelontex Co., Ltd., Toray Textiles, Inc. [Tokai], Toray Coatex Co., Ltd. [Kyoto, Chemical Products], Toray Hybrid Cord, Inc., Toyo Plastic Seiko Co., Ltd. [Mishima, Koriyama], Toray PEF Products Inc. [Konan], Toray Monofilament Co., Ltd., Toray Advanced Film Co., Ltd. [Mishima, Takatsuki, Fukushima, Nakatsugawa], Toray KP Films Inc., Toray Fine Chemicals Co., Ltd. [Moriyama, Matsuyama, Tokai, Chiba], Toray Engineering Co., Ltd. [Numazu], Soda Aromatic Co., Ltd. [Noda, Koriyama, Okayama Chemicals], Toray ACE Co., Ltd. [Ehime, Fukushima], Dow Corning Toray Co., Ltd. [Chiba, Fukui, Yamakita, Komatsu], Toray Battery Separator Film Co., Ltd., Suido Kiko Kaisha, Ltd., Toray Medical Co., Ltd., Ichimura Sangyo Co., Ltd., Toray International, Inc., Ltd., Chori Co., Ltd., Toray Carbon Magic Co., Ltd.

2 In addition, 12 companies received certification as affiliated companies on Toray sites

Note: Information in brackets refers to the names of the plants

Overseas subsidiaries and affiliates: 42 plants at 34 companies

USA	Toray Plastics (America), Inc. [Rhode Island, Virginia], Toray Resin Co., Toray Fluorofibers (America), Inc., Toray Carbon Fibers America, Inc., Toray Composites (America), Inc., Toray Membrane USA, Inc.
UK	Toray Textiles Europe Ltd.
France	Toray Plastics Europe S.A.S.
Germany	Euro Advanced Carbon Fiber Composites GmbH
Italy	Alcantara S.p.A
Czech Republic	Toray Textiles Central Europe s.r.o.
Indonesia	P.T. Century Textile Industry Tbk, P.T. Eastermex, P.T. Indonesia Toray Synthetics, P.T. Acryl Textile Mills, P.T. Indonesia Synthetic Textile Mills
Thailand	Thai Toray Textile Mills Public Company Limited, Thai Toray Synthetics Co., Ltd. [Bangkok, Ayutthaya, Nakhonpathom], Luckytex (Thailand) Public Company Limited [Mill 1, Mill 2, Mill 3]
Malaysia	Penfibre Sdn. Berhad [Mill 3], Penfabric Sdn. Berhad [Mill 1, Mill 2, Mill 3, Mill 4] Toray Plastics (Malaysia) Sdn. Berhad
China	Toray Fibers (Nantong) Co., Ltd., Toray Polytech (Nantong) Co., Ltd., Toray Sakai Weaving & Dyeing (Nantong) Co., Ltd., Toray Plastics (Suzhou) Co., Ltd., Toray Film Products (Zhongshan) Ltd., Toray Plastics Precision (Zhongshan) Ltd., Toray Plastics (Shenzhen) Ltd., Toray Fibers & Textiles Research Laboratories (China) Co., Ltd., Toray Advanced Materials Research Laboratories (China) Co., Ltd., Toray BlueStar Membrane Co., Ltd.
Republic of Korea	Toray Advanced Materials Korea Inc., STECO, Ltd.

Note: Information in brackets refers to the names of the plants

Environmental Data for 12 Toray Plants and Principal Subsidiaries and Affiliates

[Environmental Data for 12 Toray Plants and Principal Subsidiaries and Affiliates\(PDF:108KB\)](#)



