

Details & Data

# Environmental Report

- This report aims to inform our stakeholders in straightforward language of JTEKT's concept and activities surrounding CSR.
- This report is divided into a Message (leaflet) and a full online report containing both the Message and the Details & Data section.
- The Details & Data section emphasizes objectiveness, completeness and continuity.
- For related articles:

M = CSR Management S = Social Report  
E = Environmental Report

- This section, the Environmental Report, summarizes environmental aspects of FY 2014 based on the JTEKT 2015 Environmental Action Plan.

## Target period and target organizations/scope

### Target period

FY 2014 (April 2014 - March 2015)

\* Some items include content from other periods.

### Target organizations and scope

All JTEKT Corporation activities

Management of the JTEKT group is carried out on a group-wide basis and includes elements such as environmental data measurement and control based on a uniform standard. Some items also show the performance of our domestic affiliated companies and overseas local affiliates. As a general rule, if there are changes in the tallying scope, we revise data dating back to the past.

## Reference guidelines

- GRI (Global Reporting Initiative)  
"Sustainability Reporting Guidelines 2013 (G4)"
- Japan's Ministry of the Environment  
"Environmental Reporting Guidelines" (2012 edition)
- ISO26000 (International Standard for corporate responsibility)
- A calculation standard stipulated by GHG Protocol Initiative
- Ministry of the Environment and Ministry of Economy, Trade and Industry  
"General Guidelines on Supply Chain GHG Emission Accounting"

**New!** This mark is used to indicate new actions begun in FY 2014 and information disclosed for the first time in this year's report.

<b>Environmental management</b>	<b>E_01</b>
<b>Environmentally considerate development and design</b>	<b>E_10</b>
<b>Prevention of global warming</b>	<b>E_11</b>
<b>Effective use of resources</b>	<b>E_14</b>
<b>Control and reduction of environmentally burdensome substances</b>	<b>E_18</b>
<b>Biodiversity conservation</b>	<b>E_20</b>
<b>Appendix</b>	<b>E_22</b>

Environmental data for each operation base of the JTEKT group can be viewed on the JTEKT website.

[http://www.jtekt.co.jp/e/csr/env\\_data.html](http://www.jtekt.co.jp/e/csr/env_data.html)

# Environmental management

## Social background

Corporate activities as a global company influence the world environment on a wide scale. As is written in the GRI "Sustainability Reporting Guidelines 2013 (G4)", the disclosure of both good and bad information, as well as environmental consideration from a comprehensive perspective, is progressively demanded of companies.

## JTEKT's concept

### For sustainable development of the planet

To realize our Corporate Philosophy of "contributing to the happiness of people and the abundance of society through product manufacturing", we as a group have positioned the environment as one of our main management issues and are involved in actions which contribute to the sustainable development of society and the planet. We are greatly aware of the impact corporate activities have on the environment, and are working proactively to tackle matters of high importance.

### JTEKT Group Environmental Vision

▶ Figure-01

Based on the CSR Policy, we have established the JTEKT Group Environmental Vision comprised of an environmental philosophy and policy defining global environmental conservation actions. We aim to achieve a sustainable society, establishing an action plan and promoting activities to achieve this goal.



## Promotion structure

### Under the Global Environmental Conservation Committee

▶ Figure-02

JTEKT engages in environmental management led by the Global Environmental Conservation Committee, which is chaired by the company president. The committee is divided into five specialized environmental subcommittees to be able to flexibly address issues relating to business activities. The subcommittees set targets based on company policies, discuss and decide upon measures, and control progress.

### Promotion of global environmental management

Target companies were expanded to include the 21 group companies in Japan, and 38 group companies overseas. We are currently working to further strengthen our environmental management.

→ E\_22 Appendix-01

## Environmental management

▶ Figure-01 JTEKT Group Environmental Vision

### Environmental Philosophy

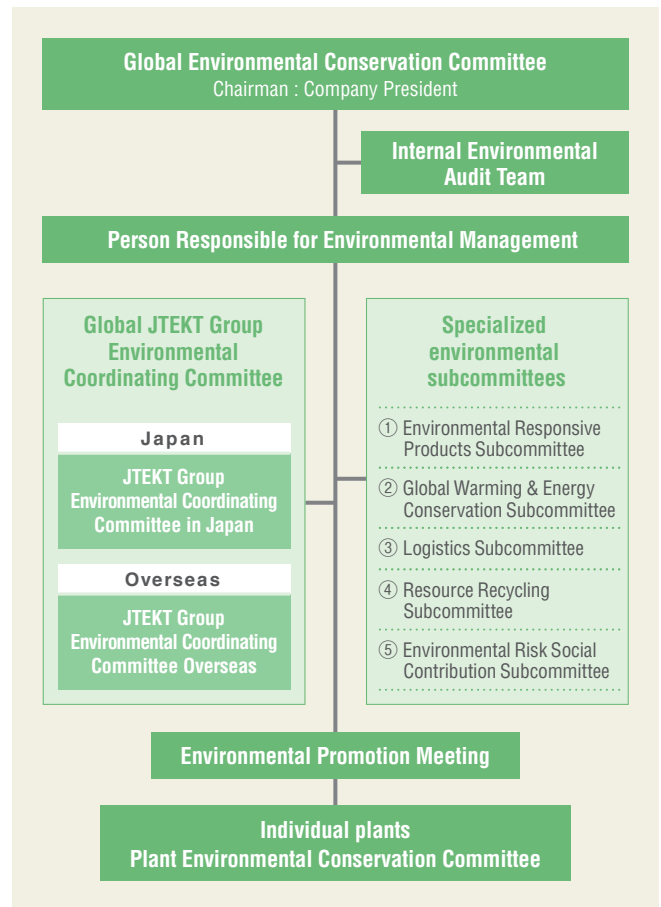
The JTEKT group is aiming to reduce the environmental load of business activities and products throughout their life-cycle in order to conserve the global environment for future generations and realize a sustainable society.

### Environmental Policy

JTEKT, based on a deep awareness of the importance of global environmental conservation, will proactively pursue environmental conservation in all business activities in the fields of bearings, driveline components, steering systems, and machine tools & mechatronics at all plants, head offices and sales offices with the active participation of all employees.

1. Continuously improve our environmental management system to harmonize our business activities with the environment and promote the cooperation of all suppliers of raw materials, etc.
2. Comply with all requirements of environmental laws, regulations, treaties, agreements, etc., related to our business activities and strive to prevent environmental pollution. Also, contribute to society by accurately grasping technical needs related to global environmental conservation and developing products to meet such needs.
3. Raise the environmental awareness of all employees and pursue the following as important environmental management objectives in relation to all our business activities, products and services
  - (1) Develop and design environmentally friendly products
  - (2) Reduce CO<sub>2</sub> emissions through effective energy utilization
  - (3) Reduce waste
  - (4) Thoroughly control chemical substances and reduce environmentally burdensome substances
  - (5) Reduce primary materials and secondary materials
  - (6) Reduce CO<sub>2</sub> emissions in logistics
  - (7) Maintain and improve community environments
4. Maintain an environmental conservation promotion structure, clarify the purposes and targets of environment conservation activities, conduct periodic reviews, and pursue environmental conservation activities with the participation of all employees.
5. Maintain an awareness of the community surrounding each business site, maintain good communication with concerned government agencies and local residents, and publicly disclose information on our environmental management activities as necessary.

▶ Figure-02 Organizational chart



## Environmental management

### Targets and results

#### JTEKT Environmental Action Plan 2015 Environmental Action Plan

▶ Figure-01

We JTEKT have formulated a 2015 Environmental Action Plan stating initiatives and concrete objectives to promote the environmental preservation activities of our company, JTEKT group companies, and JTEKT suppliers. In FY 2014, our entire group improved CO<sub>2</sub> emission basic units by 3.1 percent compared with FY 2012, achieving our target. However, we were unable to achieve the independent target CO<sub>2</sub> emission basic units for JTEKT alone. As FY 2015 is the final fiscal year within the Envi-

ronmental Action Plan, we are accelerating activities aimed at achieving the targets for all action items. At the same time, we have established the mid-term plan ending in FY 2020 for next term as the mid to long-term pathway for activities directed at international society's goal of halving greenhouse gases by 2050, and are lowering greenhouse gas emissions within the entire JTEKT group.

→ [\[Message\] P16](#) Related article

▶ Figure-01 2015 Environmental Action Plan

Area	Action items	Targets and initiatives	FY 2014 results of activities	Evaluation	Related pages
Environmental management	(1) Strengthen and promote consolidated environment management	(1) Share the JTEKT Group Environmental Vision	(1) Continued activities with group companies in Japan and overseas (2) Held Environmental Coordinating Committee sessions	○	E_01 E_02 E_07
	(2) Promote environmental activities in cooperation with business partners	(1) Further promote green purchasing (2) Roll out environmentally friendly purchasing guidelines to business partners	(1) Expanded Green Purchasing Guidelines		S_05
	(3) Promote sustainable plant activities	(1) Introduce reusable energy (2) Promote plant greenification	(1) Introduced 465 kW of solar power generation to our Kagawa Plant		E_13
	(4) Promote environmental education activities	(1) Promote education with the objective of improving environmental awareness	(1) Environmental education during Environmental Month (2) Rank-based education		E_09
Develop and design environmentally friendly products	(1) Develop new technology and new products leading to environmental burden reduction	(1) Reduce the environmental burden of new products through an environmental efficiency basic formula	(1) Needle roller bearing for high speed rotation planetary gears (2) Horizontal machining center FH630SX-i	○	Message P8~10 E_10
	(2) Reduce resource consumption				
	(3) Promote recycle design considering effective resource use	(2) Promote recycle design (3) Promote life cycle assessment (LCA) activities			
	(4) Roll out environmental assessments in the design and development phases				
	(5) Control and reduce environmentally burdensome substances contained in products	(1) Promote response to chemical substance regulations	(1) Response to individual country's chemical substance regulations		

