KOMATSU

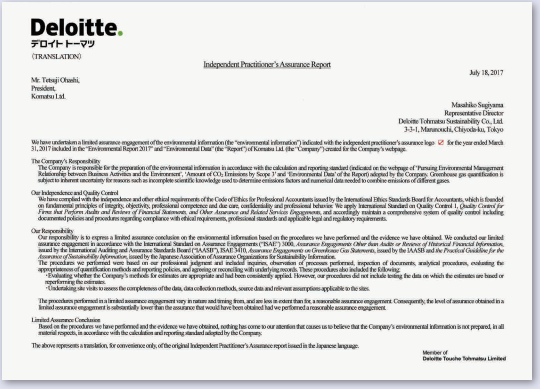
2017 Environmental Report Digest

Contents

Editorial Policy

- The Environmental Report Digest 2017 is a digest regarding environmental activities, based on content from the "Environmental Report" and "Data" from the website.
- As part of the initiatives in the environmental field, we have presented the new main initiatives or representative activities.
- The content of the "Environmental Report" and "Data" can be viewed on our website, as well as (1) general information, such as policies and general rules, (2) information on ongoing activities and initiatives, and (3) a comprehensive disclosure of detailed and related information.
- Each item of the "Environmental Report" and "Data" on this website indicates that it has received an independent practitioner's assurance.

Website: https://home.komatsu/en/csr/environment/



Deloitte.
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(TRANSLATION)

Independent Practitioner's Assurance Report

July 18, 2017

Mr. Tetsuji Ohashi,
President,
Komatsu Ltd.

Masahiko Sugiyama
Representative Director
Deloitte Tohmatsu Sustainability Co., Ltd.
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We have undertaken a limited assurance engagement of the environmental information (the "environmental information") indicated with the independent practitioner's assurance logo for the year ended March 31, 2017 included in the "Environmental Report 2017" and "Environmental Data" (the "Report") of Komatsu Ltd. (the "Company") created for the Company's webpage.

The Company's Responsibility
The Company is responsible for the preparation of the environmental information in accordance with the calculation and reporting standard (indicated on the webpage of "Pursuing Environmental Management Related to the Interaction between Business Activities and the Environment", 'Amount of CO_2 Emissions by Scope 3' and 'Environmental Data' of the Report) adopted by the Company. Greenhouse gas quantification is subject to inherent uncertainty for reasons such as incomplete scientific knowledge used to determine emissions factors and numerical data needed to combine emissions of different gases.

Our Independence and Quality Control
We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior. We apply International Standard on Quality Control 1, *Quality Control for Firms that Perform Audits and Reviews of Financial Statements, and Other Assurance and Related Services Engagements*, and accordingly maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Our Responsibility
Our responsibility is to express a limited assurance conclusion on the environmental information based on the procedures we have performed and the evidence we have obtained. We conducted our limited assurance engagement in accordance with the International Standard on Assurance Engagements ("ISAE") 3000, *Assurance Engagements Other than Audits or Reviews of Historical Financial Information*, issued by the International Auditing and Assurance Standards Board ("IAASB"), ISAE 3410, *Assurance Engagements on Greenhouse Gas Statements*, issued by the IAASB and the *Practical Guideline for the Assurance of Sustainability Information*, issued by the Japanese Association of Assurance Organizations for Sustainability Information.
The procedures we performed were based on our professional judgment and included: inquiries, observation of processes performed, inspection of documents, analytical procedures, evaluating the appropriateness of quantification methods and reporting policies, and agreeing or reconciling with underlying records. These procedures also included the following:
- Evaluating whether the Company's methods for estimates are appropriate and had been consistently applied. However, our procedures did not include testing the data on which the estimates are based or reperforming the estimates.
- Undertaking site visits to assess the completeness of the data, data collection methods, source data and relevant assumptions applicable to the sites.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had we performed a reasonable assurance engagement.

Limited Assurance Conclusion
Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the Company's environmental information is not prepared, in all material respects, in accordance with the calculation and reporting standard adopted by the Company.

The above represents a translation, for convenience only, of the original Independent Practitioner's Assurance report issued in the Japanese language.

Member of
Deloitte Touche Tohmatsu Limited

Scope of This Report

Komatsu (parent company) manufacturing facilities, specifically the following eight plants

The Awazu Plant, the Kanazawa Plant [including the Kanazawa-Daiichi Plant and the Kanazawa-Daini Plant], the Osaka Plant [including the Rokko Plant], the Ibaraki Plant and the Oyama Plant [including Komatsu Cummins Engine Co., Ltd., Industrial Power Alliance Ltd. and GIGAPHOTON, Inc.], the Koriyama Plant, and the Shonan Plant [including KELK Ltd.], the Tochigi Plant.
Komatsu Group manufacturing facilities in Japan, specifically the above eight plants and the following three business units Komatsu Castex Ltd., Komatsu Cabtec Co., Ltd. and Komatsu NTC Ltd.

Komatsu Group manufacturing facilities outside Japan, specifically the following 19 plants

Komatsu America Corp.,[Chattanooga Manufacturing Operation], [Peoria Manufacturing Operation], [Newberry Manufacturing Operation], Komatsu do Brasil Ltda., Hensley Industries, Inc. (The Americas), Komatsu UK Ltd., Komatsu Germany GmbH (former Komatsu Hanomag GmbH), Komatsu Germany GmbH (former Komatsu Mining Germany GmbH), Komatsu Manufacturing Rus, LLC, Komatsu Italia Manufacturing S.p.A (Italy), Komatsu Forest AB (Sweden), PT Komatsu Indonesia Tbk, PT Komatsu Undercarriage Indonesia, Bangkok Komatsu Co., Ltd., Komatsu India Pvt. Ltd., Komatsu Shantui Construction Machinery Co., Ltd., Komatsu (Changzhou) Construction Machinery Corporation, Komatsu (Changzhou) Foundry Corp. and Komatsu (Shandong) Construction Machinery Corp.
Komatsu Group manufacturing facilities including outside Japan: All of the 30 above-mentioned offices are shown.

Period Covered

This report principally covers data for the period from April 2016 to the end of March 2017, with some information from after April 2017.

Message from Top Management

Endeavors for the Environment Using Innovation

President
Tetsuji Ohashi

Management that Prioritizes ESG

Since the 1990s, Komatsu has steadily worked on "Environment", "Social" and "Governance", responded to social issues through our primary business, and conducted business activities with the goal to increase the trust of our stakeholders. In April 2016, we connected these past endeavors with the Mid-term Management Plan "Together We Innovate GEMBA Worldwide" to strive even more proactively for ESG. Furthermore, along these same lines, we have chosen 5 goals closely related to Komatsu's business such as "Climate Action", "Industry Innovation" and "Sustainable Cities" from the "Sustainable Development Goals (SDGs)" put out by the United Nations.

The Mid-term Management Plan's aim regarding the global environment is to increase the trust in Komatsu by working on issues such as innovation in the GEMBA (work site) where construction equipment is used and production occurs, reduction of CO_2 and effective usage of resources.

Endeavors for the Environment through Innovations in the GEMBA

With construction equipment—the primary product of Komatsu—approximately 90% of CO_2 emissions over the life cycle is generated during the operation of the machines. In February 2015, Komatsu started the utilization of "Smart Construction" in Japan. This is Komatsu's "Dantotsu Solution" which provides our customers with the GEMBA of the future with increased safety and productivity by using ICT technology to automate the equipment operation of construction machines as well as connect all data involved in a construction site, such as geography data measured by drones, design data and work progress. This is exactly an example of innovation at work in the construction site, and makes possible an energy efficient work site—in other words, a low CO_2 emissions GEMBA. Komatsu will further propel this type of "Smart Construction" to expand the future GEMBA with excellent environmental performance.

Furthermore, we will promote the streamlining of production at the production sites through IoT. In 2015, Komatsu achieved the goal of electricity used in our domestic plants being reduced by half compared to 2010, and while doing so moved forward with "making visible" the production process by using IoT. Afterwards, this was further advanced to develop KOM-MICS (Komatsu Manufacturing Innovation Cloud System), the system as a consolidated management of production data, such as the operating conditions of the production equipment. Currently we are trying to make this innovation a reality at the production sites at our overseas plants and partner companies. By doing so, production efficiency will be increased and wasteful consumption of materials and resources will be reduced, making it possible to have a production process with a low environmental impact.

In April 2017, Komatsu added KMC: Komatsu Mining Corp. (previously Joy Global Inc.) to our group. Going forward, we will share Komatsu's founding philosophy with KMC, promote the innovation in the GEMBA together, and work on solutions for environmental issues.

July 2017

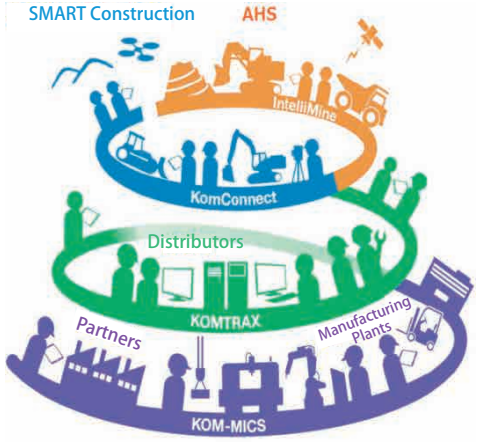
Komatsu's Connected Plants –Increasing Productivity and Conserving Energy with IoT–

Special Story

Komatsu has been promoting IoT (Internet of Things) for the operation sites of construction machinery using systems such as KOMTRAX and KomConnect. Also, at the production site of the plants, aiming for increased productivity and energy conservation through IoT, we move forward with reforms and improvements of production process, by "making visible" the condition of manufacturing facilities and the state of production, as well as using the KOM-MICS (Komatsu Manufacturing Innovation Cloud System) which unifies information.

In 2011, Komatsu commenced with activities to reduce electricity usage by half, and in 2015 achieved the 50% reduction in both electricity usage at peak hours and overall electricity usage. The significant results brought about by "making visible" the manufacturing process using IoT, as well as the consequent improvements, have been developed into KOM-MICS.

The implementation of KOM-MICS is made up of four steps and currently we are at the Step 2 stage.

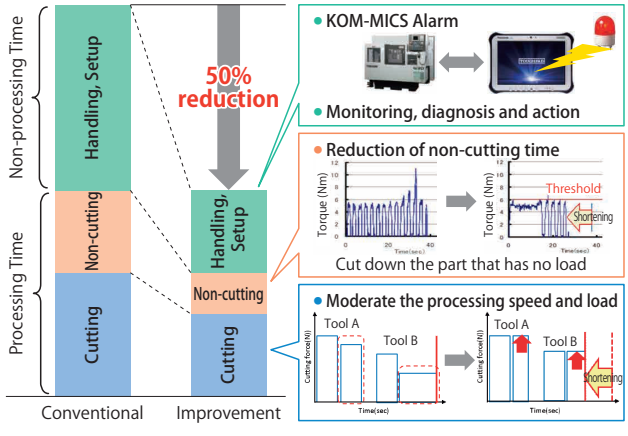


Step1 "Make Visible" the Individual Manufacturing Facilities

Unlike automobiles, construction machinery is a high-mix medium volume production, and the manufacturing facilities that handle them also vary widely, therefore we had not made much progress in getting a comprehensive overview of individual operational statuses and electricity usages.

For this reason, we first "made visible" the operational status of each manufacturing machinery (equipment processing machines, welding robots) by using IoT technology for monitoring. For example, in "machining" where material is cut and processed, we saw that there was a lot of electricity consumption by ancillary equipment during times when processing was not actually happening, such as when cutting was not going on during setup and when cutting conditions were not right and taking extra time. For this reason, we took measures to shorten the setup time and correct the cutting conditions by doing studies using simulation, thereby decreasing the work time by 50% in one case. In this way, by taking measures such as shortening the processing time and turning the power off when not processing or setting it on energy conservation mode, we were able to greatly reduce the amount of electricity used by facilities including wait times.

Example of Decrease in Operational Time for Machine Processing

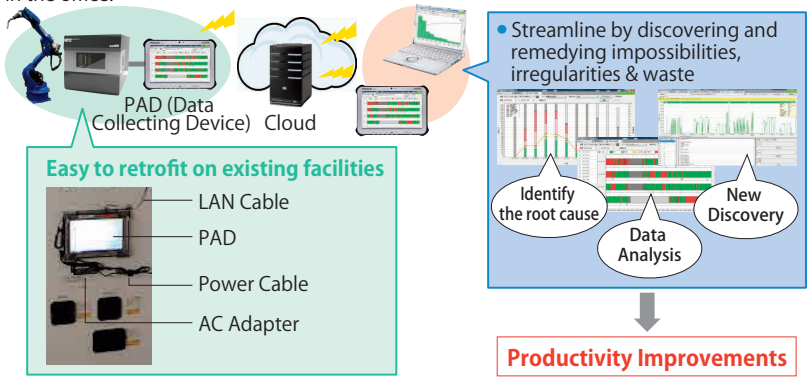


Step2 Connect Facilities, Consolidate/Analyze Data

As the next stage after "making visible" the individual manufacturing facilities, we connected the manufacturing facilities using IoT technology and developed KOM-MICS: the system that unifies the information about things like the condition of the production facilities and their processing status. Not limited to domestic plants, the processing facilities and welding robots of overseas plants and partner companies have been connected, and the data for operation rate and production efficiency can be seen in real time. Because of this connectedness, we can see which facilities still need improvement and we can quickly share the improvements of individual processing facilities to similar facilities. Since the whole picture can be seen by this connectedness, in installing energy saving devices, we have been able to install them with accurate prioritization.

Summary of KOM-MICS

Collect data in the cloud server through the PAD (Data Collection Device) attached to the facility and "make visible" the information regarding manufacturing using PCs and Tablets in the office.



Future Development: Steps 3&4

Step3 Pursue Optimized Manufacturing at Each Plant

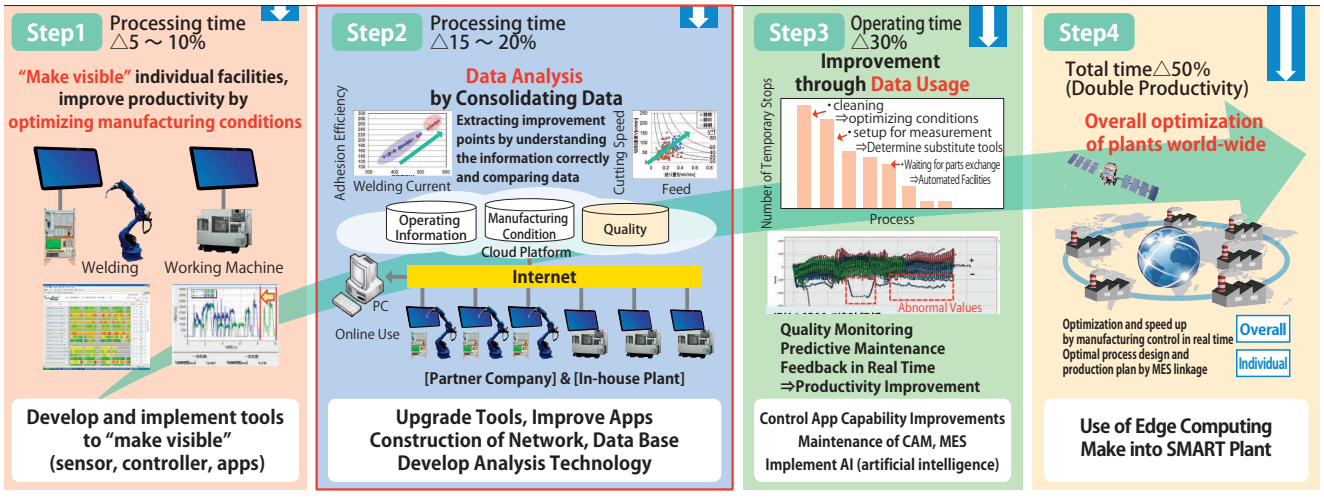
We aim to optimize manufacturing at each plant and plan to further improve efficiency through things like setting manufacturing conditions through computers (CAM) *1 and automatic generation of manufacturing plans with execution directions. (MES) *2.