Unit	GHG emissions 10,000tne CO <sub>2</sub> /year	Emission volume													Recycled ton/year	Single recycle ton/year	Landfill t/ton/year	Principal manufactured products
		ZEPH			CO <sub>2</sub> emissions				Water emissions				Waste					
		Air	Water	SO <sub>2</sub> & NO <sub>x</sub>	Waste transfer	SO <sub>x</sub>	NO <sub>x</sub>	Dust	BOO	COO	Water	Waste	Waste	Waste				
Shiga Plant	10.7	1	0	0	76	0	34	5	76	50	26.3	3,146	24	0	<ul style="list-style-type: none"> <li>• ECGARANE™ man-made suede</li> <li>• LUMBRIDGE™ polyester film</li> <li>• TORAYCAL™ water filter</li> <li>• TORAYKING™ home water purifier</li> </ul>			
Seta Plant	0.2	0	0	0	0	0	0	0	0	0	0.1	36	0	0	<ul style="list-style-type: none"> <li>• TORAYCON™ bonded yarn</li> <li>• TORAYCON™ carbon cathodes</li> <li>• KANTHON™ PULP/capacitor</li> </ul>			
Ohme Plant	66.9	85	7	0	188	330	745	96	96	153	35.8	7,417	35	0	<ul style="list-style-type: none"> <li>• TORAY TETORON™ polyester staple fiber</li> <li>• TORAYCAL™ carbon fiber</li> <li>• HOSORAMA™ aerosol nozzle membrane module</li> <li>• TORAYCON™ PET resin</li> </ul>			
Nagoya Plant	10.6	22	0	0	33	0	51	2	125	104	30.8	2,705	1,383	100	<ul style="list-style-type: none"> <li>• KIMBLAN™ nylon yarn</li> <li>• TORAYCON™ PET yarn</li> <li>• Various fine chemicals</li> </ul>			
Taka Plant	79.9	87	22	0	79	12	378	3	338	349	19.2	7,340	96	164	<ul style="list-style-type: none"> <li>• Caprolactam</li> <li>• Isophthalic acid</li> <li>• Polyester chips</li> <li>• TORAYCAL™ ABS resin</li> </ul>			
Aichi Plant	2.7	0	0	0	8	0	1	0	4	-	2.0	80	1	0	<ul style="list-style-type: none"> <li>• Nylon filament yarn</li> <li>• BAYTELLA™ plastic optical fiber</li> </ul>			
Okazaki Plant	10.5	12	0	0	457	0	24	3	8	22	5.3	2,706	0	0	<ul style="list-style-type: none"> <li>• Nylon filament yarn</li> <li>• TORAY WATERLESS PLATE™ printing plate</li> <li>• Polyacrylamide</li> <li>• TORAYKING™ home water purifier</li> </ul>			
Matsuyama Plant	18.2	2	0	0	5	4	279	1	49	32	36.7	739	1	0	<ul style="list-style-type: none"> <li>• LUMBRIDGE™ polyester film</li> <li>• TORAY TETORON™ polyester filament yarn</li> <li>• CORONA™ long absorption photocopier PS2 developer</li> <li>• FIBRON™ natural melon fiber preparation</li> </ul>			
Osaka Plant	1.6	35	0	0	2	0	10	0	4	66	4.3	2,436	8	7	<ul style="list-style-type: none"> <li>• TORAYCAL™ ABS resin</li> </ul>			
Fukushima Plant	3.3	0	0	0	0	0	5	0	1	-	0.4	171	0	0	<ul style="list-style-type: none"> <li>• TORAYKING™ 60 polypropylene film</li> </ul>			
Sifu Plant	8.8	0	0	0	11	0	20	1	8	7	8.4	755	0	0	<ul style="list-style-type: none"> <li>• ECGARANE™ man-made suede</li> <li>• LUMBRIDGE™ polyester film</li> <li>• TORAYCAL™ ABS resin</li> <li>• TORAY TETORON™ polyester filament yarn</li> <li>• Nylon filament yarn</li> <li>• TORAYCAL™ ABS resin</li> </ul>			
Yokawa Plant	7.5	1	0	0	34	1	34	1	5	6	10.0	1,275	2	0	<ul style="list-style-type: none"> <li>• Nylon filament yarn</li> <li>• TORAYCAL™ ABS resin</li> </ul>			
Toray Hybrid Cork Inc.	1.6	1	0	0	0	0	1	0	1	4	1.0	247	0	0	<ul style="list-style-type: none"> <li>• Fine wool</li> <li>• Carpet pile fiber</li> </ul>			
Toray Advanced Film Co., Ltd. (Machida)	0.9	2	0	0	13	0	1	0	0	0	0.3	785	1	0	<ul style="list-style-type: none"> <li>• CENAPEL™ Release film</li> <li>• LUMBRIDGE™ PI back sheet</li> </ul>			
Pemfice Son. (Brazil) (Peters & Textiles)	7.8	0	0	0	0	1	1	48	2	7	0.2	175	97	51	<ul style="list-style-type: none"> <li>• TORAY TETORON™ polyester staple fiber</li> </ul>			
Toray Fibre (Korea S.A.S.)	2.8	0	0	0	0	0	23	0	0	7	1.1	697	7,337	355	<ul style="list-style-type: none"> <li>• LUMBRIDGE™ polyester film</li> </ul>			