# Environmental management

\* Values in square brackets are comparisons with the base year

Area	Action items	Targets and initiatives	FY 2014 results of activities	Evaluation	Related pages																
Reduce CO <sub>2</sub> emissions	(1) Reduce CO <sub>2</sub> in production and logistics ● Global reduction of CO <sub>2</sub> ● Reduction of CO <sub>2</sub> in logistics	<b>Production</b> (1)Promote CO <sub>2</sub> reduction activities through the development and introduction of low CO <sub>2</sub> production technologies and daily improvements (2)Horizontal deployment of energy-saving improvement case examples (3)Visualization of energy	<table border="1"> <thead> <tr> <th>Item</th> <th>FY 2015 target</th> <th>FY 2014 target value</th> <th>Results</th> </tr> </thead> <tbody> <tr> <td>CO<sub>2</sub> emissions</td> <td>FY 2015 basic unit target × production volume</td> <td>235,343 t-CO<sub>2</sub></td> <td>237,147 t-CO<sub>2</sub> [ - ]</td> </tr> <tr> <td>Emissions by in-house production volume</td> <td>145.2 t/100 mill yen Down 7% from FY 2008</td> <td>146.6 t/100 mill yen</td> <td>147.7 t/100 mill yen [Down 5.4%]</td> </tr> <tr> <td>Global emissions by in-house production volume</td> <td>167.1 t/100 mill yen Down 3% from FY 2012</td> <td>169.0 t/100 mill yen</td> <td>167.0 t/100 mill yen [Down 3.1%]</td> </tr> </tbody> </table>	Item	FY 2015 target	FY 2014 target value	Results	CO <sub>2</sub> emissions	FY 2015 basic unit target × production volume	235,343 t-CO <sub>2</sub>	237,147 t-CO <sub>2</sub> [ - ]	Emissions by in-house production volume	145.2 t/100 mill yen Down 7% from FY 2008	146.6 t/100 mill yen	147.7 t/100 mill yen [Down 5.4%]	Global emissions by in-house production volume	167.1 t/100 mill yen Down 3% from FY 2012	169.0 t/100 mill yen	167.0 t/100 mill yen [Down 3.1%]	△	E_06 E_11 ~13
		Item	FY 2015 target	FY 2014 target value	Results																
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<b>Logistics</b> (1) Reduce CO <sub>2</sub> through transportation improvements	<table border="1"> <thead> <tr> <th>Item</th> <th>FY 2015 target</th> <th>FY 2014 target value</th> <th>Results</th> </tr> </thead> <tbody> <tr> <td>CO<sub>2</sub> emissions</td> <td>13,300 t-CO<sub>2</sub> Down 16% from FY 1990</td> <td>13,430 t-CO<sub>2</sub></td> <td>14,301 t-CO<sub>2</sub> [Down 10%]</td> </tr> <tr> <td>Emissions by sales</td> <td>2.39 t/100 mill yen Down 15% from FY 2006</td> <td>2.42 t/100 mill yen</td> <td>2.20 t/100 mill yen [Down 22%]</td> </tr> </tbody> </table>	Item	FY 2015 target	FY 2014 target value	Results	CO <sub>2</sub> emissions	13,300 t-CO <sub>2</sub> Down 16% from FY 1990	13,430 t-CO <sub>2</sub>	14,301 t-CO <sub>2</sub> [Down 10%]	Emissions by sales	2.39 t/100 mill yen Down 15% from FY 2006	2.42 t/100 mill yen	2.20 t/100 mill yen [Down 22%]	△	E_13						
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(2) Promote reusable energy	(1) Introduction of reusable energy	(1)Introduced 465 kW of solar power generation at our Kagawa Plant	○	E_13																	
Reduce waste	(1) Promote thorough reduction of waste through countermeasures focusing on the source of the waste (2) Achieve zero emissions in all JTEKT group plants (JTEKT itself achieved zero direct landfill waste in FY 2009 and is continuing to aim for zero waste production in other areas)	<b>Production</b> (1) Reduction of emissions through countermeasures focusing on the source (2) Promotion of a shift to valuable resources (3) Reduction of emissions through using less and reusing	<table border="1"> <thead> <tr> <th>Item</th> <th>FY 2015 target</th> <th>FY 2014 target value</th> <th>Results</th> </tr> </thead> <tbody> <tr> <td>Emissions by in-house production volume</td> <td>7.1 t/100 mill yen Down 15% from FY 2008</td> <td>7.27 t/100 mill yen</td> <td>6.86 t/100 mill yen [Down 18%]</td> </tr> <tr> <td>Direct landfill waste</td> <td colspan="2">Zero</td> <td>Zero</td> </tr> </tbody> </table>	Item	FY 2015 target	FY 2014 target value	Results	Emissions by in-house production volume	7.1 t/100 mill yen Down 15% from FY 2008	7.27 t/100 mill yen	6.86 t/100 mill yen [Down 18%]	Direct landfill waste	Zero		Zero	○	E_14 E_15				
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<b>Logistics</b> (1) Reduce packaging material consumption through simpler packaging, using more returnable containers, etc.	<b>Logistics</b> (1) Transition to returnable (2) Simplification of packaging by changing packing style	<table border="1"> <thead> <tr> <th>Item</th> <th>FY 2015 target</th> <th>FY 2014 target value</th> <th>Results</th> </tr> </thead> <tbody> <tr> <td>Emissions by sales</td> <td>0.84 t/100 mill yen Down 15% from FY 2006</td> <td>0.85 t/100 mill yen</td> <td>0.81 t/100 mill yen [Down 18%]</td> </tr> </tbody> </table>	Item	FY 2015 target	FY 2014 target value	Results	Emissions by sales	0.84 t/100 mill yen Down 15% from FY 2006	0.85 t/100 mill yen	0.81 t/100 mill yen [Down 18%]	○	E_16									
Item	FY 2015 target	FY 2014 target value	Results																		
Emissions by sales	0.84 t/100 mill yen Down 15% from FY 2006	0.85 t/100 mill yen	0.81 t/100 mill yen [Down 18%]																		
Effective use of resources	(1) Reduce materials discarded in production/water usage and effectively use resources	<b>Materials discarded</b> (1) Reduce stock removal and improve yield through design and technique changes (2) Countermeasures targeting point of origin, reduction	Materials discarded by in-house production volume <b>Results</b> 37.3 t/100 mill yen	-	E_14 E_17																
		<b>Water usage</b> (1) Promote recycling, water conservation and waste reduction	Water usage by in-house production volume <b>Results</b> 1.58 t/100 mill yen																		
Reduce primary materials and secondary materials	(1) Reduce environmentally burdensome substances in production activities	(1) Substitution with products that do not contain substances subject to PRTR	(1) Release and transfer of substances subject to PRTR: 40.4 t	○	E_18																
Preserve and improve the global environment, forge communication	(1) Enforce preventative measures for environmental problems and observe regulations	(1) Ongoing efforts for zero environmental regulation violations and claims from residents through the strengthening of daily control tasks	Environmental accidents: 2	×	E_08																
	(2) Build good relationships with local residents	(1) Promote environmental conservation activities around plants (2) Build good relationships with local residents and councils	(1) Clean-up activities around plant (2) Held environmentally-related discussions with local community		E_19 S_17 ~20																
	(3) Proactive disclosure of environmental information and enhancement of communication activities	(1) Enhance and continue issuance of CSR reports (2) Provide more environmental information	(1) Issued CSR report 2014		S_17																
	(4) Action for biodiversity	(1) Promote activities based on our Biodiversity Conservation Action Guidelines	(1) Activities for preservation of woodland areas (2) Tree planting		E_20 E_21 S_20																

## Environmental management

### Environmental impact on business activities

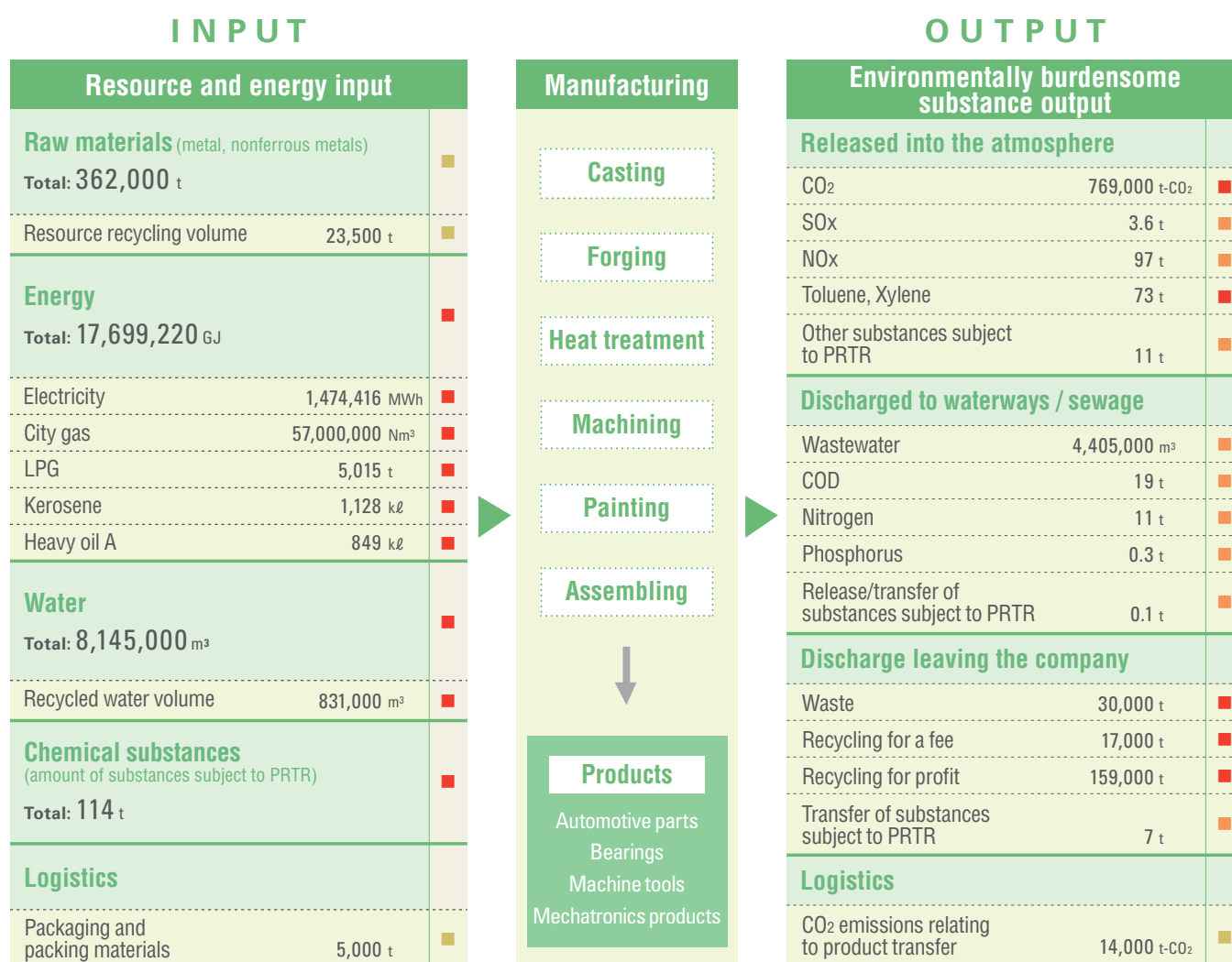
#### Reduction of environmental burden in all stages

JTEKT strives to quantitatively assess overall resource and energy amounts used (input) and amounts discharged into the environment (output) in order to reduce environmental burden in all business activity stages.

#### Resource and energy input versus environmentally burdensome substance output ▶ Figure-01

The table below shows the resource and energy input versus environmentally burdensome substance output for FY 2014. To minimize the impact our business activities have on global warming, we are working to reduce the amount of energy used in all processes, including casting, forging, heat treatment, machining processes and so forth. We also make efforts to convert to more efficient energy such as electricity and city gas.

▶ Figure-01 Resource and energy input versus environmentally burdensome substance output



- Tally of the 21 JTEKT and domestic group companies and the 38 overseas group companies
- Tally of the 21 JTEKT and domestic group companies
- JTEKT independent

Heavy oil A: Among the three classes (A, B, C) of heavy oil, heavy oil A is the closest to kerosene and is used as fuel for boilers or heating.

GJ: Giga-joule (heat quantity unit), G=10<sup>9</sup>

PRTR regulation: "PRTR" is an abbreviation for Pollutant Release and Transfer Register, which is a system created by the government for reporting the amount of chemical substances released or transferred.