*1 CAM: Computer Aided Manufacturing
*2 MES: Manufacturing Execution System

Step4 Pursue Overall Excellence in All Plants World-Wide

We will further upgrade the level of "connectedness" to attain overall excellence for our plants all over the world, and pursue the 'smart plant' that doubles productivity (cut manufacturing lead time in half).

Connected Plants: Steps to Implementing KOM-MICS



Pursuing Environmental Management

Komatsu promotes environmentally-friendly activities throughout the entire Group to realize its vision of "What Komatsu Can Do and What It Must Do" for the environment and sustainable development.

Komatsu's Relationship with the Environment

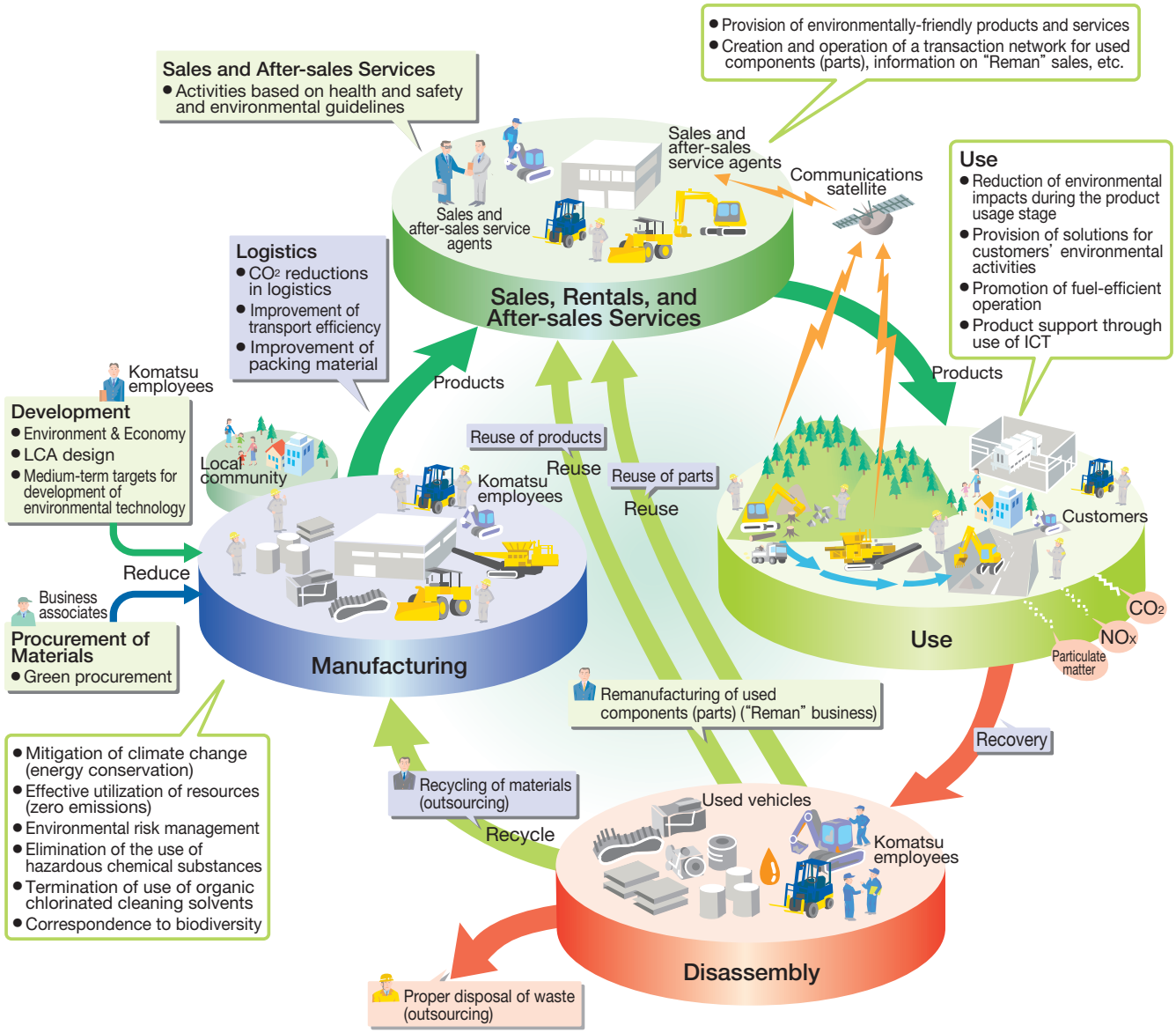
In recognition of the fact that our business activities affect the environment on a regional and global level, we, at Komatsu, have placed the focus on the following four key areas:

1) Climate Change
2) Establishment of a Sound Material-Cycle Society
3) Conservation of Air, Water and Other Natural Resources as well as Management of Chemical Substances
4) Biodiversity

In line with the Komatsu Earth Environment Charter revised in 2010, the Komatsu Group embarks on global initiatives across business areas guided by the fundamental principles of

(1) Contributions to Realization of Sustainable Society,
(2) Simultaneous Realization of Environmental and Economic Performance, and
(3) Observance of Corporate Social Responsibility.

Relationship of the Komatsu Group's Business Activities with the Environment



Komatsu Earth Environment Charter (June 2010 revision)

〈Corporate Principles〉

1. Contributions to Realization of Sustainable Society

Mankind must not only promote the further growth of a rich and comfortable society but also pass down this indispensable environment of our planet earth to future generations in a sound and healthy condition.

We, at the Komatsu Group, define environmental conservation efforts as one of the highest priority management tasks, and endeavor to contribute to the sustainable growth of society by integrating advanced technologies into environmental conservation efforts in all our business activities. This is represented by our hybrid construction equipment which features a substantial reduction of CO_2 emissions while in operation and by our superior manufacturing.

2. Simultaneous Realization of Environmental and Economic Performance

We are committed to improving both environmental performance and economic efficiency, as a group of companies working toward superior manufacturing for customer satisfaction. To this end, we constantly take up the challenge of advancing technologies to develop creative products that improve both environmental performance throughout the product's life cycle and the product's economic performance at the same time.

3. Observance of Corporate Social Responsibility

Each company of the Komatsu Group promotes environmental conservation by not only complying with the applicable laws and regulations of the concerned host community, region and country but also by establishing its voluntary standards which consider global and local environmental concerns. Each company of the Group also strives to fulfill its corporate social responsibility by actively participating in local environmental conservation programs and thereby promoting close-knit communication with local communities, while striving to become a company trusted by all Komatsu stakeholders.

〈Guidelines for Corporate Activity〉

1. Basic Stances on Earth Environmental Problems

We, at the Komatsu Group, work for sustainable society and earth environment through our global business operations by addressing the following four environmental problems with the stances discussed below.

1) Climate Change

We will reduce the use of energy and emissions of greenhouse gas in all phases of our business activities ranging from research and development, procurement, production and logistics to sales and service as well as in the total life cycle of our products and services.

2) Establishment of a Sound Material-Cycle Society

Through our business processes, we work to minimize the use of natural resources, such as materials and water, promote their re-use or recycle them as much as possible, and expand Zero Emissions from our manufacturing activities around the world. At the same time we ensure the thorough management of waste materials in all our business domains, including our suppliers and distributors. We also continuously work to increase the recyclability rate of products at the time of disposal.

3) Conservation of Air, Water and Other Environments as well as Management of Chemical Substances

We comply with not only local laws and regulations but also with our established standards concerning the conservation of water quality, prevention of air pollution, noise and vibrations.

As much as possible, we also ensure the thorough management of chemical substances for use in our business activities, while continuously reducing the use of potentially harmful chemical substances or replacing them with alternative substances for discontinuation of their use.

4) Biodiversity

We recognize biodiversity as one of the important issues concerning the earth environment, evaluate, understand and analyze impact on it in all our business domains, and work on our tasks according to the criteria of the highest impact and/or the most effective actions.

2. Framework of Global, Group-wide Environmental Management System

The Komatsu Head Office, as well as the manufacturing facilities and main companies of the Komatsu Group, already with ISO certifications, will work to maintain and improve their environmental management system, while other manufacturing facilities and suppliers will also work to establish their environmental management systems and reduce their environmental impact.

The Komatsu Environmental Committee develops environmental action plans and common guidelines for the Komatsu Group. Based on these Group-wide plans and guidelines, each division or company sets up its own mid- to long-term targets, develops and implements specific action plans, reviews them regularly and works to continuously improve them.

3. Environmental Education and Communication

We believe that it is important to enhance the environmental awareness of each and every employee and thereby actively promote environmental awareness and education programs for all employees.

We will gather environment-related information concerning not only our manufacturing facilities but also other related entities, such as major affiliated companies and suppliers, and strive to disclose such information, thereby facilitating proactive communication with all our stakeholders, such as customers, employees, local communities and suppliers and further expanding the content of environmental communication.

Setting Mid- and Long-Term Objectives and Progress

Mid- and Long-Term Objectives

Area	Object	Application	Index	Base Year	Mid- and Long-Term Objectives (reduction rate)		Progress(results) FY2016
					2020	2030	
Production	CO_2	Japan	Improvement rate per unit of production	2000	57%	65%	41.0%
		Overseas	Improvement rate per unit of production	2010	32%	40%	28.7%
	Waste	Japan	Improvement rate per unit of production	2010	10%	20%	14.1%
		Overseas	Improvement rate per unit of production	2010	10%	20%	15.1%
	Water	Japan	Improvement rate per unit of production	2010	40%	50%	49.6%
		Overseas	Improvement rate per unit of production	2010	10%	20%	32.9%
Logistics	CO_2	Japan	Improvement rate per unit of production	2006	32%	39%	22.4%
		Overseas	Improvement rate per unit of production	2011	13%	22%	− 9.3%*
Construction equipment products performance	CO_2	Hybrid Hydraulic Excavator	Fuel Consumption Reduction Rate	2007	40%	45%	Under development
		Normal Hydraulic Excavator (non-hybrid)			20%	25%	2-14%

* Minus indicates an increase

Additional Objectives for Mid-Term Management Plan

Area	Object	Application	Index	Base Year	2025 Objectives (rate of reduction)	Progress (results) FY2016
CO_2 during construction equipment usage	CO_2	Construction equipment produced worldwide	Improvement rate per unit of production	2007	25%	7.4%

Environmental Action Plan and Results for FY2016

To promote the Komatsu Earth Environment Charter, the company formulates environmental action plans (implementation policies) for each field, establishes action targets for each fiscal year, and steadily advances its policies, while following up on their implementation status.

The detailed Environmental Action Plan and Results for each field are as follows.

Environmental Management

Implementation policies	Objectives for FY2016	Results for FY2016	Medium- and long-term objectives
Strengthen environmental management systems	Recieve a certificate continuity audit and continue the certification	● Recieved a certificate continuity audit and continued the certification	Acquisition of integrated certification by the Komatsu Group Sales Agencies in Japan
Environmental education and training: Implement the education plan	Draw up and promote the education plan	● Held 15 courses, over 6,000 participants	Continue to organize courses and expand them to overseas locations
Conduct environmental audits for overseas subsidiaries	Environmental audit of affiliate companies in India and Indonesia	● Conducted environmental audits in India (KIPL) and in Indonesia (KRI, KRA)	Continuation of activity
Environmental communication: Publish a CSR & Environmental report	Formulate a communication plan and publish the report	● Published both the Japanese version (Web) and the English version (Web) in July 2016	Enhance the quality of the content; continue to release report in early stage

Research and Development

Implementation policies	Objectives for FY2016	Results for FY2016	Medium- and long-term objectives
Reduce the environmental impact of construction equipment and industrial vehicles Develop low-emissions construction equipment and industry vehicles (compliant with emission standards)	Develop vehicles compliant with Tier4 emission standards	● Developed vehicles equipped with engines compliant with Tier4 final emission standards (such as PC128US, PC170LC, WA200, HD465)	Develop vehicles compliant with the Stage V emission standards of Europe, which is to be in effect from 2019
Reduce CO_2 emissions from construction equipment and industrial vehicles (improve fuel efficiency of products)	Reduce emissions of vehicles compliant to Tier4 emission standards (Hydraulic excavators: 10-13% reduction compared to Tier3)	● Achieved 2-14% reduction in emissions for vehicles compliant with Tier4 final emissions standards (such as PC170LC)	20% reduction in emissions by 2020: vehicles compliant with Tier4 emission standards (hydraulic excavators)
	Reduce emissions of hybrid vehicle (Hydraulic excavators: 25-35% reduction in emissions compared to current Tier3 normal vehicles)	● Development of Tier4 final compliant hydraulic excavator	40% reduction in emissions by 2020: hybrid vehicles compliant with Tier4 emission standards (hydraulic excavators)
	Develop ICT construction equipment	● Completed the development of hydraulic excavators and bulldozer type vehicles:PC210LCi, PC360i, D51i	(in progress)
Reduce CO_2 Emissions from construction equipment and industrial vehicles (Biodiesel Fuel (BDF) measures)	B7 to B20 mixed light oil measures	● Already compliant with B20 regulations in Indonesia	● Use B20-compliant mixed light oil from summer of 2018 (Minnesota, U.S.A.) ● Use B30-compliant mixed light oil from 2020 (Indonesia)
Improving recyclability rate of construction equipment and industrial vehicle	Achieve 99.5±0.5% for recyclability rate equipment compliant with the newly developed vehicles	● Achieved 99% on a developed vehicle (Tier 4 Final emission standard-compliant vehicle, ICT construction equipment)	Achieve recyclability rate of 99.5±0.5%
Strictly control and reduce substances of environmental concern in construction equipment and industrial vehicle	Reduce the amount of hazardous substance in the newly developed vehicles (maintain a 90% reduction compared to 1998)	● Lead reduced by 90% compared to 1998 ● Implemented lead reduced parts for crawler-type construction equipment	Maintain a 90% cut in usage of lead compared to 1998
	Utilize a hazardous substances control system for each part (to comply with REACH regulations)	● Registered new 5 substances of SVHC under the EU REACH regulation, and controlled the usage of those SVHC substances. Conducted surveys of substances for EU destination models and EU mass production and development models (Implementation of part specific substance surveys)	Manage substances of each part with new data
Reduce the environmental impact of industrial machinery Market high-performance AC servo presses	Develop and expand models and lines of AC servo presses	● Progressed in the development of a new model of servo press.	Expand AC servo press models and lines
Market high-efficiency wire saws for solar cells	Develop ultra-fine wire-ready machines	● Took part in the implementation of the NEDO joint R&D project as a developer of processing technology "Development of Technologies for Cutting the Cost of Power Generation through High-Performance, High-Reliability Solar Power Generation." (*2nd year of 5 year plan)	Cut the cost of power generation through enhanced power generation efficiency and use of slimmer wafers
Market compact machining center	Develop energy-saving, compact machining centers	● Developing expanded model line of energy-saving, compact crankshaft processing horizontal-type uniaxial NC machine "N40HC" (under development)	Expand model line of energy-saving, compact equipment
Market thermoelectric power generation that uses waste heat from plants	Reduce costs and increase durability	● Set a goal to make the introduction cost JPY1 million/kW (JPY20/kWh level). Confirmed 10,000-cycle durability.	Commercialization
Market introduction of wireless thermoelectric sensor	Develop a wireless thermoelectric sensor	● Completed the development of wireless thermoelectric sensor. Started verification tests.	Commercialization
Promote reuse and recycling Expand and promote the remanufacturing ("Reman") business and improve recyclability rate	Promote and expand the Reman business	● Enhanced QCD through increased site-to-site sharing of remanufacturing engineering information ● Implemented the concept of remanufacturing into general construction machinery components ● Reman center established in Magadan, Russia	● Promote reuse and recycling through further improvements in recycling-related technologies for parts ● Promote reuse and recycling worldwide by expanding Reman bases to accommodate demands

