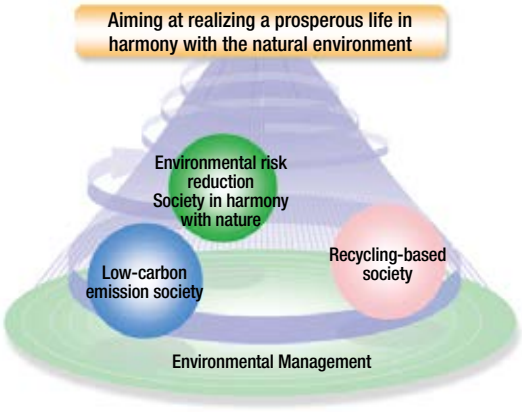
Environmental Initiatives

Vision for Environmental Activities

We have defined our aspirations in 2050 and been promoting the Sixth Environmental Action Plan since fiscal 2017.

Global Environmental Commitment

As one tenet under our Basic Philosophy, Toyota Industries works to contribute to regional living conditions and social prosperity and also strives to offer products and services that are clean, safe and of high quality. Accordingly, in February 2011, we established the Global Environmental Commitment, a specific environmental action guideline, to be shared and implemented throughout the Toyota Industries Group. The entire Toyota Industries Group will dedicate concerted efforts to realizing a prosperous life in harmony with the natural environment.



Notional Diagram of Global Environmental Commitment

Aspirations in 2050 and the Sixth Environmental Action Plan

Following the 2015 adoption of the Paris Agreement, an international framework for action against climate change, establishment of a low-carbon emission society has become a global common goal. For Toyota Industries as well, the need to take further proactive measures is growing as global environmental issues continue to become of greater concern, with more people becoming increasingly conscious about the environment.

Under the circumstances, we have defined our aspirations in 2050. The Global Environmental Commitment, which represents our basic approach to environmental activities, specifies the four action themes, namely, 1) establishing a low-carbon emission society; 2) establishing a recycling-based society; 3) reducing environmental risk and establishing a society in harmony with nature; and 4) promoting environmental management.

Aspirations in 2050

(1) Establishing a low-carbon emission society
⇒ Globally take on challenge of establishing a zero CO_2 emissions society
(2) Establishing a recycling-based society
⇒ Take on challenge of minimizing the use of resources
(3) Reducing environmental risk and establishing a society in harmony with nature
⇒ Generate positive influence on biodiversity
(4) Promoting environmental management
⇒ Enhance consolidated environmental management and promote enlightenment activities

As a milestone toward achieving our aspirations in 2050, we have formulated the Sixth Environmental Action Plan, a five-year plan for the period from fiscal 2017 to fiscal 2021, and will resolutely undertake activities in accordance with the plan.

TOPIC

Holding a Sustainability Conference in Europe

Toyota Material Handling Europe AB (TMHE), a consolidated subsidiary overseeing the materials handling equipment business in Europe, held a Sustainability Conference in September 2017, with participants from the production and non-production bases of the Toyota Industries Group in the region. The aim was to share the medium- to long-term environmental and safety policies as well as best practices of each company in these two areas.

The conference included workshops on various topics, such as the progress of individual companies toward achieving their CO_2 emissions reduction targets, medium- and long-term CO_2 reduction initiatives, the impact of sustainability on corporate competitiveness and response to chemical substances regulations. Participants proactively exchanged information and engaged in animated discussion on current and future relevant issues.

Sustainability Conference in Europe

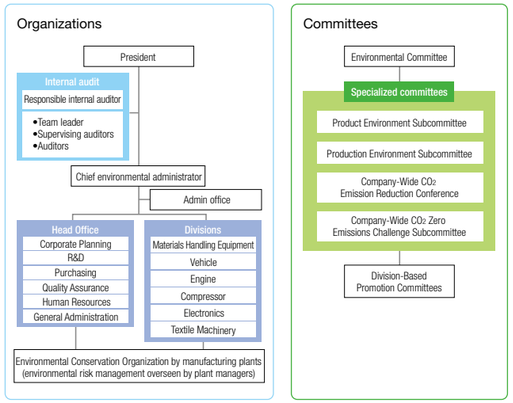
Structure to Implement Environmental Management

Positioning environmental response as one of its most crucial management issues, Toyota Industries is enhancing its environmentally oriented corporate management on a global basis through the promotion of consolidated environmental management.

Promotion of Environmental Management System

Toyota Industries has positioned environmental response as one of its most crucial management issues. To quickly reflect top management's decisions on business operations, Toyota Industries has established and been operating a Company-wide integrated environmental management system (EMS), with the president at the top.

■ Environmental Management Structure



As in the previous fiscal year, in fiscal 2018 we conducted introductory educational courses to foster the knowledge needed for environmental management and an introductory educational course for environmental audits to cultivate knowledge and techniques of internal audits. Department heads and employees proactively attended these courses to deepen their understanding of environmental management. For internal auditors, we provided auditor training by an external lecturer for upgrading the quality of our internal audits.

Auditor training by an external lecturer

Response to the Revised ISO 14001 Standard

Following the revision of the international standard ISO 14001 in September 2015, we reviewed our Environmental Management Manual and redefined its regulations. In August 2016, we initiated activities based on the new regulations.

By having auditors who thoroughly understand the revised standard perform internal audits, we have confirmed the progress of each department in conforming to the revised standard.

An external review by a third party has also confirmed that our shifting to the revised standard has been proceeding appropriately.

■ Companies Subject to Consolidated Environmental Management (As of March 31, 2018) * Only the names of production bases are listed.