Note: Information in brackets refers to the names of the plants

## Third-Party Assurance

**Lloyd's Register LRQA**

**Assurance Statement**

The GHG Inventory for the fiscal year 2013 prepared by:


**Toray Industries, Inc.**  
Nihonbashi Mitsui Tower, Nihonbashi-Muromachi 2 chome 1-1  
Chuo-ku, Tokyo 103-8666, Japan

has been verified by Lloyd's Register Quality Assurance Limited in accordance with:

ISO 14064-3:2006<sup>1</sup>  
as conforming to the requirements of:  
ISO 14064-1:2006<sup>2</sup>  
and taking into consideration the requirements of:  
Japan's Act on Promotion of Global Warming Countermeasures (Act No. 117)

The assurance has been formed on the basis of limited level of assurance and at a materiality of the professional judgment of the Verifier

Scope of GHG Emissions	KTonnes CO <sub>2</sub> e
Direct GHG Emissions (Scope 1)	1,968
Energy Indirect GHG Emissions (Scope 2)	464
<b>Total GHG Emissions</b>	<b>2,432</b> <b>(2,192)<sup>3</sup></b>

Signed:  Date: 10 June 2014

**Takashi Kawamoto**  
Lead Verifier  
On behalf of Lloyd's Register Quality Assurance Limited  
Queen's Tower A, 10<sup>th</sup> Floor, 2-3-1 Minatomirai, Nishi-ku  
Yokohama 220-6010, Japan

LRQA Reference No: YKA4005148

This summary is not valid without the full Assurance Statement attached on pages 2 to 3 to which it applies.

<sup>1</sup> ISO 14064:2006 Greenhouse gases — Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions  
<sup>2</sup> ISO 14064:2006 Greenhouse gases — Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals  
<sup>3</sup> The total GHG emissions after deducting 240 KTonnes CO<sub>2</sub>e that were included in the above Scope 1 emissions and exported outside Toray's organizational boundary, by taking into consideration Japan's Act on Promotion of Global Warming Countermeasures (Act No. 117)

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**Lloyd's Register LRQA**

**Assurance Statement related to GHG Inventory 2013 prepared for Toray Industries, Inc.**  
Nihonbashi Mitsui Tower, Nihonbashi-Muromachi 2 chome 1-1  
Chuo-ku, Tokyo 103-8666, Japan

**Terms of Engagement**  
This Assurance Statement has been prepared for Toray Industries, Inc.

Lloyd's Register Quality Assurance Ltd. (LRQA) was commissioned by Toray Industries, Inc. (hereafter referred to as Toray) to assure its GHG Inventory for the fiscal year 2013 (01 April 2013 to 31 March 2014), (hereafter referred to as the Report).

The Report relates to direct GHG emissions and energy indirect GHG emissions.

**Management Responsibility**  
Toray's management was responsible for preparing the Report and for maintaining effective internal controls over the data and information disclosed. LRQA's responsibility was to carry out an assurance engagement on the Report in accordance with our contract with Toray.