Manufacturing

Implementation policies	Objectives for FY2016	Results for FY2016	Medium- and long-term objectives
Mitigation of climate change (energy conservation)			
Reduce CO_2 emissions per unit of manufacturing value by 57% compared to FY2000 by FY2020 (Komatsu Group manufacturing facilities in Japan)	Reduce by 48% compared to FY2000	● Achieved 41.0% reduction compared to FY2000 (4.1 points worse than previous year)	Reduce by 65% compared to FY2000 by FY2030
Reduce CO_2 emissions per unit of manufacturing value by 32% compared to FY2010 by FY2020 (Komatsu Group manufacturing facilities outside Japan)	Reduce by 29.6% compared to FY2010	● Achieved 28.7% reduction compared to FY2010 (0.1 point less than previous year)	Reduce by 40% compared to FY2010 by FY2030
Effective utilization of resources			
Maintain a recycling rate of over 99.5% (Komatsu Group manufacturing facilities in Japan)	Attain a recycling rate of 99.5% or greater	● Attained a recycling rate of 99.6% across the Komatsu Group (Japan)	
Improve recycling rate to over 95% by FY2020 (Komatsu Group manufacturing facilities outside Japan)	Attain a recycling rate of 91.4% or greater	● Attained a recycling rate of 92.1% across the Komatsu Group (overseas)	
Reduce the amount of waste generated per unit of manufacturing value by over 10% compared to FY2010 by FY2020 (Komatsu Group manufacturing facilities in Japan)	Reduce by 10% compared to FY2010	● Reduced the amount of waste generated per unit of manufacturing value by 14.1% compared to FY2010 (7.9 points worse than previous year)	Reduce by 20% compared to FY2010 by FY2030
Reduce the amount of waste generated per unit of manufacturing value by over 10% compared to FY2010 by FY2020 (Komatsu Group manufacturing facilities outside Japan)	Reduce by 10% compared to FY2010	● Reduced the amount of waste generated per unit of manufacturing value by 15.1% compared to FY2010 (16 points worse than previous year)	Reduce by 20% compared to FY2010 by FY2030
Reduce the amount of water used per unit of manufacturing value by over 40% compared to FY2010 in FY2020 (Komatsu Group manufacturing facilities in Japan)	Achieve 3% improvement over previous year	● Reduced the amount of water used per unit of manufacturing value by 49.6% compared to FY2010 (improved by 6.5 points compared to previous year)	Reduce by 50% compared to FY2010 by FY2030
Reduce the amount of water used per unit of manufacturing value by over 10% compared to FY2010 in FY2020 (Komatsu Group manufacturing facilities outside Japan)		● Reduced the amount of water used per unit of manufacturing value by 31.9% compared to FY2010 (improved by 5.1 points compared to previous year)	Reduce by 20% compared to FY2010 by FY2030
Environmental risk management			
Implement voluntary reductions in the release of chemical substances including volatile organic compounds ("VOCs"), which constitute the majority of chemical substances released	Establish a control system for chemical substances and reduce the amount of released chemical substances	● Reduced the amount of VOCs released per unit of manufacturing value by 65.1% compared to FY2005	Achieve a 50% reduction compared to FY2005
Undertake soil and groundwater remediation (Komatsu Group manufacturing facilities in Japan)	Continue the cleanup	● In progress	Complete the cleanup work
Sequentially address each underground tank that has been in operation for 20 years or more (Komatsu Group manufacturing facilities in Japan)	No applicable underground tanks	● No applicable underground tanks	Sequentially address each underground tank that has been in operation for 20 years or more
Other			
Maintain greenery rate 20% or greater across the Komatsu Group (Komatsu Group manufacturing facilities)	Greenery Rate 20% or greater	● Komatsu Group achieved a total rate of 20.1%	Continue the Greenery Rate 20% or greater

Procurement and Logistics

Implementation policies	Objectives for FY2016	Results for FY2016	Medium- and long-term objectives
Green procurement			
Promote improvements at suppliers through the establishment of environmental management systems ("EMSs") and by specifying matters that require environmental consideration	Provide guidance and support to member companies of the Komatsu "Midori-kai" for acquiring integrated certification of their environmental management systems	● All subject companies acquired certification for a total of 162 certified companies, and are promoting environmental management activities	● Within three years, have newly admitted Komatsu "Midori-kai" admission company masters attestation of environmental management systems (ISO 14001, Eco-stage, etc.). ● Promote acquisition of certification for China's "Midori-kai" for all Komatsu by FY2018.
Environmental conservation in logistics			
14 Hubs in Japan Reduce CO_2 emissions per unit of cargo weight generated through shipping of products and components (Komatsu manufacturing facilities in Japan)	Reduce CO_2 emissions per unit of cargo weight (Kg-CO_2/ton) by 20.3% compared to FY2006	● Improved by 22.4% compared to FY2006 (basic unit 26.3 ⇒ 20.4Kg-CO_2 /Ton), achieved goal for FY2016, improved by 4.7% compared to FY2015.	By 2020: Reduce by 32% compared to FY2006
Shift to means of shipping with low environmental impact	Promote modal shifts in shipping from trucks to domestic vessels or rail	● 31.6% modal shift rate for FY2016 (increase of 15.3% compared to 2006: increased 5.2% for railway, increased 10.1% for domestic vessels) ● Modal shift rate compared to previous year: 29.7% ⇒ 31.6%(+1.9%), modal shift rate of those targetted for improvement of a rate over 500km: 49.1% ⇒ 51.4% (+2.3%)	By 2020: Achieve an over 500km modal shift rate of over 62%
	Convert to battery-powered forklifts and reduce number of vehicles	● Working to reduce environmental load by replacing the forklifts in the plants for hybrid and battery-powered models. ● Continuing from 2015 on replacing aging engine-powered forklifts with Komatsu's new model battery-powered forklifts. Also, decreased the number of forklifts by 5% compared to FY2015. ● As a result, the ratio of hybrid and batterypowered models is now 52.5% which is +33.1% compared to 2006, and a ratio of 81% for forklifts under 3 tons.	By 2020: 100% replacement of forklifts less than 3 tons with Komatsu's new model battery-powered forklift.
Measures for protecting biodiversity and reduction in wood used in packaging containers (Avoid excessive logging of trees and the risks of immigration and emigration of nonnative species in wood)	Reduce the usage amount of wooden/cardboard packaging containers Basic unit (Kg-CO_2 /ton) Reduce by 10% compared to FY2010	● FY2016 wooden/cardboard usage amount: +77 tons ● Compared to previous year +1.6% (due to reduction in cardboard and increase in wooden packaging containers) ● 23.2% reduction by base unit compared to FY2010 (change in packaging materials, improvement in returnable ratio, reduction in amount of packaging containers due to VE)	By 2020: Reduction of 20% compared to FY2010
Strive to eliminate the procurement of new wrapping materials through promotion of returnable packaging containers	Promote the returnability of packaging containers	● Implemented the returnability of generalpurpose wooden packaging as a priority. ● Ratio of packaging case returnablity for spares: FY2010 6.0% ⇒ 51.5% (+45.5%) ● Ratio of general-purpose packaging case returnablity for CKD parts: FY2010 33.1% ⇒ 56.3% (+23.2%)	● By 2020: Ratio of containers returnablity for spares: 61% ● Ratio of CKD containers returnablity: 72%
Drive better transport efficiency	Continue improving to reduce the distance per shipment by utilizing nearby ports	Target: Kanazawa Port, Hitachi Naha Port Kanazawa Port: Construction equipment exports manufactured at Awazu Plant, Press exports manufactured at Kanazawa Plant ● FY2016 Goal 50% ⇒ 55%(+5%). Hitachi Naha Port; Construction equipment exports manufactured at Ibaragi Plant ● FY2016 Goal 95% ⇒ 98.0%(+3%) (Achieved and maintained mid term objective). In addition, currently working on the expansion of both Oyama and Koriyama plants export containers as well as import containers of business partners in Kita-Kanto district.	● Hitachi Naka Port: Maintain a usage rate of over 95% ● Kanazawa Port: Usage rate of over 57% in FY2020
10 overseas plants (2011-) ● Implement environmental conservation activities in global logistics (both national and international) ● Improve CO_2 emission per cargo weight of shipping products and parts	Reduce CO_2 emissions per unit of cargo weight (Kg-CO_2 /ton) by 8% compared to FY2011	10 target plants: Americas (USA 2, Brazil 1), Europe (UK 1, Germany 1), China (3), Asia (Indonesia 1, Thailand 1) ● +9.3% worse compared to FY2011. +6.5% compared to previous year (The cause was the load recovery in the Asia district (especially in China where the basic unit is poor) and an increase in transport distance due to the fluctuation in delivery point,. The increase in transport distance per delivery +6.6%, 680⇒725 (Km/delivery))	By 2020: 13% reduction

Sales and After-sales Services

Implementation policies	Objectives for FY2016	Results for FY2016	Medium- and long-term objectives
Encourage Komatsu Group sales agencies and rental companies in Japan to reduce their environmental impact	Enhance awareness of the environment through education based on the Group's environmental guidelines	● Carried out activities for improvement through guidance provided during onsite visits to total 70 sites ● Water quality tested (63 locations) ● Regularly issued the Safety and Environment Newsletter (24 times)	Support the environmental improvement activities of sales agencies and rental companies with revised version of the Environmental Guidelines
Aquire integrated certification for ISO14001 in FY2017 for Komatsu Construction Equipment Sales and Komatsu Rental	Conduct a survey of the current situation and prepare documents to determine the certification scope and to acquire certification	● Determined the scope for certification acquisition 1. Komatsu Construction Machinery Sales: 10 locations including corporate headquarters 2. Komatsu Rentals: 11 locations including head office ● Supported the implementation of current environment status survey at each location	Support the acquisition of certification for Komatsu Forklift

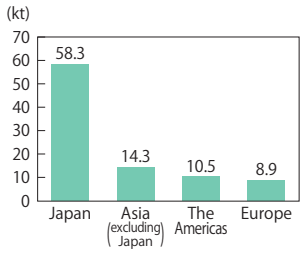
Relationship between Business Activities and the Environment

The Komatsu Group procures various parts and materials and, through the manufacturing process, utilizes the earth's resources, including raw materials, water, energy, and chemical substances, among others, to provide products to customers. Such business activities have the potential to impact the environment at each stage in the process.

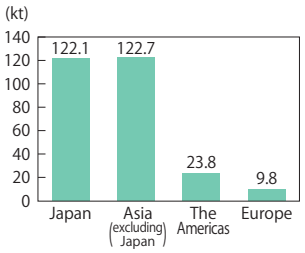
The Komatsu Group will continue to provide high value-added products and services while assessing the environmental impacts resulting from its business activities, formulating medium- and long-term objectives, and introducing measures to reduce such impacts.

CO_2 Emissions by Scope

Scope1: CO_2 emitted directly by manufacturing facilities
(by using generators, boilers, etc.)



Scope2: CO_2 emitted indirectly by manufacturing facilities
(by purchasing electricity, steam and hot water)



Environmental Impact Resulting from Business Activities of Komatsu Group Companies, including Facilities outside Japan (FY2016)

Input

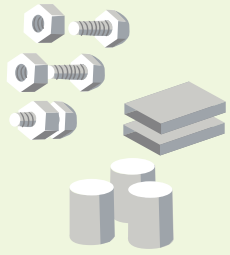
Direct Materials	
Steel	779,000t
Indirect Materials	
Paints	987t*1
Lubricants	13,277kℓ*1

Energy	
Electricity	583GWh
Heavy oil A	5,000kℓ
Kerosene	2,000kℓ
Light oil	7,000kℓ
Natural gas	16million Nm³
LPG	5kt
Gasoline	300kℓ
LNG	3,000Nm³
Steam	14kt
Other	4GWh

Water Resources	
Groundwater	2.4million m³
Industrial water	0.1million m³
Supply water	0.8million m³

Development
- Ecology & Economy
- LCA design
- Medium-term targets for development of environmental technology

Procurement of Materials
- Green procurement



Manufacturing (32 Komatsu Group Manufacturing Facilities in and outside Japan)
- Mitigation of climate change (energy conservation)
- Effective utilization of resources (zero emissions)
- Environmental risk management
- Elimination of hazardous chemical substances*1
- Termination of use of organic chlorinated cleaning solvents*2

Environmental Risks (Air, soil, and groundwater pollution)	
Measures for underground oil tanks	0units*2
Storage for PCB transformers	7units*2
Stabilizer Storage	252stabilizers*2
Groundwater observation wells	114wells*2

Product

Product weight
(construction, mining and Industrial equipment)
922kt

Number of products
(construction, mining and Industrial equipment)
51,908vehicles

Output

Waste	
Total amount generated	83kt
Substances under the Pollutant Release and Transfer Register (PRTR) Law	57t*2
(Waste furnaces	All removed)

Atmospheric Discharges	
CO_2	371kt-CO_2*5
SO_x	9t
NO_x	103t*2
Substances under the PRTR Law	376t*2

Noise and vibration

Waste Recycling	
Recycling amount	78kt

Hazardous waste manifests

Use in other industrial sectors

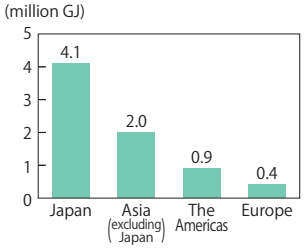
Waste Disposal	
Waste materials disposed by subcontractor	6kt
(Company on-site disposal of waste materials	0t)

Water-based Discharges	
Wastewater	3million m³*2
BOD emissions	7t*2
COD emissions	9t*2
Substances under the PRTR Law (public water areas)	0.0t*2
Substances under the PRTR Law (sewerage)	0.0t*2

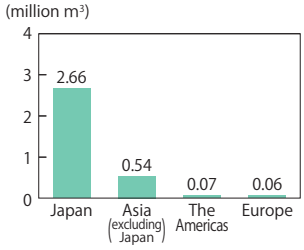
CO_2 emissions: Calculated by multiplying the electric power, heavy oil, etc. consumed (see Energy section of Input column) by the CO_2 emission coefficient (according to the Greenhouse Gas Emissions Calculation - Reporting Manual of the Ministry of the Environment based on the Act on Promotion of Global Warming Countermeasures) (Domestic electricity emission factor is 0.384kg/kWh.)
SOx emissions: Calculated by multiplying the "density" and the "S content by percentage" (based on element tables of suppliers) by the amounts of heavy oil, kerosene, light oil, and coke used.
NOx emissions: Calculated by multiplying the "nitrogen oxide emissions units" (obtained at each Komatsu facility) by the amounts of heavy oil, kerosene, light oil, natural gas, and LPG used.
Emissions and transfer of substances covered by the PRTR Law: Calculated by the "content ratio of specific chemical substances" contained in indirect materials multiplied by the "discharge or transfer rate." This calculation is based on the PRTR Law, which was designed to mandate the disclosure of the amount of specific chemical substances released into the environment to promote the management of such substances.