Europe: 9 production bases; 55 non-production bases
Toyota Material Handling Manufacturing France SAS (France)
TD Deutsche Klimakompressor GmbH (Germany)
Toyota Material Handling Manufacturing Italy SpA (Italy)
L.T.E. Lift Truck Equipment S.p.A. (Italy)
Cascade Italia S.r.l. (Italy)
Toyota Material Handling Manufacturing Sweden AB (Sweden)
Uster Technologies AG (Switzerland)
Cascade (U.K.) Limited (U.K.)
Vanderlande Industries B.V. (Netherlands)

Asia: 14 production bases; 11 non-production bases
Toyota Industry (Kunshan) Co., Ltd. (China)
TD Automotive Compressor Kunshan Co., Ltd. (China)
Yantai Shougang TD Automotive Compressor Co., Ltd. (China)
Zhejiang Aichi Industrial Machinery Co., Ltd. (China)
Uster Technologies (Suzhou) Co. Ltd. (China)
Cascade Xiamen Forklift Truck Attachment Co., Ltd. (China)
Cascade Hebei Forks Co., Ltd. (China)
Tailift Machinery & Equipment (Qingdao) Co., Ltd. (China)
Toyota Industries Engine India Private Limited (India)
Kirloskar Toyota Textile Machinery Pvt. Ltd. (India)
P.T. TD Automotive Compressor Indonesia (Indonesia)
Cascade Korea Limited (Korea)
Tailift Material Handling Taiwan Co., Ltd. (Taiwan)
Toyota Industrial Equipment Vietnam Co., Ltd. (Vietnam)

Japan
■ Non-consolidated: 10 production bases; 8 non-production bases
■ Consolidated subsidiaries in Japan: 15 production bases; 21 non-production bases
Tokyu Co., Ltd. (Aichi)
Tokaiseiki Co., Ltd. (Shizuoka)
Miduho Industry Co., Ltd. (Aichi)
IZUMI MACHINE MFG. CO., LTD. (Aichi)
Hara Corporation (Gifu)
Mino Tokyu Co., Ltd. (Gifu)
Altex Co., Ltd. (Shizuoka)
Aichi Corporation (Saitama)
Nagao Kogyo Co., Ltd. (Aichi)
Unica Co., Ltd. (Aichi)
Nishina Industrial Co., Ltd. (Nagano)
Iwama Loom Works, Ltd. (Aichi)
HANDA Casting Company (Aichi)
Takeuchi Industrial Equipment Manufacturing Co., Ltd. (Aichi)
Sugiyama Kogyo Co., Ltd. (Aichi)

North America: 16 production bases; 34 non-production bases
Cascade (Canada) Ltd. (Canada)
Toyota Industrial Equipment Manufacturing, Inc. (U.S.A.)
The Raymond Corporation (U.S.A.)
Raymond-Muscatine, Inc. (U.S.A.)
TD Automotive Compressor Georgia, LLC (U.S.A.)
Michigan Automotive Compressor, Inc. (U.S.A.)
Indiana Hydraulic Equipment Corp. (U.S.A.)
North Vernon Industry Corp. (U.S.A.)
Cullman Casting Corporation (U.S.A.)
Toyota Industries Compressor Parts America, Co. (U.S.A.)
Uster Technologies, Inc. (U.S.A.)
Cascade Corporation (U.S.A.)
PSM LLC (U.S.A.)
American Compaction Equipment, Inc. (U.S.A.)
Tailift Material Handling USA Inc. (U.S.A.)
Bastian Solutions, LLC (U.S.A.)

Oceania: 1 production base; 4 non-production bases
Cascade (Australia) Pty. Ltd. (Australia)

Latin America: 1 production base; 5 non-production bases
Toyota Material Handling Mercosur Indústria e Comércio de Equipamentos Ltda (Brazil)

Environmental Impact Flow and Environmental Accounting

In this section, we provide an overall picture of environmental impact resulting from our global business activities and report the results of environmental accounting (environmental conservation cost, environmental conservation benefits and economic benefits of environmental conservation initiatives).

Environmental Impact Flow

INPUT

■ Energy [consolidated]	
Energy consumption	16,939 TJ*1
Electricity	1,272,516 MWh
City gas	86,786 km^{3}N
LPG	4,539 t
Petroleum products	4,100 kl
Coal products	7,082 t
LNG	1,344 t

*1: Terajoule is a unit used to measure heat. 1 TJ = 10^{12} joules

■ Raw Materials [consolidated]	
Raw material consumption	790,022 t
■ Water [consolidated]	
Water consumption	4,873 km^3
■ Chemical Substances [Japan consolidated]	
PRTR law*2 designated substances	1,447 t

Environmental Impact Flow

R&D/Design
Procurement
Production
Transportation/Sales
Usage
Recovery/Recycling

OUTPUT

■ Into the Air [consolidated]	
CO_2 emissions	913,123 t-CO_2
Greenhouse gases other than CO_2	3,964 t-CO_2
CO_2 from logistics	30,099 t-CO_2
SOx (Sulfur oxides)	413 kg
NOx (Nitrogen oxides)	143 t
VOC (Volatile organic compounds)	1,453 t
■ Chemical Substances [Japan consolidated]	
Emissions/transfers of PRTR law designated substances	439 t
■ Waste [consolidated]	
Waste generation	122,521 t
■ Into Waterways [consolidated]	
Water pollutants	37 t
Discharge of treated wastewater	2,407 km^3

*2: Short for Pollutant Release and Transfer Register, the PRTR law is a scheme whereby businesses measure the release and transfer of PRTR designated pollutants and report their performance to the government. The government then compiles this data and releases it to the public.

Environmental Accounting

Fiscal 2018 Environmental Accounting*3

Scope of data collection: Toyota Industries Corporation
Period of data collection: April 1, 2017 – March 31, 2018

*3: Environmental accounting data is collected in compliance with the Ministry of the Environment's *Environmental Accounting Guidelines 2005 Edition*.

■ Environmental Conservation Cost (Millions of yen)

Category		FY2018 Investment	FY2018 Expenses	FY2017 Investment	FY2017 Expenses
Business area costs	Pollution prevention costs	596	195	833	120
	Global environmental conservation costs	675	2,825	450	2,335
	Resource recycling costs	261	124	129	140
Upstream/downstream costs		0	449	0	568
Management costs		0	187	0	276
Research and development costs		78	3,882	7	2,398
Social contribution activity costs		0	103	0	92
Environmental remediation costs		0	0	16	0
Total		1,610	7,765	1,435	5,929
		9,375		7,364	

■ Environmental Conservation Benefits

Environmental Impact	Comparison with Previous Fiscal Year
CO_2	625 t increase
Generation of waste products	4,347 t increase
Water	114,166 m^3 increase

■ Economic Benefits of Environmental Conservation Initiatives

(Millions of yen)

Item	Details	Amount
Revenue	Returns from sale of recycled waste products	4,505
Cost reduction	Energy cost reductions	(63)
	Cost reduction by resource savings (including reductions in amount of water use, wastewater treatment costs, etc.)	(42)
Total		4,400

Sixth Environmental Action Plan

The results of our activities in fiscal 2018 showed steady progress across the board toward achieving respective targets for fiscal 2021.