COD: Chemical Oxygen Demand (water quality index)

Recycling for a fee: A processing fee is paid in order to recycle.

## Environmental management

### CO<sub>2</sub> emissions for the overall supply chain ▶ Figure-02

JTEKT has calculated the amount of CO<sub>2</sub> emissions based on guidelines established by the Ministry of the Environment and Ministry of Economy, Trade and Industry (\*1). We are currently working to reduce CO<sub>2</sub> emissions from the supply chain, JTEKT business activities, and the use and disposal of products sold. Results for the entire JTEKT group in FY 2014 are shown in the below table.

→ [E\\_11](#) Related article

→ [E\\_22](#) Appendix -02

\*1 Guidelines established by the Ministry of the Environment and Ministry of Economy, Trade and Industry General Guidelines on Supply Chain GHG Emission Accounting.

### ▶ Figure-02

#### CO<sub>2</sub> emissions for the overall supply chain

Scope(*2)	Emissions (t-CO <sub>2</sub> )	Remarks
Scope 1 (Self-produced direct emissions)	116,000	Self-produced emissions through using city gas and other fuels
Scope 2 (Indirect emissions produced by own energy source)	653,000	Emissions produced due to using electricity purchased by JTEKT
Scope 3 (Other indirect emissions)	6,794,000	Emissions produced by related activities such as raw material purchasing, disposal and distribution

\*2 Scope The calculation scope for greenhouse gas emissions stipulated by the GHG Protocol Initiative which prepares the global guidelines for calculating and reporting greenhouse gas emissions.

## Environmental accounting

### Assessment of cost and results ▶ Figure-03

By quantitatively assessing the costs and results of environmental conservation, we continue to make both effective and efficient improvements. We use environmental accounting to help familiarize our stakeholders with our environmental conservation activities, and publicly disclose related information. The tally system is in accordance with the Ministry of the Environment's Environmental Accounting Guideline.

#### Environmental accounting results for FY 2014

Environmental conservation costs for FY 2014 were 1.39 billion yen in investments and 3.62 billion yen in management costs, adding up to a total of 5.01 billion yen. This was an increase of 80 million yen (1.6 percent) from the previous year. The main investments were in measures to prevent underground seepage of oils and establish energy-saving countermeasures.

### ▶ Figure-03

#### Environmental conservation costs

(Million yen)

Type	Details	Investment	Cost
[1] Business on-site costs	● Service & upkeep of environmental equipment	173	244
① Pollution prevention costs			
② Environmental conservation costs	● Measures for energy conservation	143	103
③ Resource recycling costs	● Waste processing, recycling	58	391
[2] Upstream and downstream costs	● Green purchasing	—	37
[3] Management activity costs	● Environmental monitoring, measurements, etc.	4	153
[4] R&D costs	● R&D of environmentally friendly products	1,010	2,612
[5] Social activities costs	● Disclosure of environmental information, greenification, etc.	—	78
[6] Environmental damage costs	● Soil and groundwater restoration	—	0
<b>Total</b>		<b>1,389</b>	<b>3,618</b>
<b>Gross amount</b>		<b>5,007</b>	

#### Economic benefit of environmental conservation measures

(Million yen)

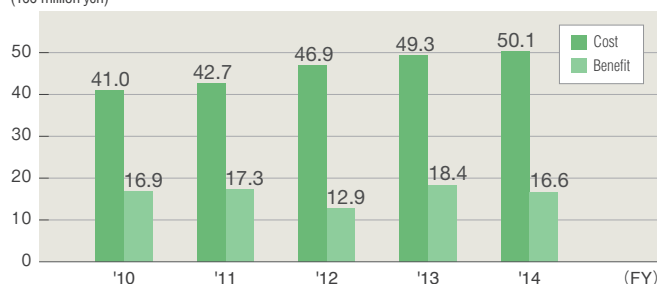
Details of benefits	Economic benefit
Profit from recycled material sales	1,044
Energy-cost reduction from promoting energy conservation	558
Reduction of waste processing costs	63
<b>Total</b>	<b>1,664</b>

#### Benefits towards material amount reduction from environmental conservation measures

Details of benefits	Benefits towards material amount reduction
Energy consumption (t-CO <sub>2</sub> )	20,700
Waste output (t)	3,133

#### Cost and benefits of environmental conservation measures

(100 million yen)



We have not calculated the economic benefits brought about by environmental conservation measures such as increased product value, avoiding environmental risk and improving corporate image. We have only calculated items which can be accurately appraised such as energy-savings benefits, etc. Depreciation costs are not included. Expenses with multiple purposes are proportionately distributed.

Scope of calculation: JTEKT Corporation (including some group companies working at JTEKT)  
Calculated period: FY 2014 (April 2014 to March 2015)



## Environmental management

### Major activities in FY 2014

#### JTEKT Group Environmental Coordinating Committees

In FY 2014 we hosted the JTEKT Group Environmental Coordinating Committee at domestic and overseas group companies. Each year, policies and targets are shared within the overall group in order to strengthen our efforts.

#### Domestic JTEKT Group Environmental Coordinating Committee

The Environmental Coordinating Committee is held three times a year with all 21 group companies in Japan to promote activities for CO<sub>2</sub> reduction, waste reduction, and environmental disturbance prevention.

In April 2014, a committee session was held for the executives in charge of the environment at domestic group companies, and action policies for achieving the 2015 targets of the 2015 Environmental Action Plan were shared. In July and December of 2014, in addition to reporting and discussing our performance up until now and future efforts, risk countermeasures for environmental equipment and the like were checked during plant tours as a means of improving environmental conservation countermeasures.



JTEKT Group Environmental Coordinating Committee in Japan held on July 22nd

#### Overseas JTEKT Group Environmental Coordinating Committee

In March 2015, an Environmental Coordinating Committee was held in which the representatives of JTEKT overseas Group companies participated.

As with the committee gathering in Japan, the participants bolstered improvement activities for achieving 2015 targets and continued with the consolidated environmental audit system to bring the enforcement of compliance to a new level. Furthermore, we have rolled out the draft for the mid-term plan ending in FY 2020 for next term as a way of sharing group goals.

#### North America Safety, Health, Environment and Maintenance (MESH) Conference ★ **New!**

A conference committee for maintenance, environment, safety and health (MESH) was launched in 2013 at a group company in North America, and the MESH conference was held in October 2014. The environmental team members of each business location participated in the conference, where they reported improvement measures for reducing the environmental burden.



MESH team conference at the KBNA (U.S.A.) Richland Plant

In addition, a discussion on current environmental problems within the entire

North America region was held by the MESH team, which checks the progress of measures being promoted to lower CO<sub>2</sub> emissions, waste materials, and water usage at each business location every three months. Furthermore, changes within environmental regulations and environmental objectives of the JTEKT group were presented along with case examples of improvements. Each business location will continue working together to enforce the observance of environmental regulations, lower the environmental burden associated with manufacturing, and achieve the environmental objectives of the JTEKT group.

#### China Safety and Health Environment (EHS) Section Meeting

JTEKT held a meeting in China concerning safety, health and the environment during August 2014 and January 2015. Participants reported environmental activities and issues at each group company in China, and case examples of improvement were rolled out to each company. By implementing inspection tours both inside and outside of plants, we enhanced the specialized knowledge and skills of employees and improved mutual environmental awareness.



China EHS Section Meeting held on January 29th

Michael H. Hobbs  
JNA (U.S.A.)

My  
CSR

**Aiming for zero work-related accidents and zero environmental burden!**



A MESH team for maintenance, environment, safety and health was launched at JNA, our North American headquarters, to protect the health of employees and the regional environment. The team checks the policies and schedule of each plant to ensure their conformity to safety, environmental and legal requirements, maintains ISO14001 certification, and promotes activities for reducing the environmental burden. As a member of the team, I tour all plants in North America to support activities for achieving our targets. By performing activities based on *genchi genbutsu*, we can find the best plan for realizing zero work-related accidents and zero environmental burden. If we can eliminate all safety and environmental hazards from the work environment and improve and maintain awareness among all 6,200 employees in the North America region, I believe we can achieve our goals. Our team will continue to support activities that protect the happiness and health of employees while reducing and eliminating the burden we place on the environment.

## Environmental management

### Reducing environmental risk

#### Environmental accident prevention activities

To prevent environmental accidents, we share countermeasures implemented in response to incidents occurring both inside and outside the company for similar equipment. Moreover, in order to comply with environmental legislation, treaties and convention levels, we have set internal standards (\*1) more stringent than regulations, which we manage thoroughly.

**\*1 Internal standards** JTEKT's internal effluent standards are 80 percent of regulatory requirements.

#### Legal compliance with environmental legislation

A leakage of sewage from pipes around the JTEKT property border occurred in FY 2014, causing sewage to leak outside company grounds. Furthermore, another accident occurred when industrial wastewater leaked from the sewage system into the adjacent rain-water system. JTEKT reported these incidents to the local authorities, identified the causes, and implemented countermeasures. In addition to the sharing of such information with other plants and group companies, the details of the countermeasures are deployed to prevent the reoccurrence of similar accidents.

#### Cooperative study group on environmental disturbances and near misses **New!**

In FY 2014, we organized a new cooperative study group on environmental disturbances and near misses to take in case examples of environmental near misses (\*2) other than environmental accidents and enforce countermeasures and deployment items throughout the company. Held once every two months, the study group is comprised of personnel in charge of environment at each plant, who gather at the plant where the accident occurred to perform *genchi genbutsu* and confirm the environmental near miss case example. Then, the efficacy of countermeasures is examined, and items to be rolled out companywide are discussed with all employees as a means of reoccurrence prevention.

**\*2 Environmental near misses** Incidents that had only a slight impact on the environment and were handled within the area they occurred in.



Cooperative study group on environmental disturbances and near misses (Tokyo Plant)

#### Environmental patrol by the plant manager

As part of our Environmental Month every June, managers of each plant conduct environmental patrols. In FY 2014, we examined the status of preparations for abnormal weather such as typhoons and torrential rain, control conditions including legal

compliance in the storage of hazardous materials and legal compliance regarding the preservation and usage of secondary materials by departments such as Production, and the rectification status of items indicated during past patrols.



Environmental patrol (Sayama Plant)

#### Emergency drills

In preparation for various environmental accidents, emergency training is carried out regularly at each plant. Following FY 2013, emergency training assuming abnormal occurrences, such as tank oil leaks, was carried out in FY 2014 as well. Emergency training was also carried out for nightshift workers, in the assumption that emergency situations could also occur at night.



Emergency drills (Nara Plant)

### Environmental audits

#### Internal audits

Our company conducts internal audits annually to confirm the operational status of our environmental management system and observance of legislation. We correct all issues identified in this audit.

#### External audits (ISO14001)

JTEKT was subjected to a renewed ISO14001 inspection in April 2015. As a result, there were zero cases of non-conformity, and our environmental management system was deemed as congruent with standard requirements and having been effectively implemented. However, six cases were identified as having room for improvement, and therefore the departments in charge of handling these cases have been specified and corrections are being made.



ISO14001 external audit



## Environmental management

### Environmental audits of overseas group companies **New!**

The JTEKT group has constructed a consolidated auditing system and since FY 2014 has been conducting environmental audits on overseas group companies, focusing on legal compliance activities aimed at preventing environmental disturbances and complaints. In FY 2014, audits were conducted at three bases in ASEAN countries, one base in China, and three bases in North America. Environmental audits in overseas group companies will be systematically implemented from FY 2015 onward as well.