Environmental Impact Indicators by Region

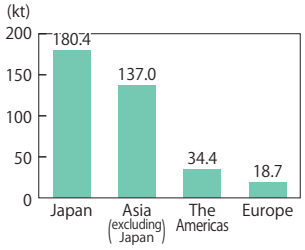
Energy



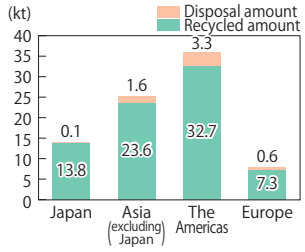
Water Resources



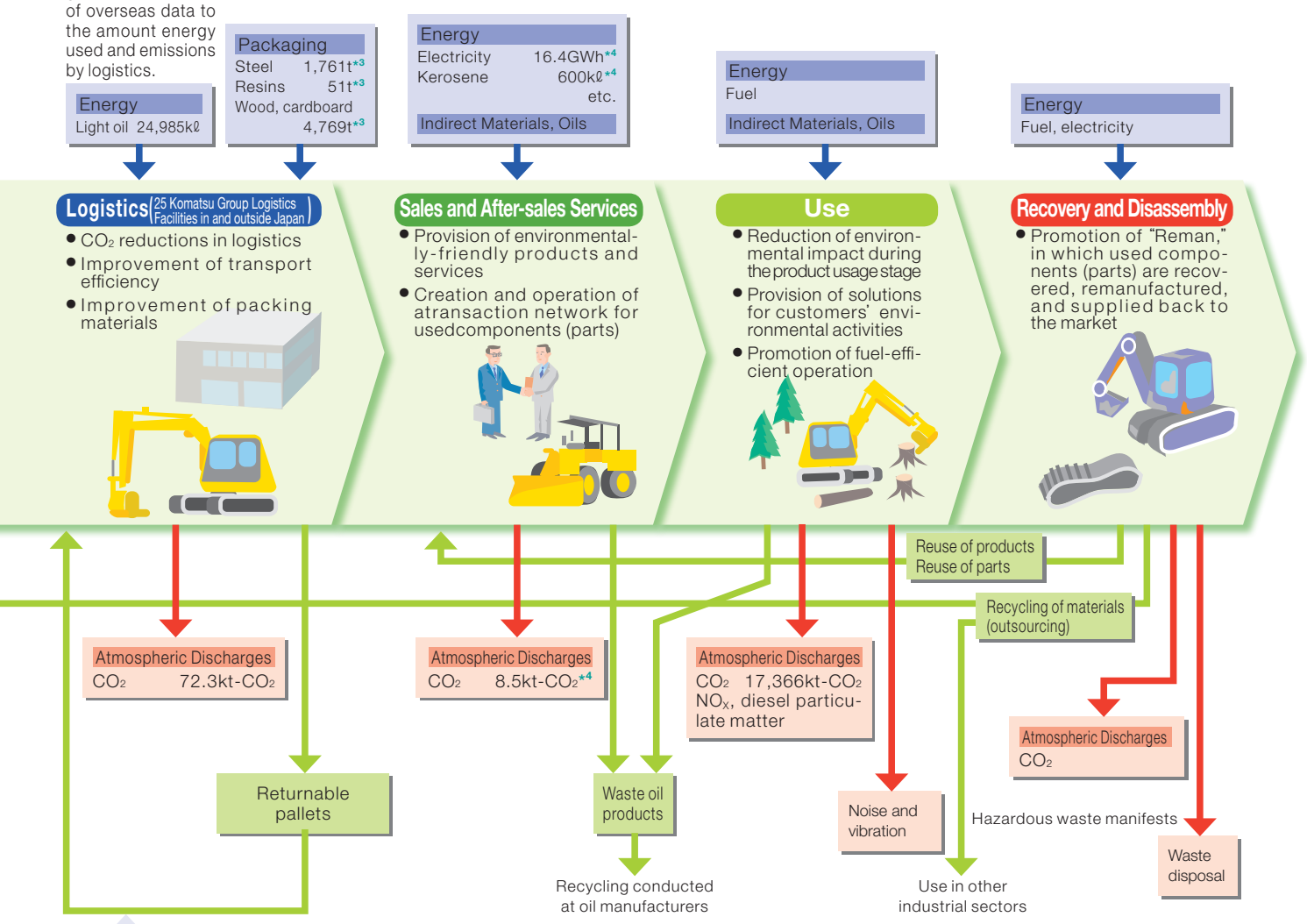
CO_2



Waste



Note:
Komatsu has begun to include parts of overseas data to the amount energy used and emissions by logistics.



Scope of energy and CO_2 data of logistics

- Komatsu (parent company) facilities, specifically the following fourteen plants
  The Awazu Plant, the Osaka Plant, the Rokko Plant, the Ibaraki Plant, the Tochigi Plant, the Kanazawa Plant, the Shonan Plant, the Oyama Plant, the Koriyama Plant, and Komatsu Logistics Corp (Parts Logistics Division) (The Kanto Parts Distribution Center, the Kansai Parts Distribution Center, the Awazu Parts Distribution Center, the Hokkaido Parts Distribution Center, the Kyusyu Parts Distribution Center).
- Komatsu Group manufacturing facilities in Japan, specifically the above fourteen plants and the following one business unit
  Komatsu Castex Ltd.
- Komatsu Group manufacturing facilities outside Japan, specifically the following ten plants
  Komatsu America Corp.,[Chattanooga Manufacturing Operation], [Peoria Manufacturing Operation], Komatsu do Brasil Ltda., Komatsu UK Ltd., Komatsu Mining Germany GmbH, Komatsu Shantui Construction Machinery Co., Ltd., Komatsu (Changzhou) Construction Machinery Corporation, Komatsu (Changzhou) Foundry Corp., Komatsu (Shandong) Construction Machinery Corp, PT Komatsu Indonesia Tbk, Bangkok Komatsu Co., Ltd..

Coverage of Data
*1: 8 Komatsu manufacturing facilities in Japan
*2: 12 Komatsu Group manufacturing facilities in Japan
*3: Logistics of business sites in Japan However, this excludes data from the Awazu Distribution Center, Hokkaido Parts Distribution Center, and Kyushu Parts Distribution Center
*4: Sales agencies and rental companies in Japan (Komatsu Construction Equipment Sales and Service Japan Ltd., Komatsu Rental Ltd. and Komatsu Forklift Japan Ltd.) were added
*5: Including the usage of forklifts in the premises of a factory

Pursuing Environmental Management

Organizational Chart of the Environmental Management Structure

Board of Directors

The highest executive body to consider top-priority matters and make decisions on management policies of the Komatsu Group.

President and CEO

Corporate level control division (Environmental Affairs Department)

: Person in charge of environmental management

- Research and development divisions
- Manufacturing divisions
- Sales and after-sales services divisions
- Business units
- Affiliated companies
- Manufacturing facilities outside Japan

Strategy Review Committee

The executive body to study and review basic policies, plans, and strategies, hold deliberations involved in top-priority corporate affairs, and present these to the Board of Directors. This committee consists of the standing executive directors.

Earth Environment Committee

This committee has ultimate authority for approving Komatsu' s environmental conservation measures. Its meetings are held biannually. Its mission includes formulating specific environmental action plans based on the Guidelines for Corporate Activity of the Komatsu Earth Environment Charter and determining Komatsu Group' s overall direction in environmental conservation. Chaired by an executive officer in charge of environmental management, it consists of executive officers responsible for individual divisions.

Global Safety and Environmental Affairs Meeting

Chaired by an executive officer in charge of environmental management, this meeting is attended by officers responsible for safety and environmental management in Komatsu manufacturing facilities both in and outside Japan. Meeting annually as a rule, it provides a platform to implement policies and measures formulated by the Earth Environment Committee and to exchange information related to environmental conservation worldwide.

Development
- Development Meeting
  - Environment Personnel Liaison Council

Manufacturing
- Manufacturing Technology Meeting
  - Environment Management Personnel Liaison Council
  - Sectorial Working Groups
- Logistics Reformation Meeting
- Manufacturing Facility Environment Management Committee
  - Environment Promotion Team

Procurement Division
- Procurement Meeting
  - Procurement Control Manager Meeting

Sales and after-sales service
- Domestic Sales Division Environment Committee
  - Sales and After-sales Service Division Environment Committee
  - Rental Division Environment Committee

Acquiring ISO14001

Komatsu has implemented a Group-wide initiative to acquire ISO14001 certification, an international standard for environmental management systems. The objective is to enhance management quality by strengthening systematic steps towards environmental conservation.

Since 1997, several manufacturing facilities both inside Japan and abroad received certification. In FY2005, the four plants belonging to Komatsu Ltd. (the parent company), the Awazu, Osaka, Mooka, and Oyama Plants, acquired integrated certification. As the second step, in FY2007 Komatsu added its major affiliates in Japan and yet-to-be-certified non-manufacturing facilities – notably the Head Office – to the above four plants, with integrated certification attained by the Group in Japan in May 2008.

Upon completing the March 2012 recertification, the KOMATSU Way Global Institute and Komatsu NTC Ltd. were included in the integrated certification. The Group conducted the recertification qualification again in March 2015, and will continue to work on improving the quality of management in Japan.

In FY2013 "Komatsu (Shandong) Construction Machinery Corp.", "Komatsu Manufacturing Rus. LLC", and "Hensley Lingfeng Co., Ltd (China)" acquired certification, and in FY2014 "Cabtec (Thailand)" acquired certification as well.

In FY2015, Yida Nippei Tool Corporation (YNC) also acquired certification and we were able to achieve the goal of having 100% of our overseas production facilities certified.

Hereafter, we are planning to expand acquisition of certification to the sales and service divisions as well.

ISO14001 Integrated Certification

Environmental Audit

Environmental Audit of affiliate companies in India and Indonesia

Since 2010, we have been conducting regularly scheduled compliance risk audits of our overseas affiliate companies.

Environmental Audit at KIPL

In 2016, environmental audits were held not only at the manufacturing facility (KIPL of India) but also at the Reman plants (KRI and KRA of Indonesia) for the first time.

A check sheet created by the affiliate company was obtained and checked in advance, and with the support of the person in charge of environmental matters for the main plant in Japan, we conducted an audit of the conditions of environmental activities and the compliance to legal regulations. In this way, we are working to reduce the environmental risks and improve the level of the on-site person in charge of environmental issues and of the auditor.

We will continue to do follow-ups to the audits as well as conduct environmental audits of affiliate companies in other regions.

Past Environment Audits

2007	China
2008	—
2009	Thailand and Indonesia
2010	India
2011	Brazil
2012	Russia and Czech Republic
2013	United States
2014	United States and Brazil
2015	Thailand
2016	India and Indonesia

Promoting Environmental Activities at Group Sales and Rental Agencies

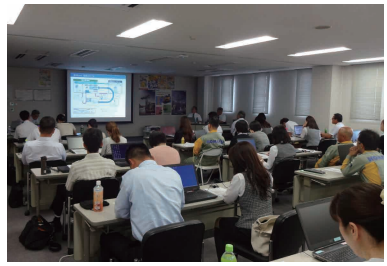
Komatsu promotes education and guidance for making improvements, with safety and environment as a central theme, for the sales and service departments.

Revising the Environmental Guidelines for Sales Agencies

In January 2017, the "Revised Environmental Guidelines for Sales Agencies" was distributed to sales agencies and rental companies of construction machinery, as well as to fork lift sales agencies and group rental companies. The guideline contains compliance items and standards regarding environmental issues (waste treatment, waste-oil treatment, treatment of wastewater from vehicle washing, etc.) that are closely related to each company's work sites.

Promoting the Educational Activities of Group Sales and Rental Agencies

The implementation method of the "Environmental Guidelines for Sales Agencies" uses the PDCA method, whereby the improvement of environmental aspects is effected by repeating its cycle. Komatsu works jointly with their counterparts at various companies by visiting the sites of various sales agencies and rental companies to ensure compliance with the "Environmental Guidelines for Sales Agencies" as well as inspecting sites, realities, and actual products to implement support activities such as supervising the sites and proposing remedial actions that are tailored to each location (implemented at 70 locations in 20 companies in FY2016).



Environmental education at a group sales agency

Also, as a systematic effort towards environmental conservation at the group sales and rental agencies of construction machinery, action is being taken to qualify for the international standard on the environmental management system (ISO14001), with the goal to achieve qualification during FY2017.

Supporting Supplier's Environmental Management System

Promotion of Komatsu Midori-kai's Environmental Management System Certification

In order to strengthen the "environmental management" of suppliers, Komatsu Midori-kai companies that account for 74% of funds raised are requested to obtain certification for their environmental management system.

In FY2016, 162 companies (all companies requested to obtain environmental management system certification) had been certified for "ISO14001", "ECOSTAGE", etc., promoting environmental management activities.

TOPICS

SBT (Science-Based Targets) Approved

Komatsu's CO_2 reduction objectives have been approved to be SBT as of April 11, 2017.

SBT (Science-Based Targets) is "setting goals that are compatible with science."

Although CO_2 reduction objectives were submitted by various countries at the COP21 (Paris Agreement), even with the summation of target values, the average global temperature in 2100 cannot be held down to an increase of less than 2℃ compared to temperatures before the Industrial Revolution. Therefore, after a detailed examination by the businesses of the world, reduction objectives have been reassessed and SBTi (SBT initiative: CDP, Global Compact, WRI, WWF) is supporting and approving SBTs to reach the goal of an increase of less than 2℃. Komatsu's SBT meets the requisites of the temperature increase of less than 2℃ scenario.

Komatsu's SBT

(1) SCOPE1+2: Base unit -49% (Target Year 2030; Base Year 2010)

(2) SCOPE3: Total -46% (Target Year 2030; Base Year 2012)

*Furthermore, although Komatsu disclosed new mid- and long-term objectives (2020, 2030) in 2015, since the SBTi's requisites (such as using the same base year for both domestic and overseas) has different conditions than the new mid- and long-term objectives, the target values differ, but the reduction rates are the same.

SCIENCE BASED TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

Amount of CO_2 Emmissions by Scope 3

From actual data gathered by KOMTRAX, Komatsu has gained perspective on the amount of CO_2 emissions (Scope 3 Category 11) produced by our products manufactured in FY2016 in operation world-wide.

The calculation was performed as follows.

[Calculation of Emissions from Customer Use]

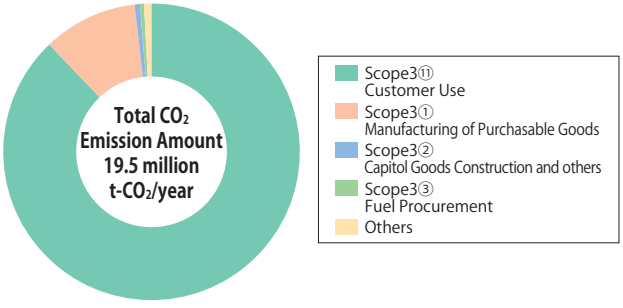
(1) Calculate the following by each model

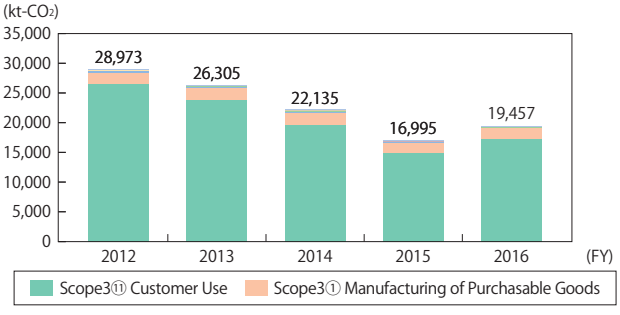
CO_2 emissions over the life of each model
= (FY2016 Production Volume)×(Fuel Consumption; L/kWh)
× (Engine Output; kW)
× (Engine Life; as product life; h)
× (CO_2 Conversion Factor)

(2) Calculated for each model in (1) above, Total these values

*For models available to collect fuel consumption, KOMTRAX collected the actual values of fuel consumption and operating time from representative models of each size. We back calculated data from development for other models.

For others, including the 14 remaining categories, the general CO_2 emissions was calculated. The result is shown in the pie chart below.





*1: LCA is the environmental impact assessment method for individual products at each stage, from manufacture, transportation, sale, use, disposal, to reuse
*2: Scope1 is direct CO_2 emissions by operator(ex: private power generation)
*3: Scope2 is indirect CO_2 emissions by operator(ex: power purchase)
*4: Scope3 is CO_2 emissions by operator from supply chain (ex: emissions of product during operation, emissions from suppliers, transportation, business trips and commuting)

Amount of CO_2 Emissions Data by Scope 3

Category	Rate (%)	Summary Date (t-CO_2)
Scope3 (11) Customer Use	89.3	17,366
Scope3 (1) Manufacturing of Purchasable Goods	9.0	1,756
Scope3 (2) Capital Goods Construction and others	0.5	103
Scope3 (3) Fuel Procurement	0.5	103
Scope3 (4) Upstream Transportation disposal	0.1	18
Scope3 (5) Waste Transportation	0.1	12
Scope3 (6) Business Trips	0.1	28
Scope3 (7) Commuting	0.1	17
Scope3 (8) Upstream Leased Assets Operation	0.0	0
Scope3 (9) Downstream Transportation	0.2	43
Scope3 (10) Processing Sold Products	0.0	0
Scope3 (12) Product disposal	0.1	11
Scope3 (13) Downstream Leased Assets Opreation	—	—
Scope3 (14) Franchise Member Companies	0.0	0
Scope3 (15) Investment Management	0.0	0
Total CO_2 Emission Amount (t-CO_2/year)	100.0	19,457

* Although it is calculating in the total range of domestic and an overseas in calculation of each category, the category (4) is calculated using the domestic data and part of the overseas data. The category (13) is included in category (11). Moreover, presumption of overseas data goes into the category (3) in part.