Progress of Sixth Environmental Action Plan

With an eye to realizing a prosperous life in harmony with the natural environment through the establishment of a sustainable society, we formulated the Sixth Environmental Action Plan for the period from fiscal 2017 to fiscal 2021 and are promoting activities according to the plan. Through activities undertaken during fiscal 2018, we made steady progress toward achieving respective targets for fiscal 2021.

Production Related

Segments	Action Policies/Specific Actions	FY2018 Achievements					FY2021 Targets
		Subject	Scope	Control Items	Base Year (FY)	Achievements	Targets
Establishing a Low-Carbon Emission Society	Reduce CO_2 emissions from production activities • Develop and introduce production engineering technologies with lower CO_2 emissions • Reduce CO_2 emissions by fully implementing improvement activities on a daily basis • Develop innovative CO_2 reduction technologies that utilize clean energy • Manage greenhouse gases other than CO_2	CO_2 emissions	Non-consolidated	Total emissions	2006	–16%	–10%
			Global	Emission volume per unit of production*1	2006	–24%	–26%
			Non-consolidated			–27%	–30%
	Reduce CO_2 emissions from production-related logistics • Improve transportation efficiency through such measures as modal shift and better cargo loading efficiency	CO_2 emissions from logistics	Non-consolidated	Emission volume per unit of production	2007	–35%	–28%
Establishing a Recycling-Based Society	Promote measures against resource depletion by recycling waste • Reduce the volume of discarded materials by taking action at the source, such as improving yields and other measures • Promote internal reuse Promote effective resource utilization in production activities • Reduce use of packaging materials • Monitor water input and output in each country/region and develop and promote appropriate measures	Waste generation volume	Japan consolidated	Emission volume per unit of production	2006	–31%	–27%
			Non-consolidated			–31%	–29%
Reducing Environmental Risk and Establishing a Society in Harmony with Nature	Further reduce emissions of substances of concern • Minimize the use of substances of concern by promoting efficient production activities	VOC*2 emissions	Non-consolidated (automobile body)	Emission volume per unit of production	2006	–36% (24g/m²)	–36% (24g/m²)

Product Related

Segments	Action Policies	Specific Actions	FY2018 Achievements
		Sixth Environmental Action Plan Targets	
Establishing a Low-Carbon Emission Society	Reduce CO_2 emissions through product and technology development	• Develop technologies that contribute to an even greater level of energy efficiency • Develop products and technologies that respond to electrification • Develop technologies to enable weight reduction • Reduce energy loss • Develop technologies for the realization of a hydrogen-based society	• Developed reach-type electric lift truck • Developed next-generation electric compressor • Developed air-jet loom • Developed next-generation air compressor for fuel cell vehicles
Establishing a Recycling-Based Society	Implement initiatives to promote 3R (reduce, reuse and recycle) design for effective resource utilization	• Reduce use of resources through longer product life • Reduce use of resources through standardization, modularization and reduction of components • Reduce use of resources through development of technologies to enable weight reduction and downsizing • Promote reuse of components and resources	• Developed reach-type electric lift truck (longer life of components) • Developed reach-type electric lift truck (reduction in number of components) • Developed new 400W DC-AC inverter
Reducing Environmental Risk and Establishing a Society in Harmony with Nature	Reduce emissions to improve air quality in urban areas in all countries and regions	• Develop engines that meet future regulations	• Developed engine for marine use
	Manage chemical substances contained in products	• Investigate chemical substances contained in products and manage switching over of SVHC*3 and other substances of concern to other substances	• Supported chemical substance management at consolidated subsidiaries • Conducted survey on chemical substances contained in products

Others

Segments	Action Policies	Specific Actions	FY2018 Achievements
		Sixth Environmental Action Plan Targets	
Reducing Environmental Risk and Establishing a Society in Harmony with Nature	Augment activities related to protection of biodiversity	• Share the biodiversity guidelines across all Toyota Group companies and contribute to the expansion of a habitat for living organisms • Formulate and promote plans to link activities and bring more greenery by undertaking activities for conservation of biodiversity throughout the Toyota Industries Group, including at consolidated subsidiaries in and outside Japan	• Participated in All Toyota Green Wave Project • Created an animal path within the Higashiura Plant in Aichi Prefecture
Promoting Environmental Management	Augment and promote consolidated environmental management	• Build a global environmental management system and promote related activities to: Comply with environment-related laws in each country and region Formulate a medium-term plan based on visualization of environmental risks and conduct activities to prevent risks from occurring Enhance risk communication with relevant organizations and local residents Achieve the highest-level environmental performance in each country and region • Enforce strategic environmental management that integrates environmental activities and business activities	• Promoted activities to reduce environmental risks among consolidated subsidiaries in and outside Japan
	Enhance education and enlightenment activities	• Extend the scope of Toyota Industries' enlightenment activities to consolidated subsidiaries in and outside Japan • Give back to society the outcomes of enlightenment activities	• Held environmental seminar • Conducted environmental awareness survey among employees
	Promote environmental activities in collaboration with business partners	• Ensure compliance with laws and regulations and improve environmental performance based on the Environmentally Preferable Purchasing Guidelines	• Held briefing sessions for subsidiaries in Japan
	Improve eco-conscious brand image	• Pursue higher brand image through proactive information disclosure	• CDP*4 climate change: ranked B (on a performance band of A to F) • CDP water: ranked B (on a performance band of A to F) • Nikkei's Environmental Management Survey: ranked 9th (out of 1,724 target companies) • Won Chairman Prize of The Energy Conservation Center, Japan, in the Energy Conservation Grand Prize (two products) • Won Excellence Award in the Environmental Communication Awards • Won Best Plant Award (business office category) in the Green Curtains Competition in Kariya • Won Superior Award in the Toyota Environmental Activity Award

*1: We manage emissions in each business by using either unit of production or unit of sales as a basic unit of emissions. The weighted average of reduction rates of all businesses is used as our management index.
*2: Volatile Organic Compounds
*3: Substances of Very High Concern
*4: An international NGO undertaking a project through collaboration among institutional investors to call for disclosure of strategies against climate change issues and greenhouse gas emissions data to leading companies around the world
† Details of the Sixth Environmental Action Plan are available at:
https://www.toyota-industries.com/csr/environment/management/plan_6/

Establishing a Low-Carbon Emission Society

We position the curbing of global warming as our most crucial environmental task. We have been working to reduce CO_2 emissions in our global business activities and at the same time accelerate our efforts to develop more environment-friendly products.

