

The Environment

Toppan's Environmental Activities

Four Environmental Activity Areas

The Toppan Group promotes environmental initiatives based on The Toppan Group Declaration on the Global Environment, a basic philosophy for the environmental conservation activities of the Group.

Toppan's environmental activities are divided into four areas—Environmental Management, Eco-protection, Eco-creativity, and Environmental Communication. The Group enacted a set of five bylaws to strengthen the Eco-protection Activities performed to minimize environmental burden associated with the Group's corporate operations: the Bylaw on Global Warming Mitigation, the Bylaw on the Building of a Recycling-oriented Society, the Bylaw on Chemical Substance Management, the Bylaw on Pollution Control, and the Bylaw on Biodiversity. The Toppan Group has taken steps to conserve the global environment in each of the areas based on the five bylaws.

The Toppan Group Declaration on the Global Environment

As responsible members of international society, we who work within the Toppan Group strive to realize a sustainable society through forward looking corporate activities with consideration for the conservation of the global environment.

Basic Principles

1. We observe all laws, regulations and in-company rules relating to the environment.
2. For the future of the Earth, we strive for the effective utilization of limited resources and the reduction of all types of environmental burden.
3. With foresight, we promote the development and widespread use of products that show consideration for the environment, and contribute to the environmental activities of customers.
4. We engage in communication related to the environment with a wide range of peoples both inside and outside the company, and strive for mutual understanding.
5. We also take a proactive approach to environmental conservation in corporate activities in international society.

Established in April 1992
Revised in April 2009

Environmental Management Activities

Operating Environmental Management Systems

The Toppan Group operates established environmental management systems based on its environmental management rules.

Fifty-nine Group sites in Japan undertake environmental activities to achieve the targets set under the Eco-protection Activity Plan. The Ecology Center collects environmental performance data as the organization responsible for supervising the Group's environmental activities. The center then evaluates and verifies the data and reports the results to the Board of Directors and other management bodies. Points of improve-

ment for the continuous upgrading of environmental management are proposed and implemented throughout the entire Group.

The environmental audit follows a three-stage screening process: a management system audit by an ISO 14001 registrar, an internal audit by the Ecology Center, and another internal audit at the individual site. Toppan underwent management system audits for 43 systems and carried out internal environmental audits at the 59 sites in fiscal 2015. Necessary procedures were taken to correct the deficiencies pointed out during the audits.

Improving Environmental Literacy

The Toppan Group implements various measures to improve the environmental literacy of its employees based on social trends related to the environment, priority topics for year-by-year environmental activities, and other environment-related issues.

In fiscal 2015 Toppan held sessions for rank-based training, optional training, and internal auditor training, along with Group-wide e-learning-based training. Ongoing group training in rank-based education is arranged in conjunction with e-learning programs focused on Eco-creativity Activities for employees in sales departments.

Calculating Scope 3 Emissions

More and more businesses around the world nowadays are quantifying and managing their value chain greenhouse gas (GHG) emissions associated with all stages of operation from raw material procurement to the distribution and disposal of products (scope 3), in addition to direct emissions (scope 1) and indirect emissions associated with purchased electricity and steam consumption (scope 2).

The Toppan Group calculated its scope 3 emissions in fiscal 2015 to identify the categories of corporate activity that represented larger sources of GHG emissions and to establish priority targets in its emission reduction strategy. This calculation showed that category 1 (manufacturing of products purchased by Toppan), categories 4 and 9 (transportation and distribution of products purchased and sold by Toppan), category 12 (end-of-life treatment of products sold by Toppan), and other categories related to raw material consumption collectively accounted for the largest share of Toppan's GHG emissions.

The Group will continue monitoring and evaluating GHG emissions across its value chain and work to reduce environmental burden incurred throughout the life cycle and production process of every product.