As evident from the results above, emissions during product use makes up approximately 90% of total emissions.

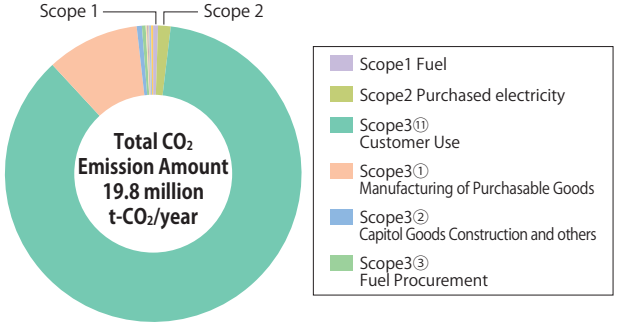
From this, we can see that fuel-efficient products have a significant effect on reducing CO_2 emissions.

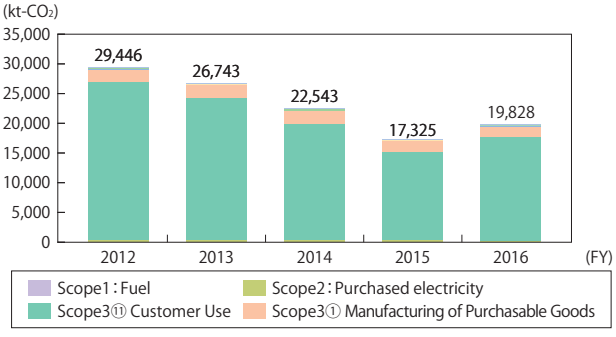
Komatsu is committed to developing hybrid construction machinery (improving fuel efficiency by 25%) and DANTOTSU products (over 10% improvement in fuel efficiency) and accelerating the pace of the ICT-based SMART CONSTRUCTION.

In addition, the result of the understanding in the LCA *1 (Life Cycle Assessment) is the pie chart below.

≪Reference≫

Pie Chart of Scope1, 2, 3





Mitigating Climate Change

Tier4 Final Compliant Models Released

In 2016, Komatsu released one vehicle model after another that greatly reduce nitrogen oxide (NOx) and particulate matter (PM) emissions that meet Japanese (Emissions from Non-Road Special Motor Vehicles 2014 Standards), North American (EPA Tier4 Final), and European (EU Stage IV) emissions controls for Hydraulic Excavators, Bulldozers, Dump Trucks and Wheel Loaders. These models are equipped with newly developed next-generation engines that result in construction machinery that are clean and fuel efficient, with excellent durability and reliability.

Below are some examples.

Medium-sized Hydraulic Excavator "PC220(LC)-11/PC230(LC)-11"

With "Quality and Reliability" as the foundation, Komatsu has pursued ever high levels of quality in environmental, safety and ICT aspects, and released the Non-Road Special Vehicles 2014 Standards compliant "PC220(LC)-11/PC230(LC)-11" models to the market. These models greatly reduce the emissions of nitrogen oxide (NOx) and particulate matter (PM) have next-generation engines that meet the Non-Road Special Vehicles 2014 Standards. In addition, with the further development of Total Vehicle Control, which provides optimum control of the vehicle's main unit, and with the usage of the auto idle stop function, we achieved high levels of both productivity and fuel economy performance, and reduced the fuel consumption rate by approximately 5% compared to our previous models (PC220(LC)-10/PC230(LC)-10). (Based on in-house test standards)

PC220-11

Main Specifications

Item	PC220-11	PC220LC-11	PC230-11	PC230LC-11
Machine Mass (kg)	23,100	24,600	23,900	24,900
Net Engine Rated Output (kW/min^{-1})	132/2000	132/2000	132/2000	132/2000

Bulldozer "D155AX-8"

The D155AX-8 has a next-generation engine that meets the Non-Road Special Vehicles 2014 Standards, as well as being standardly equipped with the blade "Sigmadozer" which has proven results that show improved dozing work efficiency. Furthermore, by once again fitting the model with an automatic gear shifting powerline with a locking function, known for its high rate of power transmission, we achieved high levels of both productivity and fuel economy performance and reduced the fuel consumption amount.

D155AX-8

Main Specifications

Item	D155AX-8
Machine Mass (kg)	42,800
Net Engine Rated Output (kW/min^{-1})	264/1900

Wheel Loader "WA380-8"

Equipped with a next-generation engine that meets the Non-Road Special Motor Vehicles 2014 Standards, as well as being fitted with the power train "Large Volume Torque Converter with Wide-Range Locking Function," and the latest computerized control system "Komatsu Smart Loader Logic" which provides optimum overall control of the engine, power train and oil pressure system, this model reduced its fuel consumption amount by approximately 3% compared to our previous models (WA380-7). (Based on in-house test standards)

WA380-8

Main Specifications

Item	WA380-8
Machine Mass (kg)	18,200
Net Engine Rated Output (kW/min^{-1})	143/2100

Articulated Dump Truck "HM300-5"

This model, having been equipped with a next-generation engine which meets the Non-Road Special Motor Vehicles 2014 Standards, in addition to using fuel efficiency technology such as Automatic Idling Stop, has reduced its fuel consumption amount by approximately 2.5% compared to our previous models (HM300-3). (Based on in-house test standards)

HM300-5

Main Specifications

Item	HM300-5
Maximum Load Amount (t)	28.0
Net Engine Rated Output (kW/min^{-1})	242/2000

Mobile Crusher "Galapagos BR380JG-3"

The 30-ton class "BR380JG", the flagship model of Komatsu's mobile crusher "Galapagos" series, has been very well rated for its outstanding operation capabilities and excellent maneuverability that make highly efficient crushing possible, and plays an active role in construction/demolition sites, quarries and steel plants.

In addition to being equipped with a next-generation engine which meets the Non-Road Special Motor Vehicles 2014 Standards, further development of the Total Vehicle Control,which provides optimum control of the main unit of the vehicle in accordance with the operation conditions, has resulted in this model reducing its fuel consumption amount by approximately 13% compared to our previous models (BR380JG-1E0). (Based on in-house test standards)

BR380JG-3

Main Specifications

Item	BR380JG-3
Machine Mass (kg)	34,800
Net Engine Rated Output (kW/min^{-1})	147/2050

The ICT Construction Equipment Expansion Series

The SMART CONSTRUCTION initiative unveiled in January 2015 makes use of ICT (Information Communication Technology) for automatic control of the bulldozer's blade or for semiautomatic control of the hydraulic excavator by measuring terrain data and comparing 3D design data with information on the operation equipment's location. This dramatically improves the efficiency of construction, which results in reducing the fuel consumption of construction (decrease in CO_2 emissions). In-house testing results show a decrease in fuel consumption of approximately 30% for the ICT Hydraulic Excavator "PC200i-10" and approximately 25% for the ICT Bulldozer "D61PXi-23".

Below are some examples of ICT construction equipment used in SMART CONSTRUCTION which were released in 2016.

Large-size Hydraulic Excavator "PC360LCi-11" *1

This machine is a semi-automatic control hydraulic excavator of the ICT construction equipment series and is a 36-ton class expansion model. It has an engine that meets the North American EPA Exhaust Emission Tier4 Final Regulations (Tier4 Final) and the semiautomatic control makes dramatic improvements in operation efficiency possible, which results in reduced fuel consumption during construction.

*1: For North America

PC360LCi-11

Main Specifications

Item	PC360LCi-11
Machine Mass (kg)	35,600-36,200
Net Engine Rated Output (kW/min^{-1})	192/1950

Reduction in CO_2 Emissions of Construction Equipment

The main bulk of the CO_2 emissions amount produced over the lifecycle of construction equipment is during product operation, which accounts for approximately 90% of the total. With this in mind, in order to reduce CO_2 emissions from their products, Komatsu has worked on the 3 approaches of Dantotsu Products, Dantotsu Service and Dantotsu Solutions.

Step1: Reduction of CO_2 Emissions through Dantotsu Products
Step2:Reduction of CO_2 Emission by Products through Dantotsu Service (KOMTRAX)
Step3:Reduction of CO_2 Emissions for Overall Construction Work through Dantotsu Solutions (SMART CONSTRUCTION using ICT Construction Equipment)

Step1: Reduction of CO_2 Emissions through Dantotsu Products

We will provide products with great fuel economy performance and reduce CO2 emissions.

For example, the hybrid hydraulic excavator, which Komatsu was the first in the world to introduce to the market, is one such product.

These hybrid construction machines have been certified by the Ministry of Land, Infrastructure, Transport and Tourism of Japan as "Low Carbon Type Construction Equipment."

Low Carbon Type Construction Equipment Certified Models: HB205-2, HB215-2, HB335-3, HB365-3 and others, a total of 12 models (As of April 2017)

Also, the bulldozer D155AX-8, the hydraulic excavator PC300-11, the wheel loader WA470-8 and others-a total of 11 models-have been certified as the Ministry of Land, Infrastructure, Transport and Tourism's "Construction Machines Fulfilling Fuel Economy Standards" to be construction equipment with great fuel economy performance. (As of April 3, 2017)

Step2: Reduction of CO_2 Emission by Products through Dantotsu Service (KOMTRAX)

The Komatsu Tracking System "KOMTRAX" is a system developed by Komatsu to make possible the automatic gathering of operation information/health information from construction vehicles operating all over the world, to then monitor/manage/analyze the vehicles from afar. The information collected is provided to customers through the internet, and at the same time because it "makes visible" the equipment's operation time, its work time and even it is being used, as well as its fuel consumption, we are able to suggest improvement points after analyzing the information. In this way, we are supporting improvement in fuel consumption (=CO2 emissions reduction) for our customers.

Step3: Reduction of CO_2 Emissions for Overall Construction Work through Dantotsu Solutions (SMART CONSTRUCTION using ICT Construction Equipment)

In 2013, Komatsu introduced the ICT bulldozer D61PXi-23 with the world's first automatic blade control capabilities to the North American, European and Japanese markets. Further, in 2014, Komatsu introduced to the market a hydraulic excavator with a semiautomatic control function, model PC210LCi-10 for North America and Europe, and model PC200i-10 for Japan. Preliminary calculations based on in-house test construction data for ICT hydraulic excavators showed that foreslope shaping work using the PC200i-10 resulted in an approximately 30% reduction in fuel use. Also, preliminary calculations based on in-house test construction data for ICT bulldozers showed that land preparation work using the D61DXi-23 resulted in an approximately 25% reduction in fuel use, and we were able to see that like the ICT hydraulic excavator, CO_2 emissions were reduced.

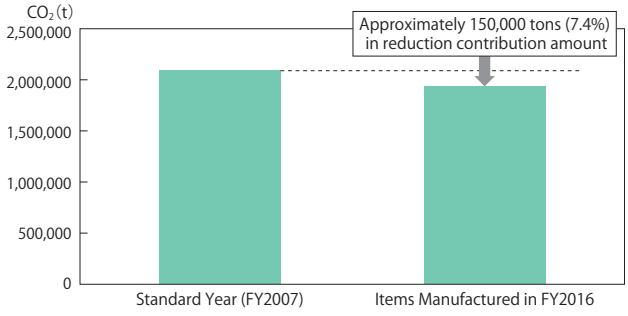
Komatsu is implementing "SMART Construction" which uses these types of ICT construction machines and taking current topography measurements using drone and 3D scanners in order to promote and "make visible" the efficiency and work process of construction sites.

Reduction of CO_2 Emissions from Construction Equipment (Estimate of Amount of Reduction Contributions)

In Komatsu's Mid-term Management Plan (FY2016 - FY2018), we set the goal of achieving 25% reduction by 2025 in CO_2 emissions per amount of work from construction equipment as compared to 2007. To assess progress, the construction equipment manufactured each year is being compared to the equipment capabilities of the standard year (FY2007) and estimating the CO_2 reduction contribution amount resulting from the improvement in fuel economy and work efficiency.

As a result, the machines manufactured in FY2016, compared to the standard year (FY2007), achieved a 7.4% reduction in CO_2 emissions, and if these machines were operated for one year, we found that it would contribute to reducing the amount of CO_2 by approximately 150,000 tons. (Operation time for one year estimated at 1200 hours) This contribution to the reduction amount is equivalent to approximately 40% of CO_2 emissions in FY2016 produced by all the manufacturing plants of Komatsu Group world-wide.

CO_2 emissions for operation time of one year (ton-CO_2)



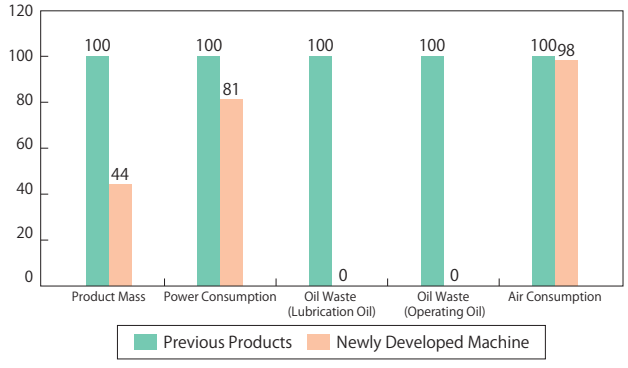
Operation for one year: estimated as 1200 hours

Market Introduction of Horizontal Uniaxial NC Machine "N40HC"

Komatsu NTC, Ltd. has developed and introduced to the market a compact, energy-saving horizontal uniaxial NC machine for processing crankshafts. This machine has made resource saving possible through reducing its weight by 56% compared to the previous product. The main axel motor cooling was changed from oil cooling to air cooling, making the oil cooling unit unnecessary. In addition, it has been fitted with a unit operation interworking method, which does not use hydraulic pressure for tool unclamping. Furthermore, by using encapsulated grease for the lubrication, we have been able to eliminate lubrication oil waste.

N40HC

Item Comparison (Index)



Reducing CO_2 Emissions in Manufacturing Operations

As a part of our efforts to mitigate climate change, Komatsu set mid and long term objectives in Japan and overseas operations for the amount of electricity, fuel gas, fuel oil, and other types of energy used in manufacturing operations, using CO_2 emissions per unit of manufacturing value as the indicator, to proactively reduce the amount of CO_2 emissions units.

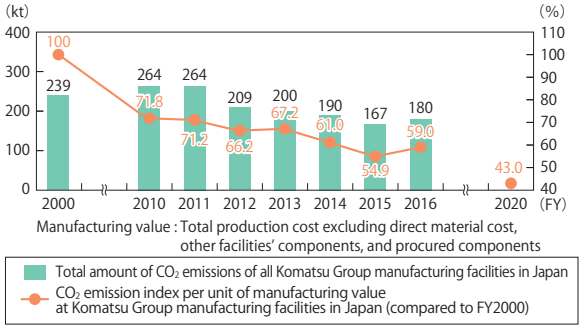
In 2010, in response to the climate change issues raised in the Post-Kyoto Protocol, we set a mid-term objective that by 2015 we would reduce CO_2 emission levels by 40% compared to the levels in 1990. Since then however, using the "cutting electricity use in half" activities that followed the Great East Japan Earthquake as an impetus, we set an ambitious goal of a 54% reduction compared to FY2000 levels and pursued activities to reduce power consumption and achieved great outcomes. As a result, in February 2017, we received the "Kanto Bureau of Economy, Trade and Industry Director's Award" as an energy management superior business operator. From FY2016, we have set new mid- and long-term objectives for both domestic and overseas operations, and are moving forward with further improvement activities.

In FY2016, as a result of energy-saving activities undertaken based on the lateral spread of various production reforms, the CO_2 emissions per unit of manufacturing value was reduced by 41.0% compared to FY2000 levels. However, due to an increase in electricity use for the summer/winter air conditioning and the fuel to test components, the index was worse than the previous year. The ratio of renewable energy for in-house power generation was 19.2%, due to the cutback in in-house power generation using fossil fuels, an increase of 1.4 times the previous year.