Environmental audit (JAMY: Malaysia)



Environmental audit (KBNA: U.S.A.)

### Environmental education

#### Environmental awareness education

During Environment Month in June of 2014, environmental awareness training was held for all employees through e-learning. The theme for this year's course was "Eco-change: Think and act autonomously and challenge yourself (Enforcement of environmental compliance)", and roughly 6,100 JTEKT members attended the session.

### VOICE Turning waste into valuable resources

JID (Indonesia) received ISO14001 certification in April 2014. To achieve certification, a special team had been established by the personnel responsible for each division. Efforts to accomplish success in the environmental management program also paid off when objectives were achieved after six months' worth of activities. I will continue to apply the knowledge and experience gained from these activities. For environmental actions, I believe that improvements can be made by each employee thinking on their own and increasing their own capability. I will continue training for all employees on the relationship between daily work and the environment as a means of raising each individual's awareness and capability.



JID (Indonesia)  
Saiful Bahri



ISO14001 registration certificate

# Environmentally considerate development and design

## Social background

The influence of product usage on the environment is deeply related to the development and design phases of the product. To lower our environmental burden, our company must oversee products from material purchase through usage by the customer, all the way until disposal. We must also work on developing environmentally friendly designs which can be easily reused and recycled.

## JTEKT's concept

### Improve each product from every angle

We JTEKT, in line with our Corporate Philosophy of “contributing to the happiness of people and the abundance of society through product manufacturing”, develop and design environmentally friendly products. We believe that our products and technologies provide environmental countermeasures for our customer’s products and manufacturing processes and as such, greatly contribute to the environment. Therefore, we strive to improve the environmental performance of each product throughout the entire product life cycle, and are producing results which will contribute to the prevention of global warming and the effective use of resources.

## Promotion structure

### Promotion by the Environmental Responsive Products Subcommittee

Under the guidance of the Global Environment Conservation Committee, which unites companywide environmental conservation activities, the Environmental Responsive Products Subcommittee is promoting the development of environmentally friendly products together with group companies in Japan. Innovative technology is used in the development and design stages to make products smaller, lighter, and



My CSR

**Masaki Okajima**  
Engineering Headquarters Engineering Administration Dept.  
Product Environmental Management Group

**Promotion of development activities aimed at environmentally responsive products**

Our company conducts product development with consideration to the development concept stage and throughout the entire product life cycle. As the management department within the engineering division, our group operates working activities for reducing environmentally burdensome substances, runs the Environmental Responsive Products Subcommittee, and promotes CO<sub>2</sub> reduction and 3R (Reduce, Reuse, Recycle) activities. At the same time, we hold technical training lectures to familiarize employees with design conscious of CO<sub>2</sub> reduction. Through these activities, we are working together with each engineering department to give the world more products which are better for the environment.

more efficient, and reduce the amount of environmentally burdensome substances and raw material usage. In this way, JTEKT is engaging in environmental conservation on a global scale.

### Evaluation method

JTEKT has established an original environmental efficiency basic equation to serve as an index in quantitatively assessing environmental load reduction benefit. The larger the value, the greater the environmental load reduction benefit is. Each year JTEKT sets higher environmental efficiency targets and works to reach them within product development.

#### Environmental efficiency basic equation and environmental efficiency value calculation

Environmental efficiency is a value calculated based on the degree of lightness, compactness, energy-savings, etc. The environmental efficiency value is calculated by dividing the environmental efficiency of the assessed product by that of the standard product.

Environmental efficiency

$$\frac{\text{Product performance}}{\text{Product environmental load}} = \frac{1}{\sqrt{W^2 + T^2 + E^2}}$$

W : Mass T : Loss E : Energy

#### Calculation of environmental load reduction effect

As the environmental load reduction effect, it is possible to seek environmental load reduction ratio more than the environmental efficiency value. For example, if the environmental efficiency value was 1.25, that product’s environmental load reduction benefit would be 20%. A reduced environmental load is sought as the reverse of the environmental efficiency value.

Environmental efficiency value

$$\frac{\text{Environmental efficiency of assessed product}}{\text{Environmental efficiency of standard product}}$$

Environmental load reduction ratio

$$\left( 1 - \frac{1}{\text{Environmental efficiency value}} \right) \times 100$$

### Evaluation of the two products shown in “Message”

→ [Message] P8~10 Related article

Developed product name	Percentage of environmental burden reduction
Needle roller bearing for high speed rotation planetary gears	4.0%
Horizontal machining center FH630SX-i	15.0%

### Group company activities

JTEKT conducts environmental design activities with intimate interaction between each operations headquarters and all group companies. Through creative ideas from the design stage, products of the JTEKT group are contributing to the world environment.

#### Main measures

Group companies in Japan **Toyoda Van Moppes Ltd.**

#### Reducing CO<sub>2</sub> by reusing wheel bases

Vitrified CBN wheels are superabrasive grinding wheels used in high-efficiency grinding. At Toyoda Van Moppes, the continuous recycling of the wheel bases of these vitrified CBN wheels has been widely recognized for high accuracy in reproduced products and merits of reduced management costs. In FY 2014, reproduced products accounted for 58.6 percent of the entire production volume of superabrasive wheels, and the percentage of actual reuse of wheels eligible for recycling exceeded 98.5 percent. As a result, the amount of iron used as a material was reduced, adding up to a reduction of 157.6 tons of CO<sub>2</sub> per year when converted.



# Prevention of global warming

## Social background

In 2014, the UN Intergovernmental Panel on Climate Change (IPCC) published its Fifth Assessment Report, which stated the estimation that changes in world average surface air temperature bear a proportional relationship with the total cumulative amount of CO<sub>2</sub> emissions. To prevent global warming from progressing any further, companies must improve efforts to cut both CO<sub>2</sub> emissions from both direct and indirect sources. [→ E\\_06 Related article](#)

## JTEKT's concept

### Reducing CO<sub>2</sub> emissions within all processes

In order to help prevent global warming, JTEKT engages in activities to reduce emissions of CO<sub>2</sub>, a major greenhouse gas, in the production and transportation of products. All group companies, both in Japan and overseas, promote energy-saving methods and the use of reusable energy throughout all processes from product design to delivery. [→ \[Message\] P16 Related article](#)

### Stabilization of power supply and demand

To continuously implement countermeasures for power shortages, we must further conserve power consumption by installing more energy-saving equipment, in addition to introducing in-house power generation. Our power generation capacity (\*) in FY 2014 stood at 16.2 percent. By supplying our own power, we enable stable business activities, suppress demand for purchased

power, and contribute to the stabilization of supply and demand.

\*In-house power generation percentage Internal power generation capacity/FY 2010 peak power

## Reducing CO<sub>2</sub> emissions in production

### Reducing domestic CO<sub>2</sub> emissions

▶ Figure-01

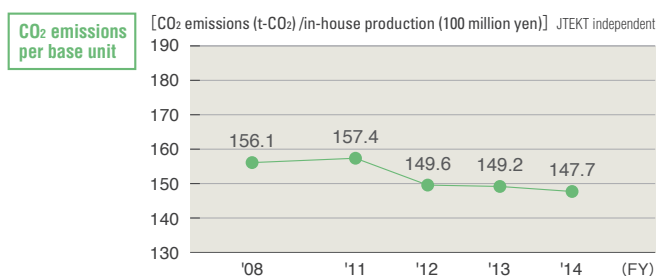
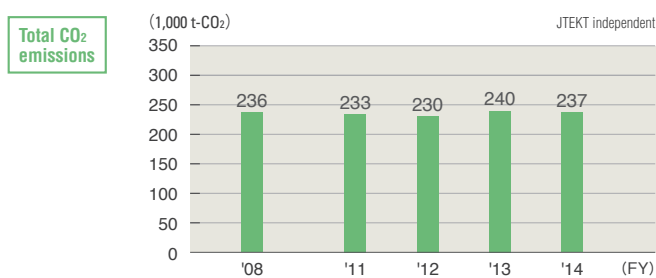
Our company is working to reduce the basic units of CO<sub>2</sub> emissions by 7 percent compared with FY 2008, the target we have set for FY 2015. Although we reduced our CO<sub>2</sub> emissions by 3,000 tons during FY 2014 due to improved energy saving methods, we did not reach our target basic unit of CO<sub>2</sub> emissions, achieving only 147.7 tons/100 million yen. In FY 2015, we will promote activities to guarantee the achievement of targets in the Environmental Action Plan by enforcing the reduction of power supplied to machines in standby during non-operation, reducing equipment and process saving through productivity improvement activities, and further improving the efficiency of heat treatment furnaces, which account for a large amount of energy usage.

### Reduction of global CO<sub>2</sub> emissions

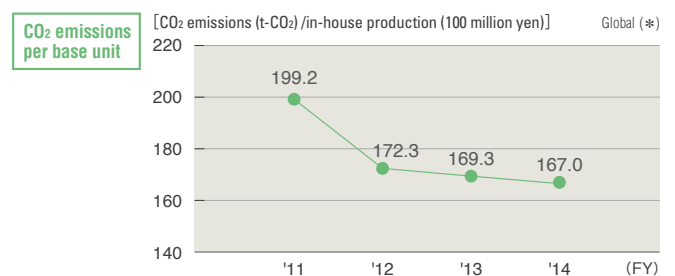
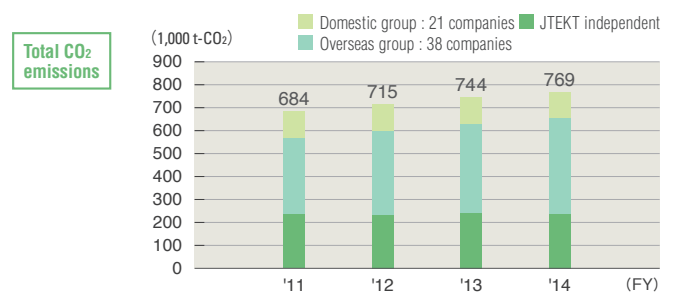
▶ Figure-02

With an aim to minimize the impact of global production operations on global warming, JTEKT is working to reduce CO<sub>2</sub> emissions not only within the company but also at all JTEKT group companies in Japan and overseas. In FY 2014, we accomplished a 3.1 percent basic unit reduction in CO<sub>2</sub> emissions compared with FY 2012. We will continue to improve productivity in order to prevent global warming and improve production efficiency as an entire group.

▶ Figure-01 Transition of total and per base unit CO<sub>2</sub> emissions in production



▶ Figure-02 CO<sub>2</sub> emissions (global and base unit)



\*JTEKT + 21 domestic group companies + 38 overseas group companies

\* There were 17 group companies in Japan until FY 2011.