■ Medium-and-long-term Environmental Targets for Fiscal 2020

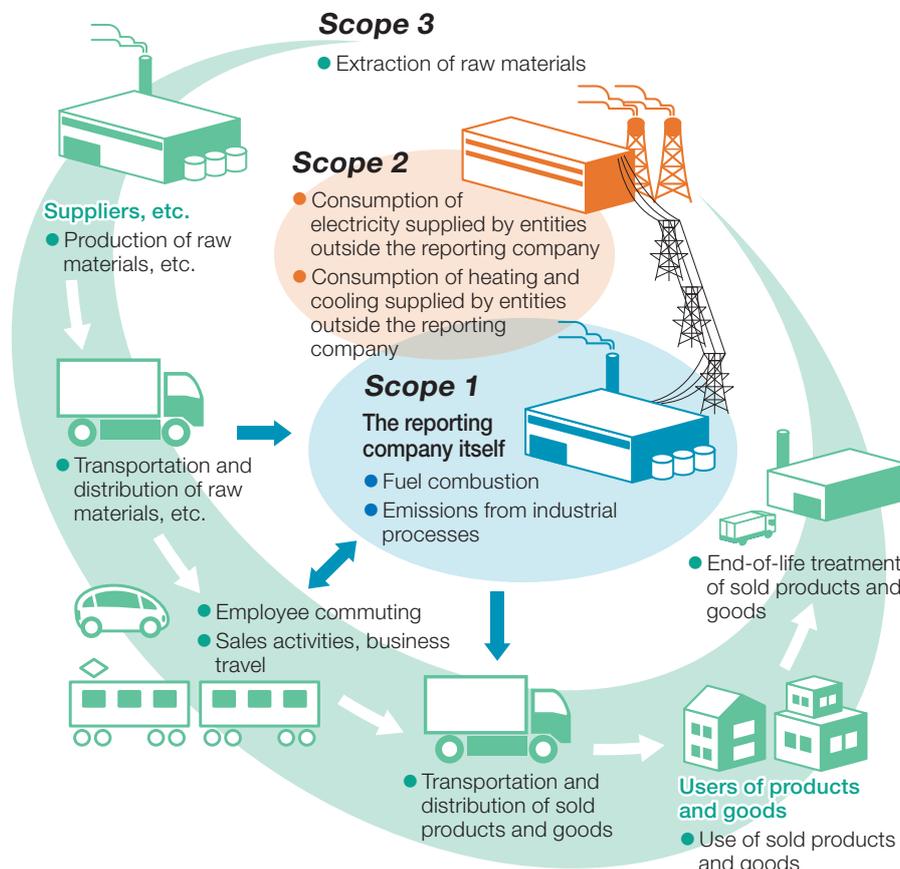
| 1 Mitigation of global warming | 2 Action for building a recycling-oriented society | 3 Conservation of the atmospheric environment |
|---|--|--|
| <ul style="list-style-type: none"> Reduce CO₂ emissions by 20% compared to the fiscal 2008 level (751 kilotons) → 600 kilotons: -151 kilotons) | <ul style="list-style-type: none"> Reduce final landfill waste disposal by 87% compared to the fiscal 2008 level (1,584 tons) → 206 tons: -1,378 tons) | <ul style="list-style-type: none"> Reduce VOC emissions into the atmosphere by 70% compared to the fiscal 2008 level (7,326 tons) → 2,198 tons: -5,128 tons) |

■ Values, Results, and Evaluation of Environmental Targets for Fiscal 2015 and Environmental Target Values for Fiscal 2016