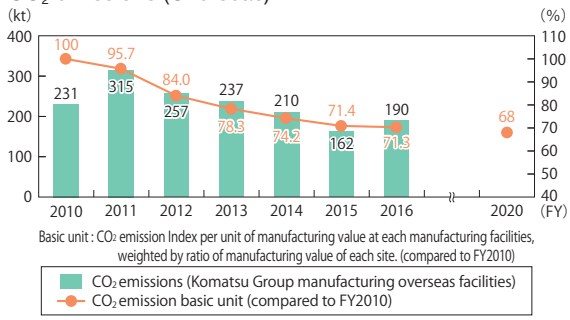
CO_2 emission at Komatsu's overseas manufacturing sites have also been reduced by 28.7% compared to FY2010 as a result of fuel conversion and lateral spread of improvement examples from Japanese plants.

For FY2017, aiming for the achievement of mid-term objectives, we will work towards further reduction in CO_2 emissions index numbers by updating buildings that are over 40 years old to building that incorporate the newest energy-conserving technology, and by making small but steady improvements on job sites.

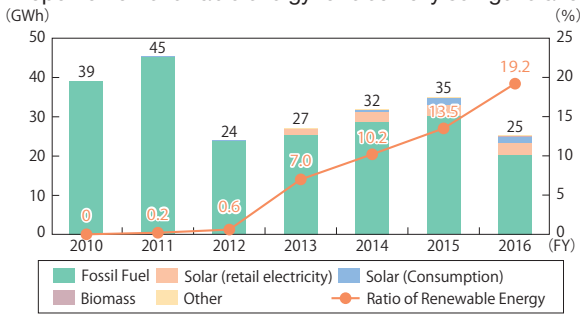
CO_2 emissions (Japan)



CO_2 emissions (Overseas)



Proportion of renewable energy for electricity self-generation



Reduction CO_2 Emissions in Logistics

CO_2 Emissions Reduction Conditions in Global Transport

(Basic Unit of CO_2 Emissions per Cargo Weight: kg-CO_2/ton)

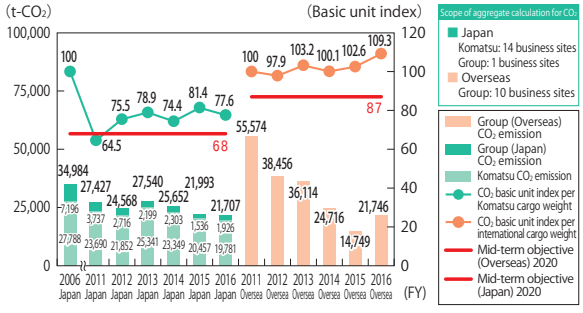
In 2011, Komatsu began improving its assessment of CO_2 emissions from logistics operations for its 10 major international business locations. Combined with the improvements that were started in domestic locations from 2006, we have now implemented improvements in logistics operations on a globally consolidated basis at all 25 business locations.

"Domestically, we are continuing improvements with emphasis on decreasing transportation distance through efficient use of the Kanazawa and Hitachi Naka Ports which are located adjacent to manufacturing plants, as well as the improvement of long distance transport by expanding the use of coastal shipping and railways (modal shift).

As a results, in FY2016 we achieved an improvement of 4.7% in CO_2 emissions per cargo weight."

Results for overseas operations showed a deterioration of +6.5% compared to the previous year because of the recovery in load amount and the increase in transport distance due to change in delivery point in the Asia district (especially in China which has a poor basic unit).

Global Shipment CO_2 Emissions Volume and Basic Unit

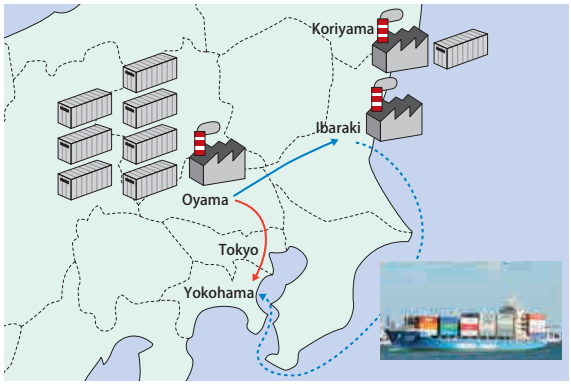


* A basic unit index is an index relative to the CO_2 emissions per cargo weight in a reference year (2006 for Japan, 2011 for Overseas) as 100.

CO_2 Improvement for Domestic Transport (Increasing Usage of Nearby Ports)

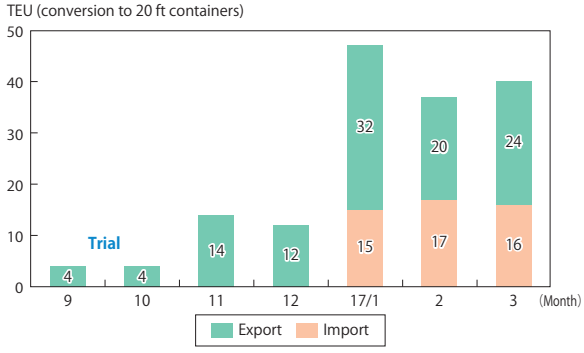
Increasing Usage of Hitachi Naka Port

The use of Hitachi Naka Port has been increased mainly for the vehicles exports from Ibaraki plant. In FY2016, Hitachi Naka Port was used for 98% of the vehicle exports from Ibaraki plant. In 2016, for further expansion in usage, we conducted a trial to see if it was possible to ship Tokyo Port export containers from the Oyama plant.



- Based on the trial results, usage was started from November. From January 2017, the use of Hitachi Naka Port started for Ibaraki plant's import containers for overseas procurement (including partner companies).

Transition of Container Imports for Hitachi Naka Port



Results of Above Improvement

(1) Transport distance is the same but possible to transport double the amount. (cost improvement -22%)

(2) Large improvement in CO_2 emissions for the import containers

Domestic land transport distance: 130km⇒4km (shipment for Ibaraki plant)

Reduction in total CO_2 emissions 33ton/year (shipment for Ibaraki plant; calculated 10 TEU/month)

Tasks Hereafter

- Moving ahead with consolidating at Hitachi Naka Port and the resulting increase in the number of feeder ships and container ships.
- Establishing a container round use system based on cooperation of numerous cargo owners and shipping companies.

CO_2 Improvement for Overseas Transport (Use of Nearby Ports)

Improvement of export logistics/commercial distribution for Komatsu (Changzhou) Construction Machinery Corp. (KCCM); Bangkok Komatsu Corp. (BKC)

KCCM (Changzhou, China), an overseas Komatsu group company, provides large parts to North America and Asia districts. By changing the parts for BKC (Thailand) to KCMM direct sales (Former: Via KSC; Komatsu (Changzhou) Construction Machinery Corp.) and at the same time changing the loading port from Tsingtao to Shanghai, the domestic transport distance has been greatly reduced.

Results of This Improvement

(1) Shipping port Tsingtao ⇒ Shanghai Distance of truck transport 703km reduction

(2) Reduction in CO_2 44.8ton/year

TOPICS

Received the Grand Prize & Economy, Trade and Industry Minister's Award at the 4th Platinum Vision Awards Ceremony

In October 2016, at the "4th Platinum Vision Award Final Judging Presentation and Awards Ceremony" held by the Platinum Vision Network and the Platinum Awards Steering Committee, Komatsu was chosen to receive the Grand Prize and the Economy, Trade and Industry Minister's Award as a part of the "Promotion of Local Production for Local Consumption Type Biomass Utilization and Recreation of Rural Areas" project submitted by Komatsu, Ishikawa Prefecture and the Forestry Cooperative Association of Ishikawa Prefecture.

Komatsu's Awazu Plant worked in cooperation with Ishikawa Prefecture's KAGA Forest Association to promote activities aimed at rebuilding the rural area by utilizing the unused timber produced by forest thinning from the local forestry industry as biomass chip fuel to vitalize the local forestry, reduce the amount of electricity and oil purchased, reduce CO2 emissions and vitalize the indigenous industries. This year, these activities were recognized and lead to receiving the award.

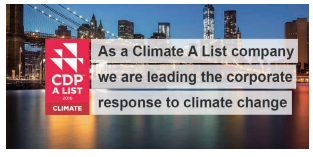
Scene from the Final Judging Presentation

TOPICS

Certified as a "Climate A List" Company by CDP

In October 2016, Komatsu was certified as a "Climate A List" company by CDP, an international NGO that works on making a sustainable economy a reality. A "Climate A List" title is given to a company that has been recognized as a world leader in its response and strategy for mitigating climate change. Responses to the questionnaire sent by CDP, representing 827 corporate investors with a total sum of US$100 trillion in invested assets, was evaluated by a unique methodology established by CDP. 193 companies considered to be especially outstanding in their emissions reduction activities and climate change mitigation measures in the reporting year were certified to be on the A list.

Even before this, Komatsu has placed "environmental activities as one of the top priority issues of management", and as part of our mid-term management plan "Together We Innovate GEMBA Worldwide —Growth Toward Our 100th Anniversary (2021) and Beyond— "which started in April 2016, we have been aggressively implementing actions in initiatives for ESG (E: Environment, S: Society, G: Governance) as a priority focus.



Promoting Recycling

Promoting the Reman Remanufacturing Business

In our Reman business, the Komatsu Group remanufactures used engines, transmissions, and other key components (parts) of construction and mining equipment into "remanned" components that have the same high quality as newly manufactured components. We then put these components back on the market. The Group is promoting the Reman business at 12 Reman Centers around the world.

Promoting the Reman Business to the World

Reman, an abbreviation for remanufacturing, offers the following advantages to customers:

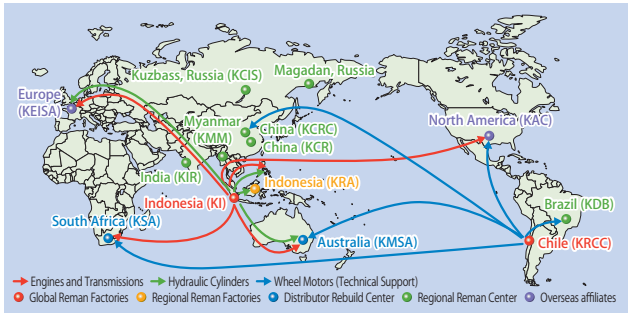
- Quality and performance that is the same as new components
- Lower cost for "remanned" components
- Reduced idle time for construction equipment because of adequate inventory of "remanned" components
- Resource conservation and waste reduction through reuse and recycling of components

As global centers, in Indonesia we established PT Komatsu Indonesia (KI) which supplies parts such as engines and transmissions for large-size construction machinery and hydraulic cylinders, and in Chile we established PT Komatsu Reman Center Chile (KRCC) which supplies components for electric dump trucks.

Additionally, Komatsu established PT KOMATSU REMANUFACTURING ASIA (KRA) in Indonesia to recycle all components of large-size construction machinery exclusively for the Indonesian market.

For countries that are not part of our global supply chains (China, Russia, India and Brazil), we have established individual Reman Centers, and in December 2016, we established a new Reman center in Magadan of Far East Russia.

Reman Center in Magadan of Far East Russia, established December 2016



Reman Factories and Centers map

Providing Reman-related Information

The Komatsu Group has set up "Reman-Net" as a network for Komatsu Reman Centers around the world. The Group is actively using this network to develop Reman operations for reuse and recycling of components at the global level.

IC tags and two-dimensional bar codes are used to manage each item's remanufacturing history, and to track quality and durability information. This important information is reported to the Group, to help develop components with optimal service life.

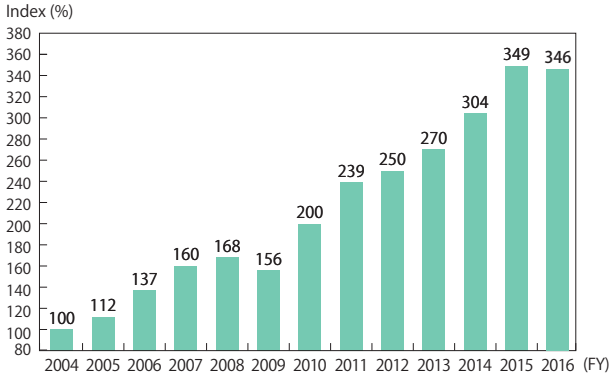
Future Steps

To further increase the reuse rate of used components, the Komatsu Group is reducing the number of disposed parts by:

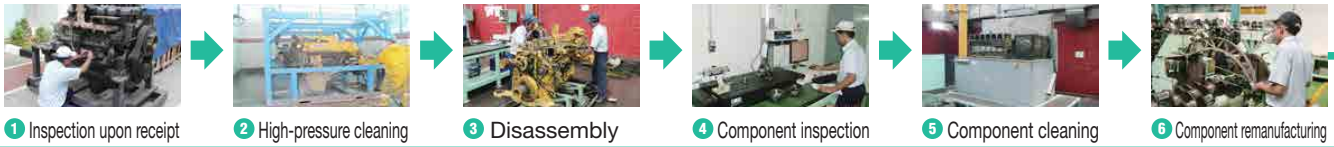
- Developing parts for remanufacturing, oversized parts, etc
- Developing recycling-related technologies (assessment and measurement for reuse, remanufacturing worn-out parts, cleaning, heat treatment, etc.)

to reduce waste components, and thereby further increase reuse and recycling activities.

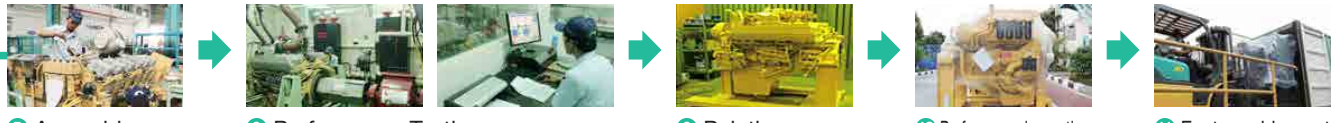
Changes in Reman Sales (base FY2004 = 100)



Reman Process



1 Inspection upon receipt
2 High-pressure cleaning
3 Disassembly
4 Component inspection
5 Component cleaning
6 Component remanufacturing



7 Assembly
8 Performance Testing
9 Painting
10 Performance inspection
11 Factory shipment

Effective Utilization of Resources in Manufacturing Operations (Waste)

In tandem with reducing the amount of waste produced during manufacturing operations, Komatsu is working on "zero emissions" activities.

Starting in FY2016, we set new mid-term objectives (refer to chart below) for both domestic and overseas manufacturing facilities and started maintenance and improvement activities for the reduction of waste generated per unit in the manufacturing operation and the recycling rate.

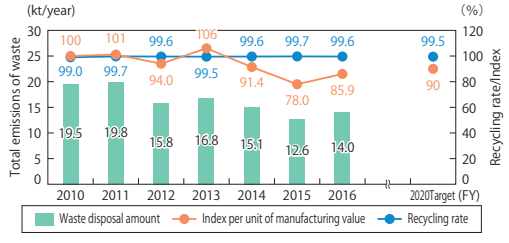
By pushing for reduction in the amount of waste, strict adherence to separating waste materials, and increase in conversion of waste materials to resources, the waste generated per unit for manufacturing operations in Japan was reduced by 14.1% compared to FY2010, meeting the goals ahead of schedule. However, due to temporary increase in waste as a result of the waste solution reduction mechanism breaking down and the discarding of unnecessary items, the waste generated per unit was worse than last year. The recycling rate was 99.6%, which means we were able to maintain a rate of over 99.5%.

Due to factors such as the strict adherence to separating waste materials, the waste generated per unit for the overseas manufacturing facilities also decreased by 15.1% compared to FY2010, meeting the mid-term objectives ahead of schedule. However due to the discarding of unnecessary items and an increase in the amount of foundry sand used for quality maintenance, the waste generated per unit was worse than last year. The recycling rate was 92.1%, an improvement of 0.7 points from last year.