# Prevention of global warming

## Main measures

Group companies in Japan	Koyo Thermo Systems Co., Ltd.
--------------------------	-------------------------------

### Energy saving through automation of air conditioning in clean rooms

At Koyo Thermal Systems, an output switching function was activated in the clean room air conditioning unit, which previously had been set at a fixed output. By implementing 50, 80 and 100 percent through manual switching, it was discovered that the clean room could be kept at a constant temperature by running at 80 percent output when the outside temperature is high, and 50 percent output during seasons other than summer when the temperature is lower. Using this knowledge, a circuit was installed which automatically switches the air conditioning output between 50 and 80 percent depending on the outside temperature. As a result, the total energy expenditure for the air conditioning unit and heater in the year between December 2013 and November 2014 was reduced by 14.3 percent (113 MWh) from the previous year, cutting costs by 1,921,000 yen (17 yen/kWh).



Temperature controller



**My CSR**

**Atsushi Sagami**  
Koyo Thermo Systems Co., Ltd.  
Safety, Health & Environment Control Dept.

**Promotion of energy saving in clean rooms**

Koyo Thermo Systems manufactures and markets versatile heat treatment equipment in the fields of automobile components, semiconductors, and electrical components. Although energy conservation is promoted within all production processes, the company has focused especially on improving energy conservation within clean rooms for semiconductors, as these consume the most energy. This achieved a certain amount of improvement, however there are still many machines using vast amounts of energy, and therefore the company is working on improving energy saving by other means, such as switching lighting to LED bulbs.

[→ \[Message\] P16 Related article](#)

## Main measures

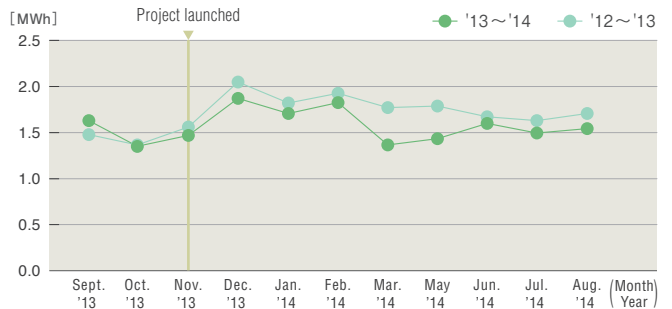
Overseas group companies	KBE (England)
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### Actions to reduce electricity and gas consumption

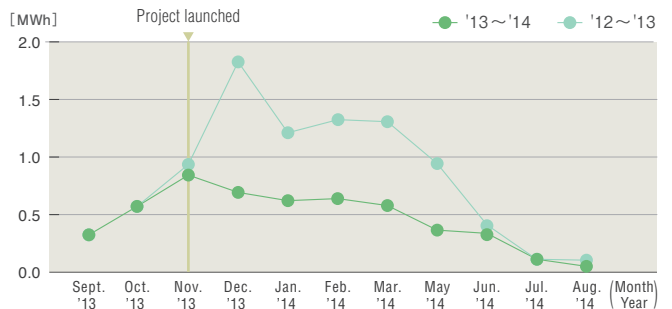
With the objective of conserving energy and lowering costs, in November 2013 KBE launched a project for reducing electricity and gas usage within plants. The number of heat treatment furnaces was scaled down for furnace integration, compressors, coolant pumps, and lighting were reduced, and temperature control was reviewed and enforced. All employees were asked to cooperate with these actions. Employees struggled at first as they were not used to cutting off power and compressor air after a production line stops. However, through systematic training, KBE was able to raise employee awareness about energy conservation. As a result, the electricity usage for FY 2014 shrank to 89 percent (18,588 MWh) of that of the previous year, gas usage was improved by 59 percent (4,725 MWh), CO<sub>2</sub> emissions were lowered to 5,797 tons, and costs were trimmed by approximately 300 GBP.

[→ \[Message\] P16 Related article](#)

### Electricity usage



### Gas usage





## Prevention of global warming

### Main measures

#### Efforts towards renewable energy

JTEKT is proactively introducing renewable energy with small environmental burden. At the end of March 2014, 465 kW of solar power generation was newly introduced at the Kagawa Plant. Following the introduction of renewable energy with solar power generation in 2001 and wind power generation in 2006, JTEKT has reduced annual CO<sub>2</sub> emissions by roughly 200 tons.

In October 2014, JDI (China) installed solar water heating equipment which utilizes solar heat. Combined with steam heating which has been utilized up until now, solar water heating is expected to save an annual 248 tons in CO<sub>2</sub> emissions.

JTEKT had independently introduced 676 kW of renewable energy before FY 2014, and has already surpassed the target of introducing over 500 kW by 2020. Renewable energy will continue to be introduced in order to promote the creation of JTEKT plants in harmony with nature.



Solar power generation (Kagawa Plant)



Solar water heater JDI (China)

## Reducing CO<sub>2</sub> emissions in logistics

### Reducing CO<sub>2</sub> by integrating product delivery shipments

▶ Figure-01

In FY 2014, the CO<sub>2</sub> emission basic unit was approximately 1 percent less than the previous year at 2.20 tons/100 million yen. By integrating and consolidating product delivery shipments, JTEKT reduced annual CO<sub>2</sub> by 278 tons. We will continue to reduce CO<sub>2</sub> emissions in the future through further integration.

→ [Message] P16 Related article

▶ Figure-01

### Transition of total and per base unit CO<sub>2</sub> emissions in logistics





# Effective use of resources

## Social background

Preservation of the world's resource foundation is a major theme of the GRI "Sustainability Reporting Guidelines 2013 (G4)", and is the objective of the many sustainability strategies of the companies which comprise the board of directors for the Organisation for Economic Co-operation and Development. These strategies strongly demand that companies lessen their usage of raw materials and recycle parts.

## JTEKT's concept

### Responsibility as a *monozukuri* company

At JTEKT, we consider the effective use of resources as one of the responsibilities of an environmentally friendly *monozukuri* company. By making improvements and devising ideas for the production processes of each product, we strive to reduce material usage and waste output, as well as recycle and save valuable resources.

## Saving resources in production

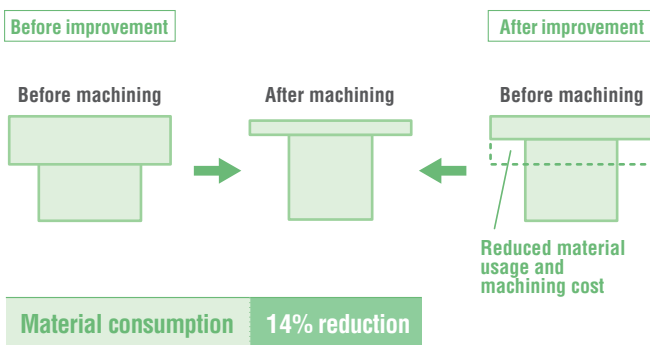
### Reduction of primary material consumption

JTEKT is working to transition to net shape (reduction of machined portions) by improving forging and casting technologies, and reduce the amount of materials used.

#### Main measures

##### Reduction of materials for forged workpieces

In companion flanges, which are automotive components, we have reduced the number of machined portions by improving die accuracy in the forging process and the level of condition control. This has drastically reduced material usage and machining cost.



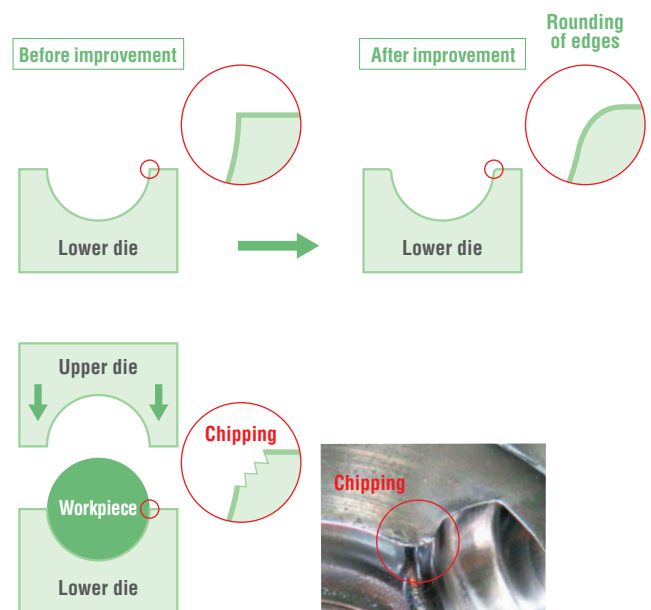
### Reduction of secondary material consumption

We succeeded in reducing consumption by revising the material, shape, hardness and other specs of secondary material for products such as grinding wheels, cutting tools and dies and further increasing their durability. Also, we strove to promote recycling by reusing oil, grinding wheels, cutting tools and jigs.

#### Main measures

##### Improved die service life through modified edges

During forging, excessive force is applied to the die used due to the workpiece shape, negatively affecting die life. We have therefore improved the die structure and lengthened die life by rounding the edges as much as possible.



Die service life 7 times longer

## Effective use of resources

### Waste reduction

#### Efforts to reduce the amount of all discharged materials

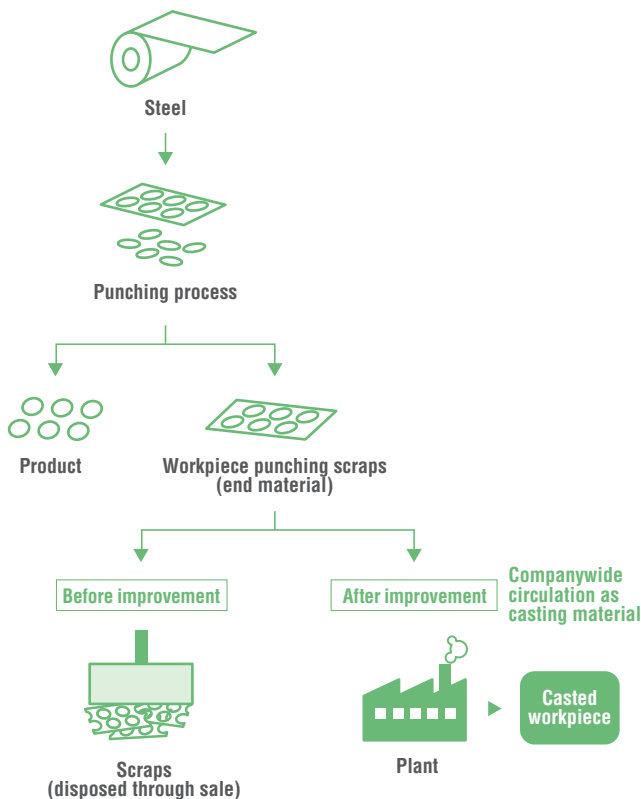
▶ Figure-01

JTEKT has been engaging in activities based on 3R (Reduce, Reuse, Recycle) to achieve a 100 percent recycling rate for the effective use of resources regarding all discharged materials, including waste. The result was the achievement of a 100 percent recycling rate in November 2012, which has been maintained ever since. JTEKT will continue to promote 3R and conduct activities to cut the total amount of discharged materials.