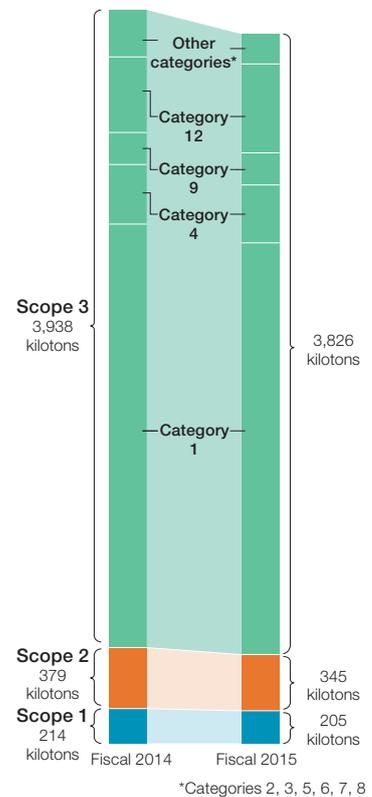
| Environmental Targets | | Management Indicators | Fiscal 2015 | | | | Environmental Target Values for Fiscal 2016 |
|--|--|-----------------------------------|---------------|--------------|-------------------|------------|---|
| | | | Target Values | Results | Achievement Rates | Evaluation | |
| 1 Mitigation of global warming | Reduce CO ₂ emissions | CO ₂ emissions | 613 kilotons | 551 kilotons | 110.2% | S | 550 kilotons |
| 2 Action for building a recycling-oriented society | Reduce final landfill waste disposal | Final landfill waste disposal | 240 tons | 160 tons | 133.3% | S | 130 tons |
| 3 Conservation of the atmospheric environment | Reduce VOC emissions into the atmosphere | VOC emissions into the atmosphere | 4,000 tons | 3,684 tons | 107.9% | S | 3,400 tons |

Evaluation criteria: S, Results achieved far surpass the targets (achievement rate [%] ≥ 105); A, Targets achieved (100 ≤ achievement rate [%] < 105); B, Activities fully carried out, but targets unachieved (70 ≤ achievement rate [%] < 100); C, Activities insufficient (achievement rate [%] < 70)
Achievement rates: 200 - (values actually achieved / target values) × 100 [%]

■ Calculating Scope 3 Emissions



■ Scope 1-3 Greenhouse Gas Emissions



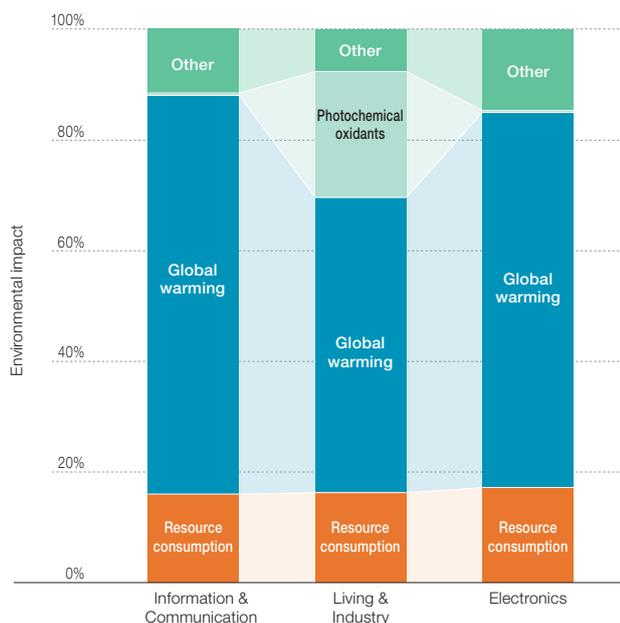
Toppan's Environmental Burden and Environmental Impact

The Toppan Group applies the LIME* life-cycle assessment method to consolidate INPUT and OUTPUT data on environmental burden associated with business activities into a single index of environmental impact.

This assessment provides a holistic view of the environmental impact of all business activities at the Group and serves as a benchmark for establishing medium-and-long-term environmental targets and checking the effectiveness of environmental measures. Toppan has managed to reduce its environmental impact every year. In fiscal 2015 the Group attained a 40% reduction compared to the fiscal 2006 level.

*Life-cycle Impact assessment Method based on Endpoint modeling (LIME): A version of the damage-oriented environmental impact assessment method adjusted for application in Japan based on the domestic environmental background. Damage derived from impact categories is quantified for each part of the environment to be protected (e.g., human health, biodiversity). Once the damage is quantified, the environmental impacts of multiple factors are integrated into a single index.

Types of Environmental Impact by Business Field



Note: Every business field shows comparatively high global warming effects from energy consumption for electricity used for power and air-conditioning and for natural gas used for heat sources. The Living & Industry field shows significant impacts from photochemical oxidants, pollutants formed by reactions between sunlight and VOCs released into the atmosphere. The Toppan Group includes these indicators among medium-and-long-term environmental targets and has taken steps to reduce environmental impacts of these types.