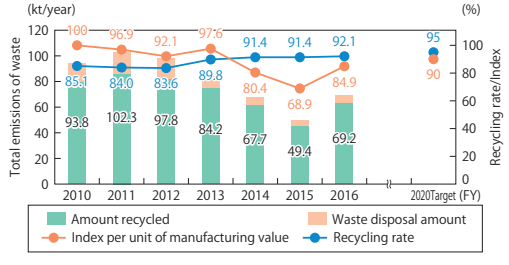
Going forward, while considering a re-evaluation of mid-term objectives for both domestic and overseas manufacturing facilities, we will work even harder to strictly adhere to separate waste materials and further activities for improvement.

	Sector	Base FY	Objective FY	Target Value
Reduction of Waste Generated Per Unit	Domestic	2010	2020	Over Δ10%
	Overseas			
Maintenance and Improvement of Recycling Rate	Domestic	-	Maintain	Over 99.5%
	Overseas	-	2020	Over 95%

Amount of Waste Generated in Japan (Data coverage: Komatsu Ltd. and the Komatsu Group manufacturing facilities in Japan)



Amount of Waste Generated in overseas (Data coverage: The Komatsu Group manufacturing facilities in overseas)



Effective Utilization of Resources in Manufacturing Operations (Water Resources)

Starting in FY2016, we set new mid-term objectives (refer to chart below) for both domestic and overseas manufacturing facilities and started activities to reduce the amount of water used.

For the manufacturing facilities in Japan, through the reuse of water during the processing and the elimination of wasteful day-to-day practices—mainly in the facilities located in the Hokuriku District which are major users of underground water—water used per unit of manufacturing was reduced by 49.6% compared to FY2010, achieving mid-term objectives ahead of schedule.

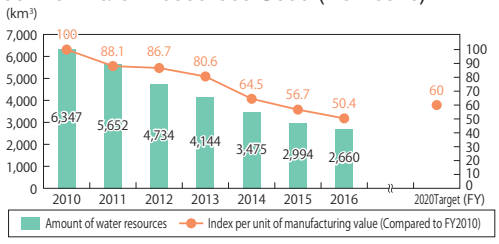
In particular, Komatsu Castex Ltd. greatly reduced its water consumption compared to the year before through measures such as circulating the cooling water of the transformer for the arc furnace.

Also, at overseas manufacturing facilities, measures such as purifying the water discharge from the manufacturing process for recycling and reducing wastefulness resulted in water used per unit of manufacturing decreasing by 31.9% compared to FY2010, achieving mid-term objectives ahead of schedule.

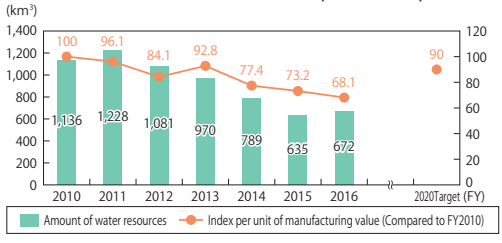
Going forward, while considering a re-evaluation of mid-term objectives for both domestic and overseas manufacturing facilities, Komatsu will work even harder to promote activities that reduce the amount of water used.

	Sector	Base FY	Objective FY	Target Value
Decrease in Water Used Per Unit of Manufacturing	Domestic	2010	2020	Over 40%
	Overseas			Over 10%

Amount of Water Resources Used (Domestic)



Amount of Water Resources Used (Overseas)



TOPICS

Reduction in the Amount of Water Used by Suppliers

In order to help further the "Water Usage Reduction Activities" of our suppliers, we are moving forward with expanding Komatsu's water resources reduction activities to our main outsourcing suppliers.
In FY2016, we conducted awareness building activities, and from FY2017, we will select model businesses and implement specific activities.

Water Risk Awareness Building Activity for Suppliers

Biodiversity

Initiatives that Deal with Biodiversity

Komatsu will maintain our commitment to protecting biodiversity in our business activities, recognizing the impact of those activities on the ecosystem.

Initiatives that Deal with Biodiversity

With the establishment of Komatsu's "Declaration of Biodiversity" and "Biodiversity Guideline" in January 2011, Komatsu business units worldwide began activities designed to preserve biodiversity.

Komatsu promotes initiatives to preserve biodiversity on two levels.

First, the Company continues to promote ongoing efforts to reduce the environmental impact of Komatsu's business activities. Komatsu also considers biodiversity when deciding how land is to be used, such as when building factories.

Second, Komatsu is becoming directly involved in the preservation of biodiversity, and at the same time expanding our "one-site, one-theme activities" to raise employee's awareness of the need to preserve local ecosystems.

Initiatives of Each Business Facility (Example of One Location One Theme Activity)

Komatsu Castex Ltd. (KCX)

Ex-situ conservation of rare specifies underway in an in-plant biotope-observing plant with guidance from local experts

With the cooperation of local experts, taking action to conserve rare species outside of their habitat range in biotope lake located on the plant premises Komatsu Castex Ltd. (located in Himi City, Toyama: hereinafter KCX), the only company in Japan producing parts for construction equipment and mining equipment by casting, has gained the support and guidance of the curators and biotope managers of the Toyama University Faculty of Science and Himi City's cooperative research center "Himirabo Aquarium" to create a biotope using the lake located in the "Furusato no Mori" (Hometown Woods) within the plant site of KCX main office. Since 2014, KCX has been working on conserving the rare species of "Minami Akahiritabira" (Acheilognathus tabira jordani) outside of their habitat range.

Minami Akahiretabira is a species of fresh water fish indigenous to Japan classified as cypririod acheilognathina acheilognathus and lives also in Shimane prefecture and Tottori prefecture of the Sanin Area as well as in Fukui prefecture and Ishikawa prefecture. Toyama prefecture is at the north limit of its habitat in Japan. In 2015 it was classified as an endangered species by the Toyama Prefecture Endangered Species Protection Measure as being threatened with extinction.

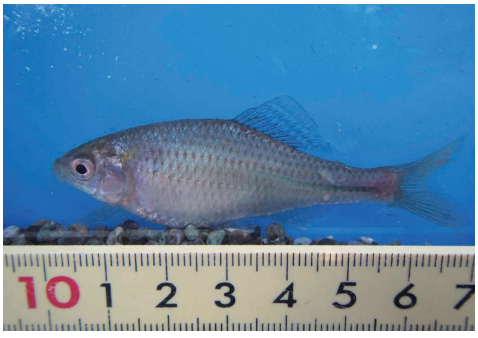
The Minami Akahiretabira is approximately 6cm long, and during spawning season (April - July), the male shows a distinct nuptial coloration while the female has the characteristic of growing a oviposting tube to bear eggs inside freshwater clams. Since freshwater clam is indispensable in 'outside habitat range' conservation, when a total of 100 Minami Akahirekatabira were released in December 2014 and April 2015, about the same number of freshwater clams (mussels) were released into the same lake. Furthermore, since mussels become parasitic on the fins of freshwater fish when breeding, Tamoroko (Gnathopogon elongates) and Motsugo (Pseudorasbora parva) were also released for the breeding purpose of the mussels.

In addition, since the runoff water from the biotope ends up flowing into the Busshouji River water system that is downstream, only species that were captured from the Busshouji River water system were released in order not to affect the original ecosystem.

In August 2016, a year and a half since the release, a survey was done to see how much the population of the Minami Akahiretabira had increased. Results from the first and second surveys made it clear that there was an increase of over 1,000 fish (approximately 10 times the number released). Also, the survey results showed that the ratio of fish captured at the time of the census was over 80% Minami Akahiretabira, which means that Minami Akahiretabira is the dominant species within the lake of "Furusato no Mori".

We hope to continue working on this conservation project with the guidance of the local curators and biotope managers.

KCX "Furusato no Mori"



Acheilognathus tabira jordani

Mussels

Population survey

Environmental Risk Management

Promoting Legal Compliance, and Pollution Mitigation and Prevention

Komatsu Group companies periodically report and archive environmental measurement results, in accordance with applicable laws and regulations of national and local authorities.

In FY2016, there were no infractions of legal regulations regarding the environment.

No major accidents or legal violations occurred that would threaten environmental contamination.

Addressing Soil and Groundwater Contaminationn

Komatsu has established guidelines for testing soil and groundwater at our Japan facilities, and we perform investigations according to applicable laws and regulations at business units that are to be sold, closed, or demolished. If contamination is found, the Company takes appropriate measures under the supervision of local authorities.

We are performing voluntary investigations at currently operating business units in order to check for contamination from volatile organic compounds (VOC) from cleaning solvents that were used in the past and working on clean up measures.

Komatsu has been surveying soil and groundwater for VOC contamination at Group business units in Japan since 2005. Business unit sites at which contamination has been detected have implemented countermeasures. The Company has selected methods to clean up the sites as quickly as possible.

Work at the Oyama Plant was completed in FY2009. The clean up work at the other sites are continuing, and at the same time we are also checking on the effectiveness of the clean up measures being taken.

Going forward, along with driving the clean up activities, we will monitor groundwater at the site boundaries to make sure that off-site outflow of groundwater does not exceed the standards.

Status of Soil and Groundwater Cleanup in Japan

Business unit	Cleanup method	Cleanup status
Awazu Plant	Excavation and removal, soil vapor extraction, groundwater withdrawal and aeration, bioremediation	In process
Komatsu Plant (formerly)	Excavation and removal, groundwater withdrawal and aeration, bioremediation	In process
Osaka Plant	Soil vapor extraction, air sparging, groundwater withdrawal and aeration, bioremediation	In process
Shonan Plant	Excavation and removal, groundwater withdrawal and aeration	In process
Tochigi Plant	Excavation and removal, bioremediation	In process

*1: Bio-remediation is purification process of hazardous materials through utilizing micro organisms and returning the soil to a non-hazardous state.

* Surveys revealed no contamination for the Koriyama Plant, Technology Innovation Center in Hiratsuka, Techno Center in Izu and Field Testing Department in Oita.

Managing PCB (Polychlorinated Biphenyl) Waste

Komatsu stores and disposes PCB-containing waste, such as transformers and fluorescent stabilizers, in accordance with Japan's "Law Concerning Special Measures Against PCB Waste" and the "Waste Disposal and Public Cleansing Law."

Since FY2008, Komatsu entrusted PCB disposal to the Japan Environmental Safety Corporation (JESCO) and about 90% of the PCB-containing transformers and stabilizers have been disposed by FY2016.

Continuing through FY2017, we plan to carry out further disposal work to locate low-concentration PCB waste as well.

Number of High Concentration PCB-containing Transformers and Stabilizers in Storage

Company	Site	Transformers		Stabilizers	
		Number of disposal in FY2016	Number of awaiting disposal	Number of disposal in FY2016	Number of awaiting disposal
Komatsu Ltd.	Head office	0	4	0	30
	Awazu Plant	16	2	0	78
	Osaka Plant	0	0	0	93
	Oyama Plant	34	3	0	2
	Shonan Plant	2	0	0	3
	Tochigi Plant	5	0	0	0
	Field Testing Department	0	0	4	0
	Construction & Mining Equipment Marketing Division	0	0	0	131
Subtotal of Komatsu		57	9	4	337
Komatsu NTC Ltd.		0	2	0	76
Komatsu Construction Equipment Sales and Service Japan Ltd.		1	3	0	349
Total of Komatsu group		1	5	0	425
Total		58	14	4	762

* The share from the former Komatsu Plant was transferred to the Awazu Plant. The share from the former Mooka Plant was transferred to the Oyama Plant.

Management of Chemical Substances and Pollution Prevention

Reducing the amount of PRTR-related substances

In FY2016 the number of substances specified by PRTR* with a handling volume of 1 ton or more (0.5 tons or more for Class I specified) was 23 with a decrease of 2 substances from the previous year.

Among all PRTR-listed substances. the three substances of xylene, ethyl benzene and toluene account for approximately 92% of the emissions from Komatsu and Komatsu Group manufacturing facilities. Most of these emissions are released into the atmosphere.

At the Komatsu and Komatsu Group manufacturing facilities, we are undertaking initiatives such as switching to paints with lower proportion of PRTR-listed substances, using high-solid paints, improving coating efficiency and reducing film thickness. Also, we are changing the substances handled in large volumes are to secondary materials that contain less PRTR-listed substances in order to reduce the handling volumes of such substances. The amount of emissions for FY2016 has been reduced by about 3% from the previous year.

*PRTR: Law designed to mandate the disclosure of the amount of specific chemical substances released into the environment to promote the management of such substances (The notification system based on the PRTR Law)

Environmental Risk Management

Reducing the amount of VOC released

The majority of VOC emissions are from VOC contained in paint, such as Xylene and Ethyl benzene.

The amount of emissions in FY2016 has slightly increased compared to the previous year, but we have maintained a 50% reduction as compared to FY2005 in the amount of VOC emissions per units of manufacturing value.

Komatsu Cabtec Co., Ltd. has worked as one with the young technicians of the manufacturing technology department and the procurement department on projects, and made major improvements in paint quality by introducing new technology and cutting down paint costs, and at the same time contributed to the improvement of the painting technology of the Komatsu Group as a whole, and won the 2016 Citation from the General Manager of Manufacturing.

Komatsu Cabtec Co., Ltd.'s Painting Line

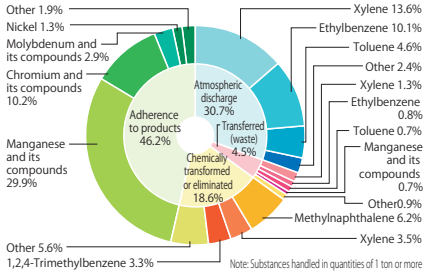
Names of Class I Designated Chemical Substances and the Amounts Released and Transferred from Komatsu Group Manufacturing Facilities in Japan

(handling 1 ton or more, or 0.5 ton or more for Class I Specified Chemical Substances) (applicable PRTR substances from April 2010) (Unit: t))

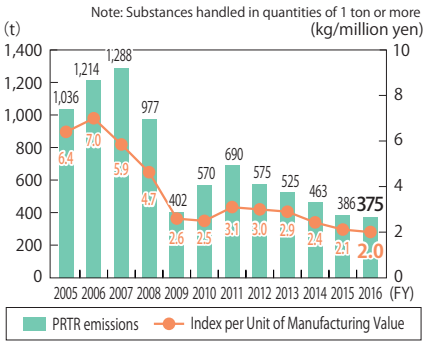
Number under the PRTR Law	Name	Amount handled	Amount released				Amount transferred		Chemically transformed or eliminated	Amount Contained in Products
			Air	Water	Soil	Buried	Sewage	Waste		
412	Manganese and its compounds	374.0	0.6	0.0	—	—	—	8.2	0.0	365.2
80	Xylene	224.2	165.5	—	—	—	—	15.7	42.4	0.5
53	Ethylbenzene	149.6	123.2	—	—	—	—	10.6	15.4	0.4
87	Chromium and chromium (Ⅲ) compounds	126.3	0.0	—	—	—	—	1.2	—	125.1
438	Methylna phthalene	76.0	0.4	—	—	—	—	—	75.7	—
300	Toluene	72.4	56.7	—	—	—	—	8.8	6.9	—
296	1,2,4-trimethyl benzene	66.9	19.3	—	—	—	—	1.7	40.0	0.1
453	Molybdenum and its compounds	35.6	—	—	—	—	—	0.0	—	35.6
448	Methylenebis (4,1phenylene) = diisocyanate	27.0	—	—	—	—	—	0.0	26.5	0.5
308	Nickel	15.2	0.0	—	—	—	—	0.0	—	15.2
88	Chromium (Ⅵ) compounds *1 *2	9.3	0.0	—	—	—	—	2.3	—	—
321	Vanadium compounds	8.7	—	—	—	—	—	0.0	—	8.7
297	1,3,5-trimethyl benzene	8.5	4.3	—	—	—	—	0.4	3.8	—
132	Cobalt and its compounds	7.6	—	—	—	—	—	0.9	—	6.7
277	Triethylamine	6.3	1.3	—	—	—	—	0.0	5.0	0.0
207	2,6-Di-tert-butyl-4-cresol	5.5	0.0	0.0	—	—	—	0.9	—	4.6
349	Phenol *3	4.3	0.0	—	—	—	—	—	4.3	—
258	1,3,5,7-tetraaza tricyclo[3, 3,1,1(3,7)] decane *3	3.9	0.0	—	—	—	—	0.0	2.1	1.7
188	N,N-dicyclohe xylamine	3.1	0.0	0.0	—	—	—	2.8	0.2	0.1
302	Naphthalene	2.7	1.4	—	—	—	—	0.4	0.9	—
83	Isopropyl benzene	2.6	1.5	—	—	—	—	0.1	1.0	—
392	n-hexane	2.4	0.7	—	—	—	—	0.0	1.7	—
405	Boron Compounds	1.6	—	—	—	—	—	0.3	1.2	0.1

*1: During chrome plating, chromium (Ⅵ) compounds become chromium compounds. Therefore, the amount transferred and the amount contained in products are entered as chromium and chromium(Ⅲ) compounds.
*2: PRTR Class I Specified Chemical Substances
*3: Although the amount contained is below the amount that requires registration with the PRTR, we report the data because the amount released exceeds one ton.