Summary

CO_2 Emissions (Production Activities)

FY2018 Results

Total emissions (non-consolidated)

16% reduction (vs FY06 level) | FY21 target: 10% reduction (vs FY06 level)

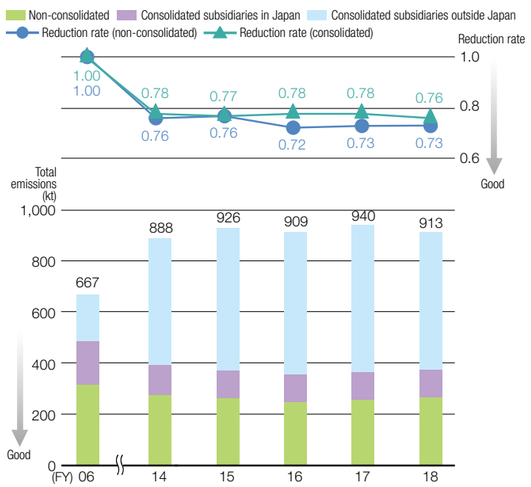
Emission volume per unit of production (global)

24% reduction (vs FY06 level) | FY21 target: 26% reduction (vs FY06 level)

Under the Sixth Plan, we are working toward achieving fiscal 2021 targets of reducing total non-consolidated CO_2 emissions from production activities by 10% and global emission volume per unit of production by 26%, both from the fiscal 2006 level. In fiscal 2018, we made steady progress in achieving these targets through our CO_2 emissions reduction efforts, such as loss reduction activities to eliminate wasteful use of energy at plants and switching to more energy-efficient air conditioners.

Initiatives for Establishment of a Low-Carbon Emission Society

■ CO_2 Emissions (Non-consolidated/Consolidated subsidiaries in and outside Japan)



Saving Energy by *Karakuri*

We have been promoting *kaizen* by *karakuri* initiatives to attain *kaizen* (improvement) by utilizing Japan's traditional, simple mechanical systems called *karakuri*, which do not require power generated by motors or other devices.

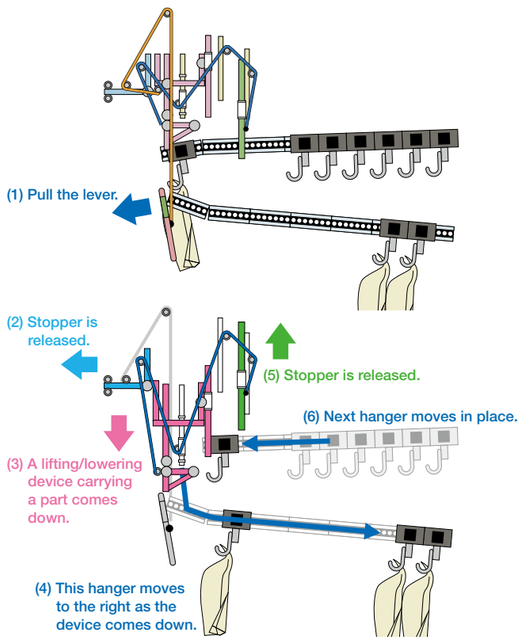
In fiscal 2018, the Nagakusa Plant, a production base of automobiles in Aichi Prefecture, adopted *karakuri* in a process to sort parts.

Previously, the sorting of parts had been done by using air-powered equipment, thus consuming a considerable amount of energy.

To eliminate the use of air, the plant created a non-powered mechanical system that uses a combination of gravity, the principle of leverage, coil springs and pulleys and successfully reduced its annual CO_2 emissions by approximately 48 tons.

This new, non-powered equipment won a Good Idea Award in the Karakuri KAIZEN Exhibition 2017 hosted by the Japan Institute of Plant Maintenance.

■ ***Karakuri* Mechanism**



Reducing CO_2 Emissions by Using Renewable Energy

As part of its efforts to reduce CO_2 emissions, the Toyota Industries Group proactively promotes the use of renewable energy such as solar, wind and hydraulic power.

For example, TD Automotive Compressor Kunshan Co., Ltd. (TACK), a production subsidiary in China, installed a solar panel system on the roof of its plant in December 2017. This system is expected to generate 16% of its annual electricity consumption, which equals to annual CO_2 emissions of some 1,250 tons. The Raymond Corporation and Raymond-Muscatine Inc., production subsidiaries in the United States, have purchased renewable electricity certificates*, which as a total of the two companies are equivalent to 49% of annual electricity consumption and about 3,800 tons of CO_2 emissions, and have contributed to lower CO_2 emissions. Additionally, Toyota Industries Engine India Private Limited (TIEI), a production subsidiary in India, has purchased electricity from a solar power source and reduced its annual CO_2 emissions by 14,000 tons.

* Environmental added value of electricity derived from a renewable energy source converted into tradable certificates

Reducing CO_2 Emissions by Renewable Energy-Derived Hydrogen

Toward the goal of achieving zero CO_2 emissions in 2050, L.T.E. Lift Truck Equipment S.p.A. (LTE), a production subsidiary in Italy, has been making various CO_2 emissions reduction efforts, such as using renewable energy and undertaking energy-saving activities. As one example, LTE installed a hydrogen station on the company premises in September 2017. The station is for charging fuel cell lift trucks with hydrogen generated by using electricity from a solar panel system, thereby helping LTE reduce its CO_2 emissions. LTE will continue to actively promote the use of hydrogen within its plant.

Hydrogen station and a fuel cell lift truck (LTE)

Certification of Environmentally Friendly Products

Toyota Industries has been proactively promoting development and design of eco-conscious products. As part of the efforts, we launched the Environmentally Friendly Product Certification System in fiscal 2007, which certifies products that possess exceptionally high environmental performance, and have been showcasing these products to the public. With the addition of one product in fiscal 2018, a total of 21 products have obtained certification under this system since its launch.

We will continue to promote the development of eco-conscious products in the future as well.

Product Certified in Fiscal 2018

Electric towing tractor with 2.5-ton capacity
(Super Environmentally Friendly Product*)

Key features to reduce environmental impact

For baggage towing tractors used in airports, we offer an electric model along with internal-combustion engine models. This 2.5-ton electric towing tractor simultaneously delivers high environmental performance (no emissions of exhaust gas) and powerful driving performance.

The product has been certified as Super Environmentally Friendly Product for realizing considerably lower CO_2 emissions throughout its lifecycle.