Eco-protection Activities

Mitigating Global Warming and Saving Energy

The Toppan Group has been reducing the total emissions of carbon dioxide (CO₂) to help mitigate global warming.

In fiscal 2015 Toppan continued operating its nationwide demand-monitoring system to control peak power demand in summer and winter in Japan. The electricity consumption data compiled for each site via this system enables the Group to review power contracts and encourage energy-saving efforts on a site-by-site basis.

Toppan is also replacing long-used utility facilities with high-efficiency alternatives according to schedule. In fiscal 2015 the Sakado Plant in Saitama Prefecture attained significant energy savings by replacing existing cooling machines with more efficient models. To reduce the unnecessary or nonessential use of electricity, the Group has redressed demand-and-supply imbalances and suspended the use of any equipment that stays running continuously during vacations.

As a result of these efforts, CO₂ emissions in fiscal 2015 were reduced to 551 kilotons, below the targeted limit of 613 kilotons for the year.

Improving Transport Efficiency in Logistics

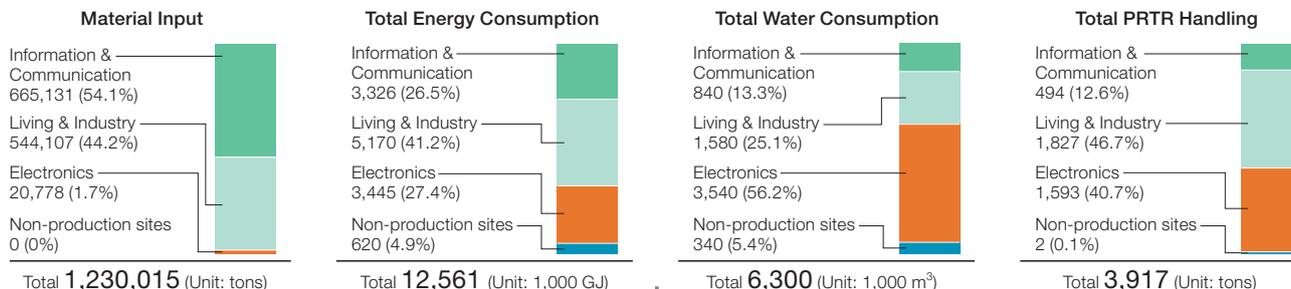
Toppan Logistics Co., Ltd., the logistics specialist for the Toppan Group, is working with shippers from Toppan Group companies to reduce the energy consumption per unit of transport volume by company vehicles and the total volume of CO₂ emissions from transport.

Energy consumption per unit of transport volume in fiscal 2015 was 58.9 kL/million ton-kilometers, a 2.3% increase from fiscal 2014, missing the year-by-year reduction target of 1% prescribed by the Act on the Rational Use of Energy of Japan. On another front, CO₂ emissions totaled 33,533 tons, falling below the fiscal 2014 level by 3.7%.

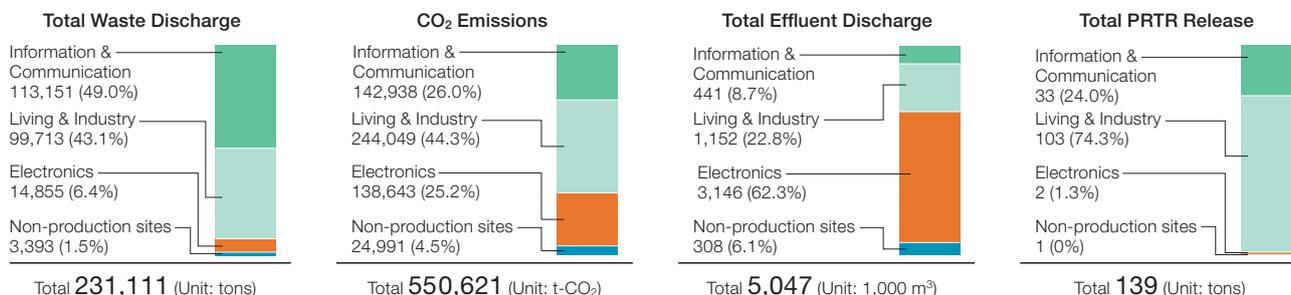
Toppan Logistics will work to accomplish the targets for fiscal 2016 by optimizing transportation conditions and further improving transportation efficiency.