#### Main measures

##### Recycling iron scraps (end material) in-house

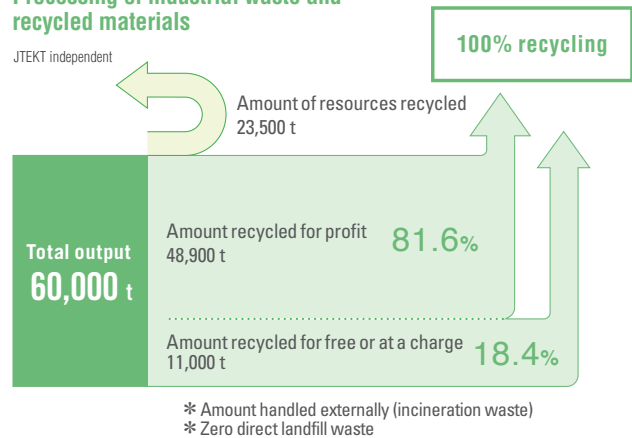
At JTEKT, we have been promoting the recycling of raw materials within casting processes since FY 2006. In FY 2014, we produced 8,500 tons (13 percent of our independent total discharge amount) of iron scraps (end material) left over from steel from which bearing cage material had been punched out. From these scraps, 5,800 tons were able to be recycled (8 percent of total discharge amount). We will continue to promote companywide recycling and the efficient use of resources.



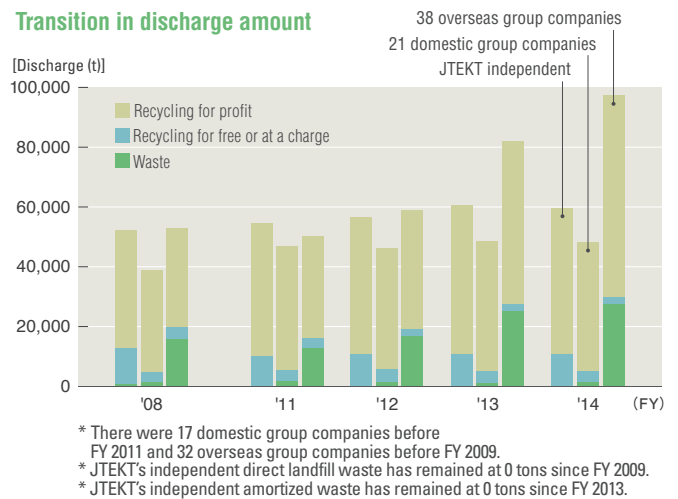
▶ Figure-01

#### Processing of industrial waste and recycled materials

JTEKT independent



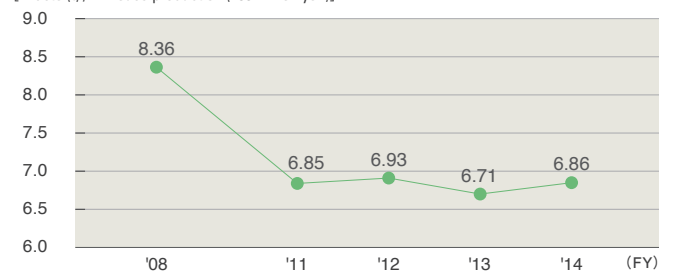
#### Transition in discharge amount



#### Yearly transition of waste basic unit

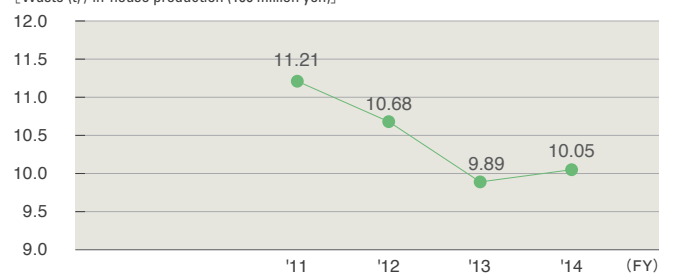
##### JTEKT independent

[Waste (t) / in-house production (100 million yen)]



##### Global

[Waste (t) / in-house production (100 million yen)]



## Effective use of resources

### Reduction of packaging material

#### Reducing packaging and packing material

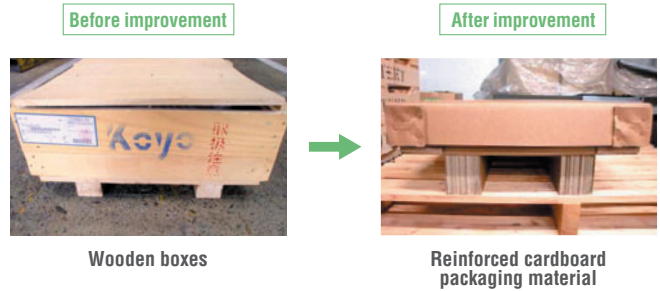
▶ Figure-01

In order to effectively use resources, our company has established targets for packaging and packing material for both wood and paper, and promotes simpler, returnable and reusable packaging. For wooden packaging, we have increased our use of returnable pallets and are promoting the use of cardboard boxes. For paper packaging, we are engaging in various actions such as shifting from disposable cardboard to returnable plastic containers, revising excessive packaging, and reducing the amount of cushioning material used by adopting cardboard boxes which fit the product size.

#### Main measures

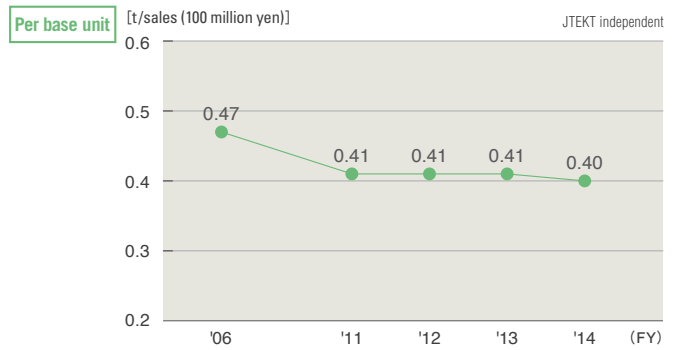
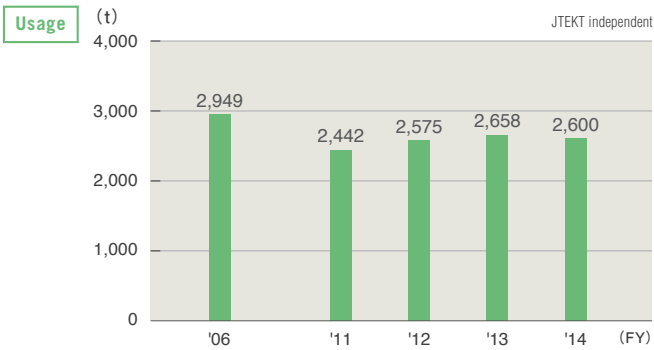
##### Reduction of wooden packaging material

We have switched the packaging material from wooden boxes to reinforced cardboard, lowering the annual amount of wooden boxes used by two tons.

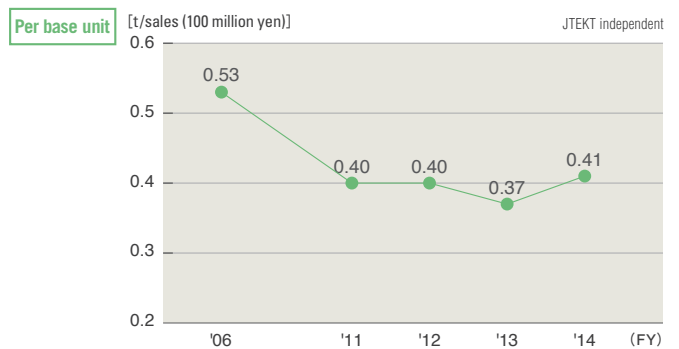
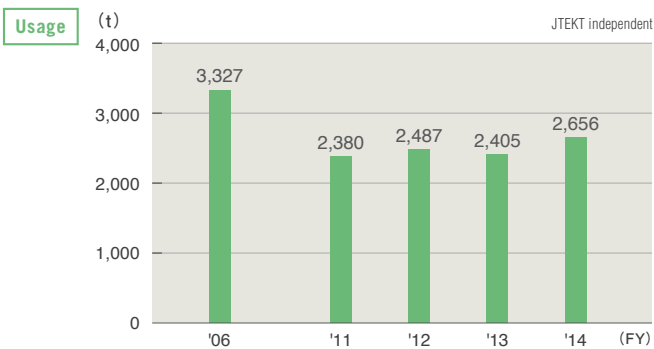


▶ Figure-01

#### Transition of wood packaging usage and per base unit



#### Transition of paper packaging usage and per base unit



## Effective use of resources

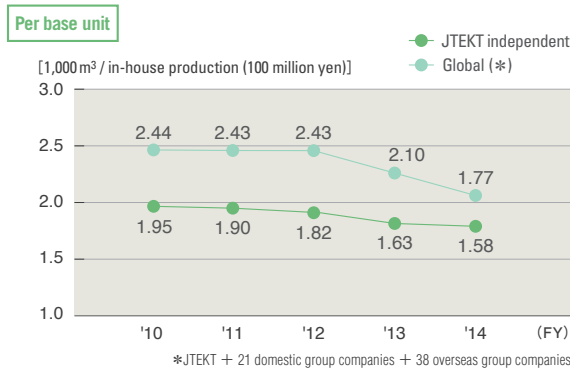
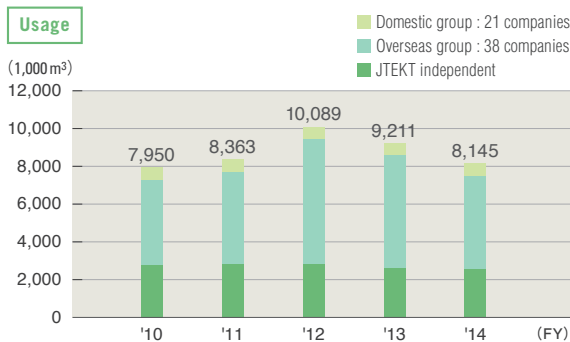
### Reduction of water usage

#### Promoting efficient water usage

To reduce the usage of water, a precious resource, we engage in activities to decrease wasteful usage and recycle water. In FY 2014, we had at first planned on improving our basic unit and usage amount of water by more than 2 percent compared with FY 2012, however we achieved this goal ahead of schedule in FY 2013. Therefore, we set our sights on improving FY 2013 figures by 0.5 percent or more. As a result, we achieved a 3.4 percent (60 m<sup>3</sup>/100 million yen) improvement in basic unit and reduced usage by 3.5 percent (93,000 m<sup>3</sup>).

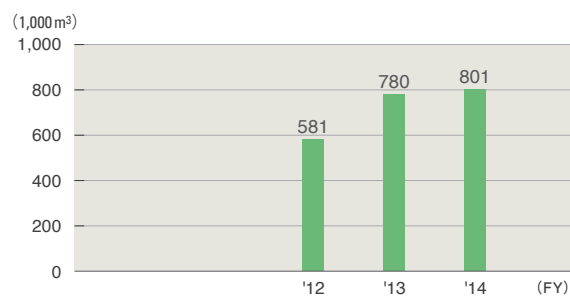
We have already achieved our planned target for FY 2015, an improvement 3 percent higher than FY 2012. We will therefore continue activities toward a target of 0.5 percent or higher improvement compared with FY 2014 results.

#### Water usage / Basic unit transition / Amount of recycled water



\* There were 17 domestic group companies before FY 2011 and 32 overseas group companies before FY 2009.