Lifecycle CO_2 emissions

Approx. 50% lower (compared with previous models)

*** For a definition, please visit our Website at:**
https://www.toyota-industries.com/csr/environment/technology/authorization/

Establishing a Recycling-Based Society

With a view to establishing a recycling-based society, we have been striving to reduce resource consumption.

Summary

Waste Generation Volume (Production Activities)

FY2018 Results

Waste generation volume per unit of production (non-consolidated)

31 % reduction (vs FY06 level)

FY21 target: 29% reduction (vs FY06 level)

Waste generation volume per unit of production (non-consolidated/consolidated subsidiaries in Japan)

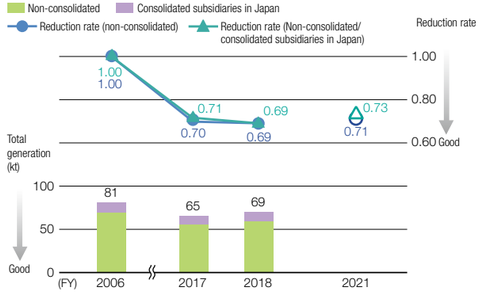
31 % reduction (vs FY06 level)

FY21 target: 27% reduction (vs FY06 level)

In seeking to minimize resource consumption in 2050, we are making efforts to reduce our waste generation volume by implementing measures to reduce resource consumption at the source and promoting internal reuse of waste. We set out targets of reducing waste generation volume per unit of production compared with the fiscal 2006 level by 29% on a non-consolidated basis and by 27% for Toyota Industries and its consolidated subsidiaries in Japan. Accordingly, we have been promoting activities toward these targets.

Initiatives for Establishing a Recycling-Based Society

■ Waste Generation (Non-consolidated/Consolidated subsidiaries in Japan)



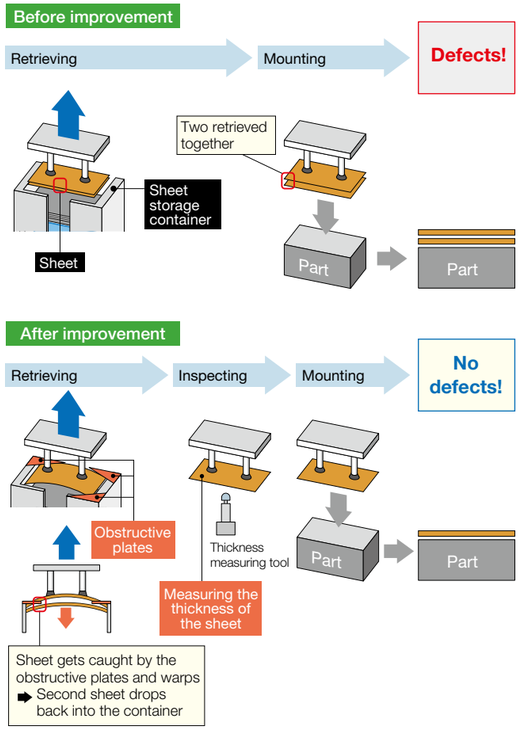
Reducing Waste Generation by Improving the Sheet Retrieval Method

The Anjo Plant, a production base of electronics components in Aichi Prefecture, has been carrying out activities to reduce the amount of wasted parts by eliminating defects.

In a process to retrieve a sheet from its storage container and mount it on a part, burr from the sheet molding or static electricity sometimes causes two sheets to be removed at the same time, making the resulting part defective. To eliminate such defective parts, the plant examined ways to make sure one sheet is retrieved at a time.

By trial and error, the plant came up with an idea to add obstructive plates at the storage container. These plates "obstruct" the retrieval of a sheet, causing it to warp. If another sheet is under it, warping will separate the second sheet and drop it back into the container. Moreover, the plant began to use a thickness measuring tool to make sure there is only one sheet before mounting it onto a part and succeeded in eliminating defects and wasted parts. The thickness of a sheet varies from product to product. As such, the number and size of the plates are changed accordingly to ensure one sheet is retrieved at a time. This improvement idea of adding obstructive plates was generated from the perspective of total optimization by reflecting opinions of other departments.

■ Changing Sheet Retrieval Method



Akihiro Hayakawa, Supervisor

Manufacturing Section, Manufacturing Dept., Electronics Division (As of March 31, 2018)

We would like to continue our improvement activities, which will lead to a reduction in waste, while ensuring the quality of products.

Reducing Waste Generation by Changing a Container Repairing Material Used in the Foundry Process

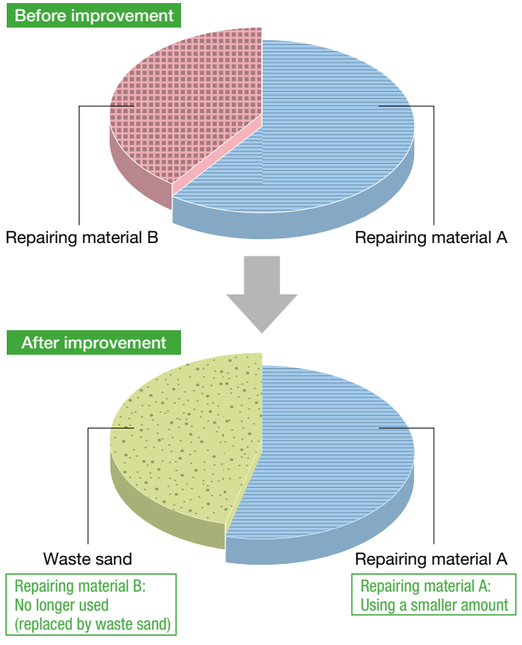
Toyota Industry (Kunshan) Co., Ltd. (TIK), a production subsidiary in China, has been working to reduce the amount of waste by reusing waste generated in the foundry process.

In the production process of foundry parts, molten iron left over from the pouring process is transferred to a container, in which it cools and solidifies. Removing the solidified iron from the container sometimes damages its inner walls, requiring application of repairing materials before using the container again.

Previously, TIK had purchased new repairing materials. To reduce costs, TIK examined a method to substitute one of the two repairing materials with waste sand that possesses an equal level of fire resistance. After a number of trials and errors, TIK found the best mixing ratio of the remaining repairing material and waste sand and confirmed that it does not cause any quality issues. This replacement has enabled TIK to reduce the annual amount of waste sand by about 30 tons.

This project won a Best Practice Award in fiscal 2018 under our internal award program to recognize excellent environmental improvement activities.