Major Types of Environmental Burden by Business Field in Japan (INPUT/OUTPUT data)

INPUT

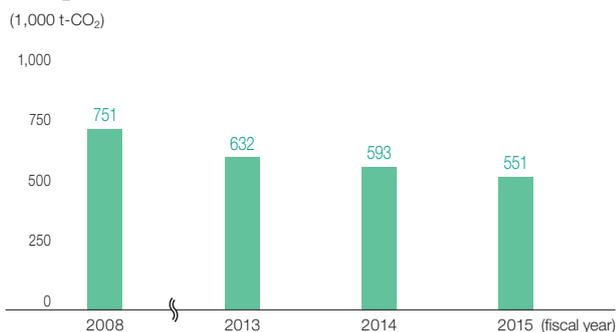


OUTPUT



- Notes:
- Energy consumption associated with fuel consumption is calculated using the conversion factor specified in the year 2000 amendment of the Act on the Rational Use of Energy of Japan. The primary energy input associated with electricity consumption is calculated uniformly as 0.00983 GJ/kWh. Some of the material inputs are calculated from estimated values based on production values.
 - "Waste" in this report includes industrial waste of no value and waste materials of value sold or transferred as resources (both generated in association with business activities).
 - Total energy consumption is the quantity of electricity and fuels consumed.
 - Total values may not exactly match the sum totals of individual values, as decimals are rounded up or down.

CO₂ Emissions



Note: CO₂ emissions are calculated by the method specified in the Guidelines for Calculating Greenhouse Gas Emissions from Businesses (2003) issued by the Ministry of the Environment (MOE) of Japan. The CO₂ emissions associated with electricity consumption, however, are calculated uniformly as 0.378 t-CO₂/MWh.

CO₂ emissions in fiscal 2015 totaled 683,296 t-CO₂ when calculated using the effective emission factor from another MOE method specified in the Ministerial Ordinance Concerning the Calculation of Greenhouse Gas Emissions from Business Activities of Specified Dischargers (the latest amendment on April 30, 2015).



High-efficiency cooling machine (Sakado Plant)



Facility for recovering solvents (Gunma Central Plant)

Building a Recycling-oriented Society

In a drive to use limited resources more effectively, the Toppan Group works to reduce the discharge of waste, increase the recycling rate, and apply appropriate waste treatment methods.

Waste paper derived from operational sites primarily in the Information & Communication and Living & Industry fields makes up the largest portion (74.7%) of the total waste discharged at Group sites. This is followed by waste plastics from plants in the Living & Industry field and sludge from the Electronics field. The Group has striven to increase the material recycling rate by processing waste paper into recycled paper, separating waste plastics and processing composite plastics into pellets, and implementing other recycling methods. Sludge, meanwhile, has been reduced in-house to smaller volumes for disposal. The Fukaya Plant in Saitama Prefecture began material recycling in fiscal 2015 by processing waste glass, a material previously treated for landfill disposal, for reuse as a cement material for structures to be built underwater and elsewhere. These measures reduced the final landfill waste disposal in fiscal 2015 to 160 tons.

The Toppan Group will continue reducing waste discharge and promoting material recycling.

Preventing Pollution

The Eco-protection Promotion Committee at each Group site in Japan sets in-house control standards more stringently than the regulatory standards require. By complying with these standards, the Toppan Group works to reduce environmental burden and prevent pollution.

To prevent atmospheric pollution, the Group controls boilers and other plant facilities responsible for air pollutants by managing operations under appropriate combustion conditions. The Group enhances the efficiency of effluent-gas treatment in plant facilities subject to requirements under the Air Pollution Control Act by reusing recovered solvents and precisely controlling combustion facilities. VOC and toluene emissions into the atmosphere in fiscal 2015 were both reduced compared with the fiscal 2014 levels.