#### Amount of recycled water (JTEKT independent)



#### Main measures

Overseas group companies	KBNA (U.S.A.)
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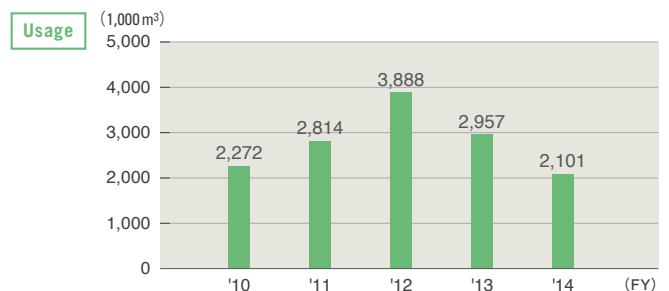
#### Actions to reduce water usage

KBNA is comprised of seven bearing production plants, two technical centers, and three distribution centers in North America. Since 2002, the company has been engaged in reducing water usage as an ISO14001 activity. These activities include the renewal of cooling towers, automation of water supply valves synchronized with processes, introduction of air cooling type heat exchangers, automation of cleaning processes, as well as the enhancement of employee awareness. This led to a reduction in the amount of water used in FY 2014 by 29 percent compared with the previous year. KBNA will be accelerating the reduction of water usage and will promote the recycling of wastewater while sharing countermeasures for improvement, thus preserving the valuable resource for generations to come.



Cooling tower

#### Transition of water usage at KBNA



#### VOICE Protecting an abundant water resource into the future

North America is blessed with a plentiful water resource, which is steadily being lost due to development. It is therefore our responsibility to protect this resource for future generations. Based on the JTEKT group concept, KBNA is working to reduce water usage while enforcing companywide training, and is also promoting the organization and control of utilities, reduction of wasteful water usage, and recycling of water and other resources. KBNA will continue to minimize water usage within all process by improving cooling technologies and increasing awareness among employees.



KBNA (U.S.A.)  
Kip Davis (Left)  
Dennis Gooch (Right)

# Control and reduction of environmentally burdensome substances

## Social background

There is a growing movement which demands standards for environmentally burdensome substances which can negatively impact the planet's ecosystems and people's health. Society demands that corporations observe regulations in all stages of development from production to the actual product, in order to protect the health of their employees and the community in addition to maintaining and expanding their operations.

## JTEKT's concept

### Reducing environmentally burdensome substances

As we JTEKT aim to be an "environmentally friendly *monozukuri* company", the reduction of environmentally burdensome substances throughout the entire product life cycle is one of our social responsibilities. It goes without saying that we will lower consumption and discharge amounts, in addition to assessing and controlling environmentally burdensome substances within products.

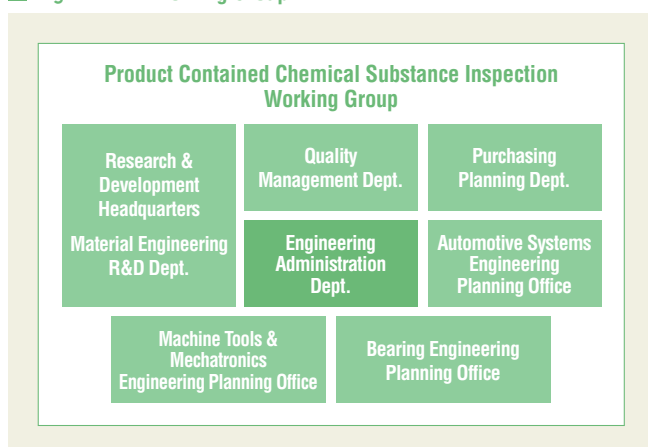
## Control and reduction of environmentally burdensome substances

### Product Contained Chemical Substance Inspection Working Group

Figure-01

At JTEKT, we believe it is necessary to conduct companywide sharing and control of information on environmentally burdensome substances contained in products in order to comply with various laws, including the REACH regulation. Therefore, we established the "Product Contained Chemical Substance Inspection Working Group" in FY 2013 to oversee the cooperative sharing of information between divisions and promote the control and reduction of environmentally burdensome substances within products as well as in production.

Figure-01 Working Group



## Control and reduction of chemical substances in products

### Product conformity to all laws and regulations

JTEKT is progressing with the development of alternative technology for chemical substances exempted by the ELV Directive (\*1) and the RoHS Directive (\*2) on which limits have been set, and chemical substances with a deadline before which the product must be replaced in accordance with the REACH regulation (\*3). In FY 2013, JTEKT began the transition from phthalic esters, which are widely used within rubber products. The complete replacement of rubber seals has also been ongoing since FY 2014.

**\*1 ELV Directive** A regulation of the European Union regarding discarded automobiles. To reduce the environmental burden from vehicles which have reached the end of their service lives, this regulation has progressively prohibited harmful chemicals from inclusion within new automobiles within the market since July 2003. ELV is an abbreviation of "End-of-Life Vehicles".

**\*2 RoHS Directive** A regulation of the European Union regarding restrictions on the usage of certain harmful substances within electronic and electrical equipment. The regulation has banned the use of lead and cadmium within market products since July 2006. RoHS is an abbreviation of "Restriction of the use of certain Hazardous Substances".

**\*3 REACH regulation** A regulation on the registration, evaluation, authorization and restriction of chemicals, which applies to chemicals within products as well as chemicals used at companies. REACH is an abbreviation of "Registration, Evaluation and Authorization of Chemicals".

## Control and reduction of chemical substances within production

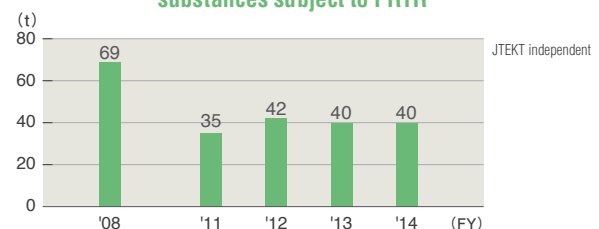
### Reduction of substances subject to PRTR

Figure-02

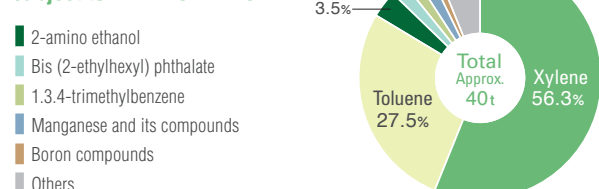
JTEKT is taking action to reduce the impact of chemical substances released into the environment from production activities on people's health and the environment. In FY 2014, JTEKT achieved the target of lowering the release and transfer of substances subject to PRTR (\*4) by 2 percent compared with FY 2012 through control of paint coating rate and implementation of powder coating.

**\*4 PRTR** A system to collect and disseminate information on environmental release and transfer of toxic chemicals reported to government agencies. PRTR is an abbreviation of "Pollutant Release and Transfer Register".

Figure-02 Yearly transition release and transfer breakdown of substances subject to PRTR



### Release and transfer breakdown of substances subject to PRTR for FY 2014





## Control and reduction of environmentally burdensome substances

### Measures for soil and groundwater (continued report)

Since 1998, JTEKT's Kariya and Okazaki plants have implemented ongoing measures to prevent external leaks and to purify groundwater of trichloroethylene, a substance previously used in detergents and other materials. They do this using a pumping and aeration system (\*1). In addition, since FY 2004, the Okazaki Plant has used a microbial purification system (\*2) which injects nutritional supplements as part of their purification measures. JTEKT reports groundwater measurement results to government agencies and provides local residents with explanations in community meetings.

→ [S\\_17](#) Related article

**\*1 Pumping and aeration system** Groundwater is pumped up and sprayed and air is blown from below to aerate and separate organic solvents, which are made to adhere to activated carbon for removal.

**\*2 Microbial purification system** A method of restoring contaminated environments by utilizing microbial function. The purification capability of microbes living in the environment is raised by injection of nutrients, etc.

### Trichloroethylene measurement values

Environmental standard: 0.03 mg/ℓ

(mg/ℓ)

Plants	Maximum measurement value in groundwater		
	FY 2013	FY 2014	Status
Kariya	0.772	0.996	Purifying
Okazaki	0.032	0.019	Purifying

\* For plants other than the above, no trichloroethylene was detected in measurements taken in wells around the plant borders.

### Proper storage and control of PCB devices

The Act on Special Measures concerning the Proper Treatment of Polychlorinated Biphenyl Waste requires the storage and notification of devices containing PCB (polychlorinated biphenyl), widely used as an insulating oil. Here at JTEKT, we properly store such devices and notify government agencies in accordance with this act. In addition, by FY 2014 all high pressure condensers with highly concentrated PCB levels currently in storage were rendered harmless at PCB treatment facilities of JESCO (Japan Environmental Storage & Safety Corporation), excluding one condenser that could not be treated at the time due to breakage. The damaged condenser will be disposed of after preparations have been made at the waste disposal company. Furthermore, 126 PCB ballasts from the Tokushima Plant were rendered harmless in FY 2014. The 1,078 ballasts at the Kariya Plant, Okazaki Plant, and Higashi-kariya Operation Center are scheduled for treatment in FY 2015.



PCB ballast treatment status (Tokushima Plant)

### Measures for devices with low PCB concentration

In addition to devices with highly concentrated PCB levels, JTEKT properly stores electrical devices that have been previously judged as not containing PCB, but in which minute amounts of PCB have been detected. In FY 2014, JTEKT selected certified facilities for detoxifying treatment of low PCB concentrations, which have begun treatment in FY 2015. We will continue to promote systematic treatment.

# Biodiversity conservation

## Social background

The diversity of living creatures on this planet is rapidly depleting, for reasons such as habitat loss resulting from the spreading destruction of nature. Corporate activities are made possible thanks to the blessings of nature, but at the same time impact biodiversity greatly. This is why it is important that corporations are proactively involved in biodiversity conservation activities such as protecting the natural habitat.

## JTEKT's concept

### Aiming for harmony with biodiversity

JTEKT believes biodiversity conservation to be a critical social issue supporting life and lifestyle. As such, each and every employee participates in environmental conservation activities based on the JTEKT Group Environmental Vision, to achieve harmony between our business activities and biodiversity.

## Actions for biodiversity conservation

### Under the Biodiversity Conservation Action Guideline

▶ Figure-01

In order to reduce the environmental burden created by our business activities and be mindful of biodiversity, our company established a Biodiversity Conservation Action Guideline in March of 2011 based on the 2015 Environmental Action Plan of our JTEKT Group Environmental Vision. This guideline was established with reference to the Ministry of the Environment's Guidelines for Private Sector Engagement in Biodiversity. We will continue to investigate quantifiable evaluations relating to biodiversity conservation into the future.

## Major activities in FY 2014

### Woodland conservation activities (Hanazono Plant) **New!**

In an effort to preserve biodiversity, employees at the Hanazono Plant have been volunteering in woodland conservation activities at the "Okazaki Eco-Education Forest" since April 2014. At the Okazaki Eco-Education Forest, the volunteers partnered with Okazaki residents and civil activity groups to conduct preservation of the abundant biodiversity of the woodland environment, while aiming to make the forest a base for hands-on education about the environment, utilizing the rich natural surroundings. Hanazono Plant sympathizes with this philosophy of the city, and on April 26th they participated in soil maintenance work with the goal of improving the growth environment. The plant will continue woodland conservation in Okazaki city as an activity rooted in the local community in order to contribute to the preservation of biodiversity.