■ Changing the Mixing Ratio of Repairing Materials



Sun Yi, Manager

Manufacturing Section No. 1, Manufacturing Dept., Foundry Division, Toyota Industry (Kunshan) Co., Ltd. (As of March 31, 2018)

Repeating many tries with different mixing ratios was difficult, but I am happy to come up with the optimum ratio. We will continue to work proactively to achieve improvements.

Initiatives Related to Water Risk

Toyota Industries uses water in many processes, for example, for washing products and cooling production facilities. Globally, consumption of water, which is one of the most important resources, is increasing in line with growth in the world's population. Flooding and other water-related natural disasters due to climate change cause serious impact. We duly consider that these factors present risks to our business activities.

In fiscal 2017, we identified and assessed water risks at each base using Aqueduct, a global water risk mapping tool developed by the World Resources Institute (WRI), and various public databases available in corresponding regions. To increase the credibility of our externally disclosed information, we obtained third party verification* of the fiscal 2018 water consumption and wastewater discharge data of our production bases and consolidated subsidiaries. We will continue to work to assess and mitigate water risks in our supply chain while seeking ways to conserve water resources.

* See page 74 for details.

Reducing Environmental Risk and Establishing a Society in Harmony with Nature

We have been making efforts to reduce the use of substances of concern while carefully monitoring the latest trends in environmental laws and regulations on a global basis. At the same time, we have been promoting activities for conservation of biodiversity toward realizing a society in harmony with nature.

Summary

VOC Emissions (Production Activities)

FY2018 Results

Emissions per unit of production (non-consolidated/automobile body)

36% reduction (vs FY06 level)

FY21 target: 36% reduction (vs FY06 level)

Under the Sixth Plan, we set a target of reducing emission volume per unit of production for volatile organic compounds (VOC) from the automobile body painting process by 36% from the fiscal 2006 level and have been striving to reduce VOC emissions. In fiscal 2018, we continued our efforts to increase the recovery rate and enhance maintenance and management of thinner, a solvent used for cleaning. Consequently, we were able to cut down emission volume per unit of production in fiscal 2018 by 36%.

Strengthening Management of Chemical Substances at Consolidated Subsidiaries Outside Japan

Many of the chemical substances needed for our production activities may cause adverse effects on the environment. Thus, appropriate management of chemical substances is crucial in ensuring safe handling and minimizing potential harmful effects.

To appropriately manage chemical substances contained in raw materials and products, we have been assisting our consolidated subsidiaries and business partners outside Japan in establishing a system to manage chemical substances. In fiscal 2018, we started providing such support to two consolidated subsidiaries and several business partners.

We will continue to provide support and undertake activities to prevent violations of chemical substances regulations at production bases outside Japan.

Study group session at a production subsidiary in Vietnam

Initiatives for Conservation of Biodiversity

We believe that it is important to undertake business activities while continuously paying attention to the impact of these activities on the natural environment. Based on this belief, we have formulated the biodiversity policy and been promoting initiatives accordingly. The policy clearly stipulates that we seek to reduce the impact of our business activities on biodiversity and work with local communities for the conservation of biodiversity.

Creating an Animal Path to Improve Natural Habitats of Livings Organisms

As one effort to conserve biodiversity, Toyota Industries has been collaborating with the Aichi prefectural government in its initiative to foster the development of ecological networks throughout the prefecture.

We joined the Chita Peninsula Ecological Network Council in fiscal 2012 and have since been carrying out activities linked to the conservation of biodiversity in the local natural environment in collaboration with various stakeholders, including local governments, companies, NPOs, expert bodies and students.

In March 2018, we teamed up with the council and set up an environment within the Higashiura Plant in Aichi Prefecture to expand the habitat of foxes. Recently, we have found foxes are living in forests surrounding the plant. But because there is not a large enough habitat, many were fatally involved in traffic accidents on the neighboring roads. To provide a safe passage between these forests, Toyota Industries and experts from the council worked together and created an animal path within the plant premises. At the completion ceremony, participants planted trees that form a part of the path. We intend to monitor the inhabiting status of foxes using cameras installed along the path while implementing additional measures as necessary to create a better environment.

Tree planting at the animal path completion ceremony

Kazutaka Narukawa

Planning and Management Group, Environment Office, Plant Engineering & Environment Dept., Production Headquarters (As of March 31, 2018)

I feel very pleased that we made a step forward to resolve a local issue through the creation of this animal path. This opportunity has also made us renew our determination to proactively conduct activities to conserve biodiversity.

Holding an External Environmental Education Class

Since fiscal 2010, Toyota Industries has been providing an external environmental education class for children who will be leading the next generation with an aspiration to cultivate awareness for environmental conservation and contribute to the realization of a sustainable society.

External environmental education class

In August 2017, we held a class for about 30 local elementary school students on the theme of conserving biodiversity during the “Environment Summit in 2017” held in Minamichita-cho, Aichi Prefecture, by the Minamichita Town Development Council. Participants created an ecological pyramid using paper cups printed with illustrations of living organisms, learned about diversity and the relationship among them and thought about what each of us can do to protect the future of the Earth.

Employees Planting Trees on Earth Day

Toyota Industrial Equipment Mfg., Inc. (TIEM), a production subsidiary in the United States, promotes tree planting at home by distributing saplings to employees and local residents on Earth Day and Arbor Day every April.

In April 2017, TIEM handed out 1,600 red oak saplings. TIEM intends to continue this activity to increase environmental awareness that we need to live in harmony with nature and curb global warming.

Handing out saplings to employees

Planting trees

Environmental Management

Toyota Industries proactively discloses its initiatives for reduction of environmental risk and other environmental information.

Status of Compliance with Environmental Laws

In fiscal 2018, there were no incidents of violations of environmental laws throughout the Toyota Industries Group.

We will continue to reinforce our activities to prevent environmental risk.

Soil and Groundwater Pollution Countermeasures

Toyota Industries carries out surveys and purification of soil and groundwater contaminated from the past use of trichloroethylene. We regularly report the survey results to local government authorities and provide information at local community meetings. As measures to prevent pollution from substances covered by the Soil Contamination Countermeasures Law as well as from grease and oils, we have drilled observation wells at all plants to conduct regular checks.

Measurement results are available at:
http://www.toyota-industries.com/csr/environment/process/groundwater/

Internally Conducting Water Quality Analysis

Toyota Industries periodically conducts internal water quality analysis using official methods in order to verify that wastewater discharged from its plants and groundwater complies with external standards, including applicable laws, regulations and ordinances, and to enable swift action when there is a change in water quality.