To prevent water pollution, the Group has installed wastewater treatment facilities designed to cope with specific water consumption and pollutant conditions at individual sites. Wastewater recycling systems have also been installed at Electronics plants that discharge effluents in significant amounts. By recovering and reusing wastewater via these systems, the plants have been working to reduce the levels of water consumption and effluent discharge.

The Toppan Group also checks plant facilities subject to the Water Pollution Control Law in compliance with the regulatory regime for facility structures. The Group will monitor every facility, including those not subject to the law, to prevent groundwater pollution caused by the leakage of chemicals and other liquids. Any equipment or components with undue wear will be replaced.

Controlling Chemical Substances

The Toppan Group has striven to reduce the consumption of chemical substances to mitigate the impacts of these substances on the environment. The Group continues reducing the consumption of chemical substances designated under the Pollutant Release and Transfer Register (PRTR) law of Japan and introducing safer substitutes by setting priorities in terms of both the type and range of application. These measures helped the Group reduce the amount of chemical substances handled under the designation of the PRTR law by 12.2% compared to the amount handled in fiscal 2014.

Group production sites have also been appropriately managing chemical substances based on established control procedures.

Approach to Environmental Compliance

In fiscal 2015, Toppan used its in-house environmental database to identify possible risks of exceeding any of the limits stipulated under regulatory standards for Group sites in Japan. Preventive measures against higher risks were taken to ensure that none of the regulatory limits were breached.

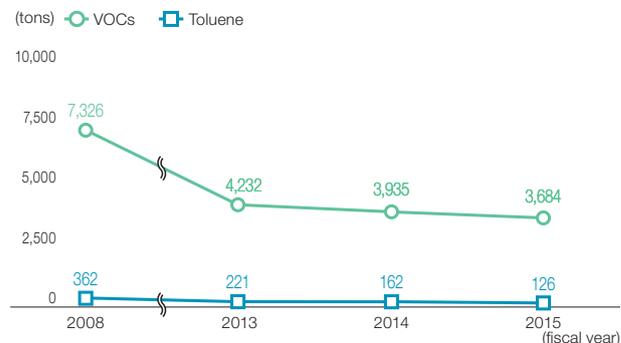
Despite these steps, one production site recorded excessive levels of air pollutants and three sites recorded excessive levels of BOD, total nitrogen, or other water contaminants relative to standards set under laws, ordinances, agreements, or other applicable regulations. The Toppan Group has taken immediate corrective measures for every case, including steps to inspect facilities and revise the methods for facility control. Since implementing these corrective measures, the Group has reviewed control procedures and taken necessary actions to reliably prevent recurrences. As a preventive action against environmental pollution, the Group reviews drills for coping with potential emergencies and accidents during production operations whenever necessary.

Communities around Toppan plants filed two complaints at two sites in fiscal 2015. One involved noise and the other involved inconvenience to community residents related to odor. The Group has responded by reviewing the operational rules for plant facilities responsible for noise and instituting a stricter regime for maintaining and inspecting facilities that generate noise or odor. Whenever judged to be appropriate, Toppan will install deodorizing equipment to control odor. The Toppan Group will continue enhancing the quality of environmental management through earnest dialogue with residents in surrounding communities.

■ Total Waste Discharge and Final Landfill Waste Disposal

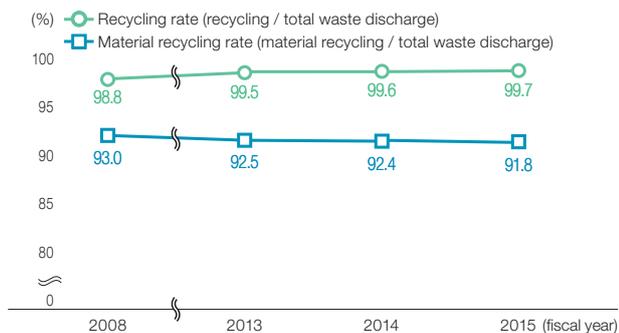


■ VOC and Toluene Emissions into the Atmosphere*1



*1 Emissions into the atmosphere are calculated in conformance with the standards established by the Japan Federation of Printing Industries (JFPI) and the Japan Electronics and Information Technology Industries Association (JEITA).