Ultimately, the Report has been approved by, and remains the responsibility of Toray.

**LRQA's Approach**  
LRQA's verification has been conducted in accordance with ISO14064-3:2006 Specification with guidance for validation and verification of greenhouse gas assertions to provide limited assurance that GHG data as presented in the Report have been prepared in accordance with ISO14064-1:2006 Specification with guidance at the organizational level for quantification and reporting of greenhouse gas emissions and removals while taking into consideration the requirements of Japan's Act on Promotion of Global Warming Countermeasures (Act No.117).

To form our conclusions the assurance engagement was undertaken as a sampling exercise and covered the following activities:

- Conducted site tours of Shiga Plant and Tokai Plant;
- Interviewed key personnel responsible for managing GHG emissions data and records;
- Reviewed the management system documents for GHG emissions data, information and records, covering all the processes up to the preparation of the GHG Inventory;
- Assessed the effectiveness of implementation of GHG management system; and
- Verified the GHG emissions data and records at an aggregated level for the fiscal year 2013.

**Level of Assurance & Materiality**  
The opinion expressed in this Assurance Statement has been formed on the basis of a limited level of assurance and at a materiality of the professional judgement of the verifier.

**LRQA's Opinion**  
Based on LRQA's approach nothing has come to our attention that would cause us to believe that the total direct GHG emissions and energy indirect GHG emissions disclosed in the Report as summarised in Table 1 below are not materially correct and the Report has not been prepared in accordance with ISO 14064-1:2006 or taking into consideration the

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**Lloyd's Register LRQA**

requirements of Japan's Act on Promotion of Global Warming Countermeasures (Act No.117).

**LRQA's Recommendations**  
Toray should:

- further plan the implementation of the established identification system for emissions sources in all plants and facilities to ensure conformance with the principle of ISO14064-1:2006, that is completeness, even for small emissions source which may possibly show an increase up to significant emissions in the future, and
- further improve data quality system and ensure calibration and other quality system to be applied to the measuring devices if they are deemed to be necessary for monitoring.

Signed:  Date: 10 June 2014

**Takashi Kawamoto**  
LRQA Lead Verifier  
On behalf of Lloyd's Register Quality Assurance Limited  
Queen's Tower A, 10<sup>th</sup> Floor, 2-3-1 Minatomirai, Nishi-ku  
Yokohama 220-6010, Japan

LRQA Reference: YKA4005148

**Table 1: Summary of Toray's GHG inventory for the fiscal year 2013**

Scope	KTonnes CO <sub>2</sub> e
Direct GHG Emissions (Scope 1)	1,968
Energy Indirect GHG Emissions (Scope 2)	464
<b>Total GHG Emissions</b>	<b>2,432</b> <b>(2,192)</b>

Remarks (\*) The total GHG emissions after deducting 240 KTonnes CO<sub>2</sub>e that were included in the above Scope 1 emissions and exported outside Toray's organizational boundary, by taking into consideration Japan's Act on Promotion of Global Warming Countermeasures (Act No. 117).

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## Comparative Table with ISO 26000 Subjects

### Core subjects

- ▼ [Organizational governance](#)
- ▼ [Human rights](#)
- ▼ [Labor practices](#)
- ▼ [The environment](#)
- ▼ [Fair operating practices](#)
- ▼ [Consumer issues](#)
- ▼ [Community involvement and development](#)

### Organizational governance

Issues	Toray's initiatives
	Message from the President
	Toray Group's Management Philosophy and CSR Toray Group's Management Strategies and CSR
	Framework for Toray Group's CSR Strategies
	Organizational Structure for Social Responsibility
	Toray Group's CSR Activities
	Fourth CSR Road Map and Fifth CSR Road Map
	Management (Corporate Governance and Management Transparency)
	Implementing CSR Activities and Improving CSR Education
	Promoting Diversity
	Facilitating Communications with Stakeholders Worldwide