Our major efforts for prevention of irregular wastewater discharges include developing an analysis plan, conducting water quality analysis based on the plan, monitoring trends in analysis results and sharing relevant information among the relevant in-house departments.

In fiscal 2018, we set up a system to internally monitor measurement items added under the revised Soil Contamination Countermeasures Law. We also participated in the Comprehensive Accuracy Control Project of the Japan Association for Working Environment Measurement to ensure the accuracy of our analysis results. We will continue to strive for the prevention of irregular wastewater discharges and improvement of the analysis accuracy.

Efforts to Increase Employees Qualified under Environment-Related Laws

Even though Toyota Industries has secured the legally required number of persons having environment-related qualifications, we are promoting further acquisition of qualifications by employees.

In fiscal 2018, we provided internal education to encourage acquisition of the Water Pollution Control Manager qualification, which is a national qualification, and two employees have been newly qualified.

■ Number of Persons Qualified as Pollution Control Managers

(As of March 31, 2018)

Category	Number of persons qualified
Air	86
Water	101
Noise and vibration	268
Dioxin	19

Internal water quality analysis

Internal education for acquiring environment-related qualifications

Kuniko Ogawa (left)
Mina Kato (right),
Working leader

Water Environment Group, Environment Office, Plant Engineering & Environment Dept., Production Headquarters
(As of March 31, 2018)

In fiscal 2018, we held a seminar on water quality analysis for relevant departments to foster an understanding of the water quality analysis of wastewater and promote acquisition of the Water Pollution Control Manager qualification. The seminar included an explanation of analysis procedures, hands-on exercise of an analysis and a practice examination based on the past tests. These were well received by participants. The seminar was also helpful for our own work, because teaching meant relearning such things as the mechanism of analysis equipment. We plan to hold this seminar on a continuous basis.

We will continue to provide education necessary to increase the number of qualified personnel.

Establishing a Sustainability *Dojo* in Sweden

Toyota Material Handling Manufacturing Sweden AB (TMHMS), a production subsidiary in Sweden, has established a sustainability *dojo* in its plant to increase employees' awareness for safety, the environment and product quality. This *dojo* allows employees to learn energy-saving, waste reduction and chemical substances management procedures specific to a manufacturing site. They can also practice the proper use of safety protective equipment and operation of an overhead crane and actually experience lockouts of various facilities. Other topics of learning include response to an accident, safety behavior and industrial ergonomics. Team leaders in the plant first receive education at the *dojo* and then share their acquired knowledge with other team members.

Sustainability *dojo*

Environment Strengthening Month in the Toyota Industries Group

Every year, Toyota Industries carries out a three-month Environment Strengthening Month from June to August with the aim of increasing environmental awareness of Group employees and their families and promoting energy saving through various events.

In fiscal 2018, each of the consolidated subsidiaries in Japan proactively planned and carried out unique activities, such as soliciting entries to their environment poster contest, holding "No Car Days" to encourage employees to use commuting means other than private cars and joining local cleanup activities.

Ceremony to award excellent environment posters at Iwama Loom Works, Ltd.

Local cleanup activities by Miduho Industry Co., Ltd.

Holding Environmental Seminars

We hold environmental seminars to raise employees' environmental awareness. In fiscal 2018, we invited Mr. Rintaro Tamaki of the Japan Center for International Finance to give a lecture on "Climate Change and Business." Some 150 employees, including directors of Toyota Industries and its consolidated subsidiaries, attended the lecture and deepened their understanding of action against climate change, its relation with business operations and future trends.

Environmental seminar

Greenhouse Gas (GHG) Emissions in the Supply Chain

We recognize that measuring the three scopes defined by the GHG Protocol and turning the results into specific efforts to reduce CO_2 emissions are important in creating a low-carbon society. Scopes 1 and 2 are GHG emissions from our business activities, the former being direct emissions from our use of fossil fuels and the latter being indirect emissions from the use of purchased energy resulting from generation of electricity by power plants and other facilities. Scope 3 emissions are indirect emissions associated with each product from the purchase of raw materials to end use by customers and disposal.

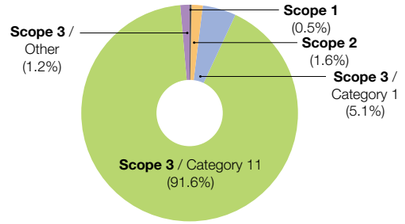
In the fiscal 2018 results, combined Scope 1 and 2 emissions accounted for 2.1% of the total emissions, with Scope 3 emissions reaching 97.9%.

The largest source of emissions, which accounted for 91.6%, was Category 11 (Use of sold products) under Scope 3, followed by Category 1 (Purchased goods and services) also under Scope 3, which accounted for 5.1%.

Going forward, we will continue to monitor GHG emissions within the entire supply chain and accordingly promote CO_2 emissions reduction activities.

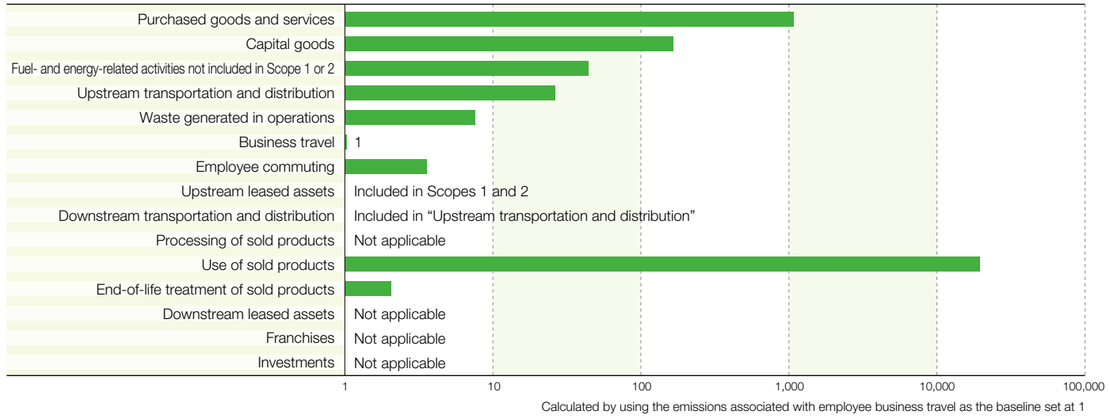
Detailed data is available at:
https://www.toyota-industries.com/csr/environment/process/scope3/