■ Recycling Rate and Material Recycling Rate



■ Chemical Substances Designated under the PRTR Law*2



*2 Dioxins are excluded because of a difference in the counting unit.

■ Purification of Soil and Groundwater Pollution

| Operational Site | Detail | Current Progress*3 |
|---|--|------------------------|
| Itabashi Plant (Itabashi City, Tokyo) | Groundwater pollution by hexavalent chromium and toluene | Continuously monitored |
| Niigata Plant (Shibata City, Niigata) | Soil pollution by fluorine and fluorine compounds | Continuously monitored |
| Toppan Technical Research Institute (Kita-Katsushika District, Saitama) | Soil pollution by fluorine and fluorine compounds | Monitoring completed |

■ Soil Pollution Remediation for Redevelopment in Conformance with Applicable Laws, Regulations, and Ordinances

| Operational Site | Chemical Substances Subject to Remediation | Remediation Measures | Current Progress*3 |
|---|---|------------------------|-----------------------|
| Kawaguchi Plant (Kawaguchi City, Saitama) | Lead; fluorine; cyanide and cyanide compounds | Excavation and removal | Remediation completed |
| Ebie Site (Osaka City, Osaka) | Hexavalent chromium; lead and lead compounds | Excavation and removal | Remediation completed |

*3 As of March 2016

Promoting the Conservation of Biodiversity

● Biodiversity Conservation at Operational Sites

The Fukaya Plant in Saitama Prefecture has promoted biodiversity conservation within its premises in collaboration with the Environmental NPO “SHU” since fiscal 2012. The NPO and plant worked together in the 7th phase of their wildlife-support project, “Paradise for Wild Birds,” in the summer of 2015. Participating children mowed undergrowth, creepers, and other weeds to clear a small square. In the “Leaf Card” activity, they learned about the diverse forms and shapes of leaves taken from nature by playing with special decks of cards made from actual leaves. The game sharpened the children’s abilities to both observe different shapes and explain their observations. In the following winter, participants in the 8th phase of the project installed new birdhouses for woodpeckers and Japanese Tits and surveyed the nesting rate at birdhouses installed a year earlier. A high rate of about 60% was confirmed.

Since fiscal 2013 the employees from the Asaka Plant in Saitama Prefecture have been maintaining a conservation pond on the plant premises mimicking waterside environments surrounding local rivers. Under the supervision of the Saitama Ecosystem Conservation Society, they have checked the quality and year-round temperature of the pond water and identified species to be conserved. The pond is currently inhabited by Japanese eight-barbel loach, Japanese *minami medaka* rice fish, and several other aquatic organisms comfortable in the pond ecosystem. Asaka Plant will manage the pond to protect these species from any existential threats.

● Biodiversity Conservation outside Operational Sites

The Toppan Group continues conserving forest resources throughout Japan. In fiscal 2015 Group employees tuned in to the sights, sounds, smells, feelings, and textures of the woods in Asahiyama Memorial Park in Sapporo City, Hokkaido. They visited the urban park to document their perceptions of abundant natural phenomena such as holes pecked into trees by woodpeckers and the gnarled surfaces of nuts gnawed by Ezo squirrels.

Toppan employees also worked with members from the Center for Ecological Education (CEED) to observe migrant birds and create decoys in the Kasai Rinkai Park in Edogawa City, Tokyo. Participants found more than 15 species of wild birds and witnessed a bird fight between goshawk and ravens. Carved into the form of little terns, the decoys have been put on the water to attract real-life terns as they gather into breeding colonies.

Employees also took part in educational fieldwork in the “Ranzan Community Forest” neighboring the Ranzan Plant in Saitama Prefecture to mow low-growing plants such as *nezasa* dwarf bamboo and thin out evergreen needle-leaved trees such as Japanese cypresses. Children assisting the works collected beetle larvae, locusts, crickets, and other insects and sketched the captured creatures in an original illustrated guide.

Employees in Katano City, Osaka, meanwhile, have been maintaining bamboo thickets in countryside woods.