Woodland conservation activities (Hanazono)

▶ Figure-01 Biodiversity Conservation Action Guideline

#### Relationship with business activities

- Raw material procurement ● Liaise with business partners to protect biodiversity.
- Soil usage ● Through greenifying our plants, etc., we are engaging in activities to protect ecosystems which contribute to biodiversity.
- Production activities ● With activities such as preventing global warming by developing innovative techniques and equipment, effective resource usage, reduction of environmentally burdensome substances and so on, we aim to succeed at both biodiversity and corporate activities.  
● We work hard to quantitatively assess the impact our business activities have on biodiversity.
- Product development ● Based on life-cycle assessment approach, JTEKT develops and designs top-class environmentally friendly products and reduces impact on biodiversity.

#### Promotion of social contribution activities benefiting biodiversity conservation

- Proactively participate in social contribution activities through cooperation with councils and affiliated companies.

#### Training, awareness activities and information-sharing

- Raise employee awareness of biodiversity conservation through environmental training.
- Use the CSR report as a tool to communicate our activities towards biodiversity conservation with our stakeholders and with the community.

## Biodiversity conservation

### Tree planting activities (JATH: Thailand) **New!**

Feeling a sense of crisis about environmental problems such as global warming, JATH began tree planting activities in 2008 as a part of CSR activities. In FY 2014, employees participated in the King of Thailand's tree planting project, where 400 trees were planted over an 8,000 m<sup>2</sup> area in a national park in Rayong Province. Through these activities, a total of 1,200 trees have been planted across 32,000 m<sup>2</sup>. Participating employees work with vigor each year, sharing a sense of joy through their contribution to the environment. JATH will continue tree planting activities which contribute to the local region.



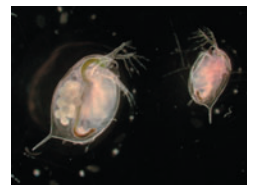
Tree planting (JATH: Thailand)

### Impact survey on plant wastewater using WET (\*) **New!**

As a means of managing wastewater at production sites, a WET test, which evaluates the environmental impact of plant wastewater based on biological response, was implemented at the Kariya Plant together with the National Institute for Environmental Studies in order to quantitatively assess the effect on the aquatic life of disposal destinations. Tests conducted included a toxicity test in the fish embryonic and larval stages for a fish species (zebrafish), a reproduction test for a crustacean species (Ceriodaphnia), and a growth inhibition test for algae. The results show no impact on the animals studied, and that the water quality was at an extremely low level of risk concerning ecological effects. With these results in mind, our company will continue improving wastewater management at plants so that we may contribute to the creation of a sustainable society through the preservation of the aquatic environment.



Zebrafish



Ceriodaphnia

\*WET A method of evaluating the environmental impact of a facility's wastewater through a comprehensive survey of the biological response of fish, water fleas, and algae, rather than the conventional standard based on chemical concentrations. WET is an abbreviation of "Whole Effluent Toxicity".

# Appendix

## Appendix-01 The scope of consolidated environmental management

### Europe

- 12 production companies
- JTEKT AUTOMOTIVE UK LTD. (England)
- KOYO BEARINGS (EUROPE) LTD. (England)
- JTEKT TORSEN EUROPE S.A. (Belgium)
- KOYO BEARINGS DEUTSCHLAND GMBH (Germany)
- JTEKT HPI S.A.S. (France)
- JTEKT AUTOMOTIVE LYON S.A.S. (France)
- JTEKT AUTOMOTIVE DIJON SAINT-ETIENNE S.A.S. (France)
- KOYO BEARINGS VIERZON MAROMME SAS (France)
- JTEKT AUTOMOTIVE CZECH PLZEN, S.R.O. (Czech Republic)
- JTEKT AUTOMOTIVE CZECH PARDUBICE, S.R.O. (Czech Republic)
- KOYO BEARINGS CESKA REPUBLIKA S.R.O. (Czech Republic)
- KOYO ROMANIA S.A. (Romania)

### Asia / Oceania

- 6 production companies
- JTEKT (THAILAND) CO., LTD. (Thailand)
- JTEKT AUTOMOTIVE (THAILAND) CO., LTD. (Thailand)
- KOYO MANUFACTURING (PHILIPPINES) CORPORATION (Philippines)
- JTEKT AUTOMOTIVE (MALAYSIA) SDN. BHD. (Malaysia)
- JTEKT SONA AUTOMOTIVE INDIA LTD. (India)
- KOYO JICO KOREA CO., LTD. (Korea)

### China

- 11 production companies
- JTEKT AUTOMOTIVE (TIANJIN) CO., LTD.
- JTEKT AUTOMOTIVE (FOSHAN) CO., LTD.
- JTEKT STEERING SYSTEMS (XIAMEN) CO., LTD.
- JTEKT DALIAN INNOVATION AUTOMOTIVE CO., LTD.
- WUXI KOYO BEARING CO., LTD.
- DALIAN KOYO WAZHOU AUTOMOBILE BEARING CO., LTD.
- KOYO BEARING DALIAN CO., LTD.
- KOYO LIOHO (FOSHAN) AUTOMOTIVE PARTS CO., LTD.
- KOYO AUTOMOTIVE PARTS (WUXI) CO., LTD.
- YUBEI KOYO STEERING SYSTEMS CO., LTD.
- KOYO NEEDLE BEARINGS (WUXI) CO., LTD.

### Japan

- 13 JTEKT bases
- 21 domestic group production companies
- Koyo Machine Industries Co., Ltd. (Osaka)
- Toyooki Kogyo Co., Ltd. (Aichi)
- Koyo Sealing Techno Co., Ltd. (Tokushima)
- CNK Co., Ltd. (Aichi)
- Koyo Thermo Systems Co., Ltd. (Nara)
- Koyo Electronics Industries Co., Ltd. (Tokyo)
- Daibea Co., Ltd. (Osaka)
- Utsunomiya Kiki Co., Ltd. (Tochigi)
- HOUKO Co., Ltd. (Aichi)
- Toyoda Van Moppes Ltd. (Aichi)
- Koyometaltec Co., Ltd. (Mie)
- KJK Co., Ltd. (Tokushima)
- NIPPON NEEDLE ROLLER MFG. Co., Ltd. (Mie)
- Koyo Heat Treatment Co., Ltd. (Osaka)
- FORMICS Co., Ltd. (Aichi)
- Taiho Co., Ltd. (Kagawa)
- NAKATETSU Co., Ltd. (Osaka)
- Eiko Seimistu Co., Ltd. (Kagawa Prefecture)
- Tokio Seiko Corporation (Tokyo Prefecture)
- Yamato Seiko Co., Ltd. (Nara Prefecture)
- JTEKT YAMAGATA Corporation (Yamagata Prefecture)

### North America / South America

- 9 production companies
- JTEKT AUTOMOTIVE TENNESSEE-VONORE LLC (U.S.A.)
- JTEKT AUTOMOTIVE TENNESSEE-MORRISTOWN, INC. (U.S.A.)
- JTEKT AUTOMOTIVE TEXAS, L.P. (U.S.A.)
- JTEKT AUTOMOTIVE SOUTH CAROLINA, INC. (U.S.A.)
- KOYO BEARINGS NORTH AMERICA LLC (U.S.A.)
- KOYO BEARINGS CANADA INC. (Canada)
- JTEKT AUTOMOTIVA BRASIL LTDA. (Brazil)
- TOYODA KOKI DO BRASIL INDUSTRIA E COMERCIO DE MAQUINAS, LTDA. (Brazil)
- JTEKT AUTOMOTIVE ARGENTINA S.A. (Argentina)

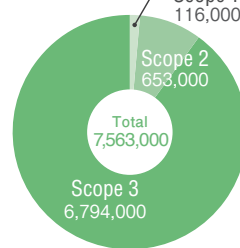
## Appendix-02

### CO<sub>2</sub> conversion coefficients to calculate CO<sub>2</sub> emissions volume

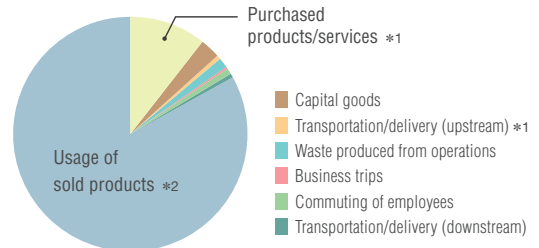
Electricity	0.3707 kg-CO <sub>2</sub> /kWh
Heavy oil A	2.6958 kg-CO <sub>2</sub> /l
Kerosene	2.5316 kg-CO <sub>2</sub> /l
Propane gas	3.0040 kg-CO <sub>2</sub> /kg
City gas	2.1570 kg-CO <sub>2</sub> /Nm <sup>3</sup>

The CO<sub>2</sub> conversion coefficients were set by the Japan Federation of Economic Organizations (1990) and are used in Japan. Regions outside of Japan use 2001 published values. We fixed electrical conversion coefficients so that the results of our improvements could be evaluated.

### CO<sub>2</sub> emissions by scope (t-CO<sub>2</sub>)



### Scope 3 CO<sub>2</sub> emissions (percentage) by category



### Scope 3 CO<sub>2</sub> emissions by category (FY 2014) \*3

Classification	Category	Emissions	Calculation method
Upstream	Purchased products/services *1	746,000	Calculated based on the amount of steel purchased (price) multiplied by emissions per basic unit
	Capital goods	201,000	Calculated based on equipment investment amount related to capital goods multiplied by the cost per unit
	Fuel and energy-related activities not included in Scope 1 and 2	—	N/A
	Transportation/delivery (upstream) *1	29,000	Calculated as emissions due to purchasing/distribution of raw materials, parts, etc., based on the amount of steel purchased (price) multiplied by emissions per basic unit
	Waste produced from operations	99,000	Calculated based on amount of waste multiplied by emissions per basic unit
	Business trips	20,000	Calculated based on travel expenses multiplied by emissions per basic unit; estimated based on employee number for overseas group companies
	Commuting of employees	55,000	Calculated based on commuting expenses multiplied by emissions per basic unit; estimated based on employee number for overseas group companies
	Leased assets (upstream)	—	Leased assets calculated as Scope 1 and 2 emissions
Downstream	Transportation/delivery (downstream)	36,000	Calculated based on product transportation amount and distance multiplied by emissions per unit; calculated based on distribution expenses multiplied by emissions per unit for overseas group companies
	Fabrication of sold products	—	Due to the difficulty of calculating emissions due to the processing of products by customers using a reasonable method, this criteria has been excluded from the scope of calculation at this time
	Usage of sold products *2	5,608,000	Calculated based on the amount of energy consumption for annual production volume for steering, driveline components, and machine tools (calculated based on a 10-year usage period)
	Disposal of sold products	—	Due to the difficulty of calculating emissions due to the transport and processing of products at the time of disposal using a reasonable method, this criteria has been excluded from the scope of calculation at this time
	Leased assets (downstream)	—	N/A
	Franchise	—	N/A
Investment	—	N/A	
<b>Total</b>		<b>6,794,000 (t-CO<sub>2</sub>)</b>	

\*1 Calculated based on the amount of steel purchased \*2 Calculated based on steering, driveline components and machine tools  
\*3 Calculated using the basic unit of emissions of the guidelines established by the Ministry of the Environment and Ministry of Economy, Trade and Industry