■ GHG Emissions in Supply Chain (FY2018)



Emissions from Toyota Industries' business activities	Scope 1	Direct emissions from Toyota Industries through the use of fossil fuels, etc.
	Scope 2	Indirect emissions from the use of purchased energy resulting from generation of electricity by power plants, etc.
Emissions other than from Toyota Industries' business activities	Scope 3	Emissions associated with purchase of raw materials, end use of Toyota Industries' products by customers and disposal of products

■ Scope 3 Emissions by Category (FY2018)



Calculated by using the emissions associated with employee business travel as the baseline set at 1

External Evaluations of Toyota Industries' Environmental Activities

External Environmental Evaluations

Toyota Industries fosters environmental communication with our stakeholders through proactive disclosure of environmental information. Since fiscal 2015, we have been participating in the Ministry of the Environment's project for the establishment of a framework for disclosure of environmental information and examining the ideal way to disclose our environmental information. We will continue to upgrade our method of disclosure and contents to be disclosed.

■ List of External Environmental Evaluations

Evaluation organizations	Fiscal 2018 (Fiscal 2017)
CDP* climate change	B (B)
CDP water	B (C)
Nikkei's Environmental Management Survey	9th place (36th place)

* An international NGO undertaking a project through collaboration among institutional investors to call for disclosure of strategies against climate change issues and GHG emissions data to leading companies around the world

TOPIC

Ranked 9th among Manufacturing Companies in the 21st Environmental Management Survey

Toyota Industries earned 9th place, the highest ever ranking, in the overall manufacturing companies category of the 21st Environmental Management Survey conducted by Nikkei Inc. This survey evaluates how well companies balance their environmental measures with their efforts to improve management efficiency. In the 21st survey, Toyota Industries was highly regarded in the areas of "a structure to promote environmental management" and "development of eco-friendly products." We will continue to make Company-wide efforts to promote environmental activities.

External Environmental Awards

Toyota Industries' environmental activities to date have been highly acclaimed by various organizations. In fiscal 2018, we received five external awards, including two prizes under the Energy Conservation Grand Prize program.

■ List of External Environmental Awards

Award program (host organization)	Result	Award winner
Energy Conservation Grand Prize (The Energy Conservation Center, Japan [ECCJ])	Chairman Prize of ECCJ	[Compressor Division] More compact processing lines
	Chairman Prize of ECCJ	[Development Department No. 2, Engineering & Development Headquarters] Fuel cell lift truck
Environmental Communication Awards (Ministry of the Environment)	Excellence Award	*Toyota Industries Report 2017*
Green Curtains Competition (Kariya-shi, Aichi)	Best Plant Award	Kariya Plant's green curtains
Environmental Activity Award program (Toyota Motor Corporation)	Superior Award	Toyota Industries' overall environmental activities

TOPIC

Won TMC's Superior Award for Environmental Activities

At the 2017 Toyota Global Suppliers Convention held by Toyota Motor Corporation (TMC) at the Nagoya Congress Center, Toyota Industries received the Superior Award, the highest award in TMC's Environmental Activity Award program established in fiscal 2018. The award recognized our initiatives toward a zero CO_2 emissions society under our aspirations in 2050.

Receiving the award at the Toyota Global Suppliers Convention

Third Party Assurance of Environmental Performance Data

In order to ensure the transparency and accuracy of the information we disclose, the Toyota Industries Group obtained third party assurance for its energy-derived CO_2 emissions (Scopes 1, 2 and 3), waste generation as well as water consumption and wastewater discharge volume data for fiscal 2018.

Verification by a Third Party

Comments by Mr. Koki Nohara of SGS Japan Inc. (Verifier)

This year, I conducted verification of the Toyota Industries Group's water consumption and wastewater discharge data in addition to Scopes 1, 2 and 3 emissions and waste generation data. It was the third verification for the Group, and the scope of verification has been expanding each year, which provides proof that Toyota Industries is making efforts to ensure the reliability of the data it reports. Moreover, in calculating Scope 3 indirect emissions, one of the most distinctive characteristics of the GHG Protocol, a basic unit of emissions directly linked to business operations is first calculated for each of the Scope 3 categories and then used to obtain GHG emissions. In this way, Toyota Industries ensures higher accuracy in its GHG emissions data. I hope that Toyota Industries will continue to provide appropriate reporting to its stakeholders from the perspectives of ensuring the accuracy and adequacy of data it reports.

The verification statement of the third party organization is available at:
https://www.toyota-shokki.co.jp/csr/environment/process/items/Verification2017_ENG.pdf

Toyota Industries obtained third party verification of its energy-derived CO_2 emissions, waste generation volume, water consumption and wastewater discharge data for fiscal 2018.

Starting from fiscal 2018, water consumption and wastewater discharge were newly added in order to ensure the reliability of the data.

On-site verification was performed by the verification organization at two of our production bases in Aichi Prefecture, namely, the Kariya Plant and Hekinan Plant, and the transparency and accuracy of our environmental data have been confirmed through the verification.

Using the procedures specified by the verification organization, Toyota Industries conducted verification at the remaining eight production bases of Toyota Industries as well as 13 consolidated subsidiaries in Japan and 21 consolidated subsidiaries outside Japan.

We will continue to utilize this third party verification in making continuous improvements in our environmental activities and disclose data to our stakeholders in a more transparent manner.


Third party verification at the Kariya Plant


Third party verification at the Hekinan Plant

■ **Bases Subject to Verification**

Category	Region	Names of Bases and Subsidiaries
Non-consolidated	Japan	Kariya Plant, Takahama Plant, Nagakusa Plant, Kyowa Plant, Obu Plant, Hekinan Plant, Higashichita Plant, Higashiura Plant, Anjo Plant, Morioka Works (Total of 10 bases)
Japan Consolidated	Japan	Tokaiseiki, Tokyu, Altex, Iwama Loom Works, IZUMI MACHINE MFG., Miduho Industry, Nagao Kogyo, Nishina Industrial, HANDA Casting, Unica, Hara, Aichi, Takeuchi Industrial Equipment Manufacturing (Total of 13 bases)
Consolidated subsidiaries outside Japan	North America Latin America Asia Europe	IHC, NVIC, Raymond-Green, Raymond-Muscatine, TIEM, TIK, TIEI, KTTM, MACI, TACG, TACK, TDDK, YST, TMHMF, TMHMS, TMHMI, TICA, TACI, TMHM, Cascade, TIEV (Total of 21 bases)