### Human rights

Issues	Toray's initiatives
1. Due diligence	
2. Human rights risk situations	Green Innovation Business Expansion Project
3. Avoidance of complicity	Toray Group's CSR Procurement and Purchasing Committed to Human Rights
4. Resolving grievances	Fostering a Corporate Culture Based on Ethics and Legal Compliance
5. Discrimination and vulnerable groups	Committed to Human Rights Promoting Diversity
6. Civil and political rights	Management (Corporate Ethics and Legal Compliance)
7. Economic, social and cultural rights	Green Innovation Business Expansion Project
8. Fundamental principles and rights at work	Committed to Human Rights

### Labor practices

1. Employment and employment relationship	<p>Management (Human Rights Promotion and Human Resources Development)</p> <p>Committed to Human Rights</p> <p>Developing and Retaining Human Resources to Create New Value</p> <p>Promoting Diversity</p>
2. Conditions of work and social protection	<p>Creating a Positive Workplace for Employees</p>
3. Social dialogue	<p>Management (Corporate Governance and Management Transparency)</p> <p>Communication with Employees</p>
4. Health and safety at work	<p>Occupational Safety and Accident Prevention Activities</p>
5. Human development and training in the workplace	<p>Developing and Retaining Human Resources to Create New Value</p>

## The environment

Issues	Toray's initiatives
1. Prevention of pollution	<p>Safety, Health, Accident Prevention and Environmental Preservation Management</p> <p>Initiatives to Protect the Ozone Layer</p> <p>Voluntary Initiatives to Reduce Atmospheric Emissions of Chemical Substances</p> <p>Initiatives to Prevent Air and Water Pollution</p> <p>Initiatives to Reduce Waste</p> <p>Environmental Risk Management</p> <p>Environmental Data</p>
2. Sustainable resource use	<p>Approach to Green Innovation Product Sector</p> <p>Promoting Recycling Initiatives</p> <p>Toray Group Distribution Initiatives</p> <p>Initiatives to Fight Global Warming</p> <p>Initiatives for Managing Water Resources</p> <p>Initiatives to Reduce Waste</p> <p>Environmental Data</p>
3. Climate change mitigation and adaptation	<p>Green Innovation Business Expansion Project</p> <p>Toray Group Distribution Initiatives</p> <p>Initiatives to Fight Global Warming</p> <p>Environmental Data</p>
4. Protection of the environment, biodiversity and restoration of natural habitats	<p>Biodiversity Initiatives</p> <p>Environmental Risk Management</p>

## Fair operating practices

Issues	Toray's initiatives
1. Anti-corruption	<p>Management (Corporate Ethics and Legal Compliance)</p> <p>Compliance with Antitrust Laws and Anti-Bribery Rules around the World</p>

## Consumer issues

Issues	Toray's initiatives
1. Fair marketing, factual and unbiased information and fair contractual practices	Communication with Customers
	Communication with the Media
2. Protecting consumers' health and safety	Initiatives for Product Safety and Quality Assurance
3. Sustainable consumption	Green Innovation Business Expansion Project
	Promoting Life Cycle Management
	Approach to Green Innovation Product Sector
4. Consumer service, support, and complaint and dispute resolution	Initiatives for Product Safety and Quality Assurance
5. Consumer data protection and privacy	Protection of Personal Information
6. Access to essential services	Business Continuity Plan Initiatives
7. Education and awareness	Initiatives for Product Safety and Quality Assurance

## Community involvement and development

Issues	Toray's initiatives
1. Community involvement	Communication with Local Communities
2. Education and culture	Promoting Science and Technology
	Showing Children the Fun of Studying Science and the Appeal of Manufacturing
	Making Local Communities More Livable As a Good Corporate Citizen
3. Employment creation and skills development	Disseminating Environmental Technology through International Exchange
4. Technology development and access	Promoting Science and Technology
5. Wealth and income creation	
6. Health	Reaching Communities through Sports
7. Social investment	Social Contribution Expenditure in Fiscal 2013