Eco-creativity Activities

Developing and Approving Environmentally Friendly Products

Toppan has established the Toppan Standards for Environmentally Friendly Products, a set of criteria covering five stages of the product life cycle. A total of 88 products were registered as “environmentally friendly products” as of the end of March 2016.

The Company has approved and registered “exceptional environmentally friendly products” that are recognized by third-party organizations or that have undergone life cycle assessment for quantification of environmental burden across the life cycle.

Environment-related Businesses at Group Companies

Like Toppan itself, the companies of the Toppan Group develop, produce, and market eco-friendly products in line with standards they formulate themselves in consideration of social demands.

The total sales of environment-related businesses—including, most notably, sales of environmentally friendly products satisfying the in-house criteria of the Toppan Group—were 311.8 billion yen in fiscal 2015.

Environmental Communication Activities

Presenting at Eco-Products 2015

At the Eco-Products 2015 fair in December 2015, the Toppan Group presented a set of environmental proposals based on various themes such as forest nurturing, CO₂-reduction measures, energy-saving actions, and a recycling-oriented society. The Toppan booth exhibited products and services the Group has created in collaboration with client companies, organizations, and other entities in development, sales, and operation. The exhibit included a virtual reality display to vividly depict the effects of forest thinning operations and demonstrate their importance.

Issuing Site Eco Reports

Toppan Group’s ISO 14001-certified sites in Japan issue *Site Eco Reports* directed towards local municipalities and residents in surrounding communities. Thirty-five reports from 47 sites were issued in fiscal 2015.



"Leaf Card" activity (Fukaya Plant, Saitama)



Conservation pond mimicking local waterside environments (Asaka Plant, Saitama)



Wood study in Asahiyama Memorial Park in Hokkaido



Wild-bird observation in Kasai Rinkai Park in Tokyo



Eco-Products 2015



Eco-Products 2015

■ Toppan Standards for Environmentally Friendly Products

| Life Cycle Stage | Toppan Standards for Environmentally Friendly Products | |
|-------------------------------------|--|---|
| | Large Categories | Small Categories |
| Raw material procurement | Reduced use of hazardous substances | Reduced use of hazardous substances and volatile solvents (excluding banned substances) |
| | Use of recycled materials | Use of waste paper Use of recycled plastics |
| | Use of materials with lower environmental burden | Reduced consumption of energy and water |
| | Resource-saving efforts | Reduced use of materials in production |
| | Use of sustainable resources | Use of lumber from forest-thinning operations, use of forest-certified paper, use of tree-free paper Alternatives to petroleum-based materials and mineral resources Effective use of biomass resources |
| Production | Reduced energy consumption in production | Reduced energy consumption through changes in product design and production processes (excluding reduction through changes in equipment) |
| | Use of recyclable energy | Use of green electricity |
| | Implementation of carbon offsets | Same as left |
| | Reduced water consumption in production | Reduced water consumption through changes in product design and production processes (excluding reduction through changes in equipment) |
| | Reduced generation of waste in production | Waste reduction (excluding reuse of waste inside plants) |
| Distribution | Improvement in transport efficiency | Product design for improved loading ratio |
| | Optimization of transportation | Selection of more environmentally friendly transportation |
| Use | Reduced release of chemical substances during use | Reduction of chemical substances potentially released from products |
| | Extension of product life | Prolonged product life through improvement in durability and enhancement of functions |
| | Reduced environmental burden during use | Reduced consumption of energy and water during use |
| Disposal & recycling | Reuse | Improvement in reusability Easy separation and disassembly for reuse |
| | Recycling | Improvement in recyclability Easy separation and disassembly for recycling |
| | | Recyclability through existing recycling routes (excluding waste paper collection routes) |
| | Environmentally friendly disposal | Reduced emissions of hazardous gases during disposal |
| | Use of biodegradable materials | Use of recyclable materials that can be degraded and returned to nature (biodegradability, photodegradability, etc.) |
| Proof of environmental friendliness | Visualization of environmental burden | Carbon footprint of products (CFP), life-cycle assessment (LCA), water footprint (WFP) |
| | Labeling with environmental logos | Examples: Eco Mark, Forest Thinning Mark, etc. |