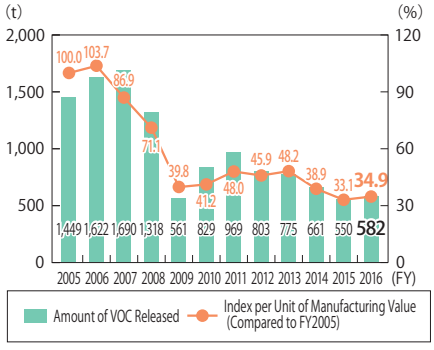
Breakdown of the Amount of PRTR-related Substances Released and Transferred from Komatsu Group Manufacturing Facilities in Japan



Amount of PRTR-related Substances Released from Komatsu Group Manufacturing Facilities in Japan



Amount of VOC Released from Komatsu Group Manufacturing Facilities in Japan



Reducing the Use of Substances of Environmental Concern and Complying with the EU REACH Regulation

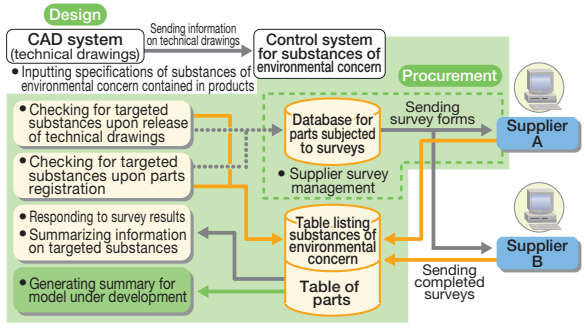
Komatsu has been making efforts from an early stage to reduce the use of asbestos, lead, and other substances of environmental concern. In FY1999, Komatsu created its own list of banned substances and substances approved for use only in limited circumstances (Refer to ""Substances of Environmental Concern Banned or to Be Reduced for Use in Products"), which was based in part on the chemical substances banned under Japan's Law Concerning the Examination and Regulation of Manufacture of Chemical Substances Control, as well as regulations in other countries.

In addition, Komatsu has begun comprehensive control of substances of environmental concern. Recently, in compliance with REACH *1, Komatsu began revising its listing of substances designated as approved for limited use, or banned to use. Through the cooperation of suppliers, the Company has initiated a system to strengthen control of substances of environmental concern in its products. This system has been deployed in Japan and Europe, and is also being implemented in other overseas subsidiaries.

By using this system, we identify SVHC (substances of very high concern) in vehicles currently in production and in newly developed vehicles. Furthermore, we also regularly check for new SVHCs to be added to the list.

There are currently 173 SVHCs registered, but more are added on a bi-yearly basis. In future, it is said that the number of SVHC will increase up to 1,500. Komatsu has devised a workflow to monitor control of these substances.

Control System for Substances of Environmental Concern



Substances of Environmental Concern Banned or to Be Reduced for Use in Products

Rank	Number	Chemical Substance
Banned	17	● Hexavalent Chromium ● Cadmium ● Mercury ● PBB/PBDE/HBCDD *3 ● Tri-substituted Organostannic Compounds ● Sulfur Hexafluoride *3 ● PCB ● Asbestos ● Specified CFCs/Alternative CFCs (HCFC) ● Trichloroethylene ● Triethanolamine ● Hexachlorobenzene ● PFOS (Perfluorooctanesulfates) ● RCF (Fire-Resistant Ceramic Fibers) (Alumina and Scilica Types) *3
To be reduced (Subject to limited use)	15	● Lead ● Arsenic ● Selenium ● Alternative CFCs (HFC) ● Specified phthalate ester (DEHP/DBP/BBP/DIBP) *2 ● Specified Chlorinated Flame Retardents (TCEP) ● Polycyclic Aromatic Hydrocarbons (PAH) ● Methanol ● DZ ● BNST ● DOTE ● UV327
Substances of Very High Concern (SVHC) under the EU REACH Regulation	(173) *4	Komatsu is subject to control the following substances, which might be used in Komatsu products. ● DEHP/DBP/BBP/DIBP ● HBCDD/DBDE/Trisphosphates (2-Chloroethyl) ● RCF ● Specified Lead Compounds (SOC 4) ● DOTE ● UV327

*1: REACH: EU regulations for Registration, Evaluation, Authorization and Restriction of Chemicals
*2: Diethylhexyl phthalate, dibutyl phthalate, benzyl butyl phthalate, diisobutyl phthalate
*3: Review for stricter limits due to regulatory trends.
*4: The number of substances registered up until April, 2017 (progressively updated). Includes materials that are not contained in Komatsu construction equipment.

Water Related Risk Management

Based on the Earth Environment Charter, up to the first half of FY2015 Komatsu Group has worked on:

(1) Promoting the reduction in usage amount (input) and the recycling (circulation) of water.

(2) Activities centered on water quality conservation.

However, in response to the frequency of weather abnormalities and societal demand (2015/1 Water Crisis named as number one risk at Davos Forum, etc.), from the second half of 2015 "Water Related Risk Evaluation Committee" was newly established, and after six months of study, conducted a "Water Related Risk Survey" with the main domestic and international affiliates as subjects.

Results from the Water Related Risk Survey (conducted at 45 global affiliates/divisions in January 2016)

Water related risk as Komatsu Group

(1) Effect of heavy rain on operations/business

(2) Risk of pollution from drainage

(3) Effect of river flood on the supply chain

Based on the above results, as Komatsu Group's policies related to water, from FY2016—along with continuing our previous activities—we are newly promoting "Water Related Risk Reduction Activities" in order to minimize as much as possible the effects of water related problems on the business of Komatsu Group.

Domestic Example Case (Oyama and Tochigi Plants)

As a measure against heavy rain, on the plant premises we are building three reservoirs that can hold up to an hour's worth of 100mm/h rainfall, as well as installing heavy rainfall water pipes, building underground reservoirs, and widening the rainwater drainage ways. Also, in order to prevent water flowing outside of the premises, we are installing water block walls and water stop bars.

* The reservoir is also serving to alleviate the surrounding district's lack of drainage capacity.

(1) Oyama Plant 20,000 tons and 10,000 tons reservoirs (completed)

(2) Oyama Plant 4,000 tons reservoir (under construction) and Tochigi Plant 12,000 reservoir (planning stage)

Environmental Data by Manufacturing Facility in Japan

Overview

Manufacturing facility	Awazu Plant (established in 1938)	Kanazawa Plant (established in 2007)	Osaka Plant (established in 1952)
Location	Komatsu, Ishikawa Prefecture	Kanazawa, Ishikawa Prefecture	Hirakata, Osaka Prefecture
Main products	Small and medium-sized bulldozers, small hydraulic excavators, small and medium-sized wheel loaders, motor graders, etc.	Ultra-large hydraulic excavators, large presses, medium presses	Large bulldozers, medium-and large-sized hydraulic excavators, mobile crushers/recyclers/tub grinders (crushers, soil stabilizers, tub grinders, etc.)
Site/Green Landscape (1,000 m²)	700/85	134/30	572/74
Number of employees	2,770	620	2,666
Date of ISO14001 certification acquisition	September 1997	May 2007	July 1997

*The number of employees includes those working for Komatsu affiliates on the premises.
*The number of employees as of the end of March 2017.

Major Performance

Environmental impact

*Refer to the Data on Environmental Impact Resulting from Business Activities for details on the methods used to calculate amounts.
*Total emissions of waste are expressed as a composite of the amount recycled (excluding valuables) and the amount disposed.
*Recycling rate is calculated by dividing the amount recycled (including valuables) by the amount generated (including valuables).
*Total emissions of BOD and COD are calculated by multiplying the average concentration by the amount of wastewater.

Item	Actual value	Item	Actual value	Item	Actual value
Total CO_2 emissions	28,051 t-CO_2	Total CO_2 emissions	1,292 t-CO_2	Total CO_2 emissions	24,618 t-CO_2
NOx total amount	26,107 kg	NOx total amount	— kg	NOx total amount	2,030 kg
SOx total amount	2,481 kg	SOx total amount	0 kg	SOx total amount	14 kg
Total emissions of waste	1,261 t	Total emissions of waste	104 t	Total emissions of waste	977 t
Amount recycled	1,260 t	Amount recycled	104 t	Amount recycled	973 t
Recycling rate	99.9 %	Recycling rate	100 %	Recycling rate	99.7 %
BOD emissions	1,964 kg	BOD emissions	55 kg	BOD emissions	603 kg
COD emissions	2,003 kg	COD emissions	142 kg	COD emissions	1,316 kg
Wastewater	615,287 m³	Wastewater	30,496 m³	Wastewater	205,031 m³
Output of in-house power generation	6,410 MWh	Output of in-house power generation	638 MWh	Output of in-house power generation	6,341 MWh

Energy consumption

*The heat energy conversion factor is calculated in keeping with Greenhouse Gas Emissions Calculation - Reporting Manual, which is based on the act on Promotion of Global Warming Countermeasures.

Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)
Electricity	48,780 MWh	474,062	Electricity	3,955 MWh	38,568	Electricity	41,078 MWh	398,475
Heavy oil A	2,052 kℓ	80,233	Heavy oil A	0 kℓ	0	Heavy oil A	5 kℓ	182
Kerosene	7 kℓ	244	Kerosene	0 kℓ	0	Kerosene	10 kℓ	352
Light oil	244 kℓ	9,303	Light oil	1 kℓ	45	Light oil	437 kℓ	16,677
Town gas	0 Nkm³	0	Town gas	0 Nkm³	0	Town gas	3,799 Nkm³	159,192
LPG	1,226 t	61,526	LPG	5 t	258	LPG	24 t	1,206
Other		1,442	Other		0	Other		1,033
Total		626,811	Total		38,872	Total		577,118

Water consumption

Item	Actual value	Item	Actual value	Item	Actual value
Groundwater	526,348 m³	Groundwater	23,469 m³	Groundwater	66,196 m³
Industrial water	0 m³	Industrial water	0 m³	Industrial water	0 m³
Supply water	76,699 m³	Supply water	7,027 m³	Supply water	67,222 m³
Total	603,047 m³	Total	30,496 m³	Total	133,418 m³

Compliance Conditions to Major Regulations

Air

Item	Unit	Facility	Regulated value	Actual value	Facility	Regulated value	Actual value	Facility	Regulated value	Actual value
Nitrogen oxides (NOx)	ppm	Boiler	180	90	N/A	—	—	Boiler	150	25
	ppm	Diesel engine	950	760				Metal furnace	180	36
	ppm	Biomass Boiler	350	85				Paint drying furnace	230	12
	ppm							Gas engine	600	56
Sulfur oxides (SOx)	—	K-value regulation	17.5	4.38						
Soot and dust	g/m³N	Boiler	0.3	0.013	N/A	—	—	Boiler	0.05	0.003
	g/m³N	Diesel engine	0.1	0.018				Metal furnace	0.1	0.061
	g/m³N	Biomass Boiler	0.30	0.30				Paint drying furnace	0.1	0.006
	g/m³N							Gas engine	0.04	0.002

*Regulated values are in accordance with the Air Pollution Control Law and local regulations.

Wastewater

Item	Regulated value according to the Water Pollution Control Law	Regulated value	Actual value			Regulated value	Actual value			Regulated value	Actual value		
			Maximum	Minimum	Average		Maximum	Minimum	Average		Maximum	Minimum	Average
pH	5.8~8.6	5.8~8.6	7.4	6.4	6.8	5.0~9.0	8.4	6.8	7.3	5.8~8.6	7.6	7.2	7.5
BOD (Biochemical oxygen demand)	160mg/ℓ	80	3.8	ND	2.1	80	1.8	ND	1.2	35	6.3	0.9	2.9
COD (Chemical Oxygen Demand)	160mg/ℓ	80	3.9	0.7	2.3	80	12	0.8	3.3	35	8.5	4.6	6.4
Suspended solids (SS)	200mg/ℓ	120	4.0	ND	2.3	120	5.6	ND	2.7	70	7	2	4.0
Mineral oils	5mg/ℓ	5	ND	ND	ND	5	ND	ND	ND	5	0.6	ND	0.5
Copper	3mg/ℓ	3	ND	ND	ND	3	ND	ND	ND	3	ND	ND	ND
Zinc	2mg/ℓ	2	0.07	ND	0.06	2	ND	ND	ND	2	ND	ND	ND
Nitrogen	120mg/ℓ	120	4.5	3.6	4.1	120	18	0.2	9.1	120	21	4.0	13.7
Phosphorus	16mg/ℓ	16	0.47	0.01	0.25	16	2.1	0.01	1.1	16	0.27	0.06	0.12
Cadmium	0.03mg/ℓ	0.03	ND	ND	ND	0.03	ND	ND	ND	0.003	ND	ND	ND
Lead	0.1mg/ℓ	0.1	ND	ND	ND	0.1	ND	ND	ND	0.01	ND	ND	ND
Chromium (VI)	0.5mg/ℓ	0.5	ND	ND	ND	0.5	ND	ND	ND	0.05	ND	ND	ND
Trichloroethylene	0.1mg/ℓ	0.1	ND	ND	ND	0.1	ND	ND	ND	0.01	ND	ND	ND
Tetrachloroethylene	0.1mg/ℓ	0.1	ND	ND	ND	0.1	ND	ND	ND	0.01	ND	ND	ND
Dichloromethane	0.2mg/ℓ	0.2	ND	ND	ND	0.2	ND	ND	ND	0.02	ND	ND	ND
1,1,1-trichloroethane	3mg/ℓ	3	ND	ND	ND	3	ND	ND	ND	1	ND	ND	ND

*Regulated values are in accordance with the Water Pollution Control Law, Sewerage Law and local regulations.
*ND ("not detected") indicates a value below the lower limit of detection.
*ND is considered to be the lower limit of detection when calculating the average.
*Other items are confirmed to be below the regulated value.

*Data for the Kanazawa Plant include data for the Kanazawa Dai-ichi and Dai-ni Plant.

*Data for the Osaka Plant include data for the Rokko Plant.

Ibaraki Plant (established in 2007)	Oyama Plant (established in 1962)	Koriyama Plant (established in 1994)	Shonan Plant (established in 1966)
Hitachinaka, Ibaraki Prefecture	Oyama, Tochigi Prefecture	Koriyama, Fukushima Prefecture	Hiratsuka, Kanagawa Prefecture
Large wheel loaders, dump trucks	Engines for construction/industrial machinery, diesel generators, hydraulic equipment, axle, excimer lasers, etc.	Hydraulic cylinders, swivel joints, gear pumps	Control equipment for construction and mining equipment, hybrid components. Thermoelectric modules, temperature control equipment, etc.
350/71	591/126	297/153	69/14
860	3,358	413	1,283
May 2007	May 1997	July 2002	March 2000

Item	Actual value	Item	Actual value	Item	Actual value	Item	Actual value
Total CO_2 emissions	3,237 t-CO_2	Total CO_2 emissions	45,320 t-CO_2	Total CO_2 emissions	8,048 t-CO_2	Total CO_2 emissions	3,674 t-CO_2
NOx total amount	— kg	NOx total amount	26,735 kg	NOx total amount	35,865 kg	NOx total amount	— kg
SOx total amount	3 kg	SOx total amount	173 kg	SOx total amount	1,405 kg	SOx total amount	0 kg
Total emissions of waste	281 t	Total emissions of waste	2,022 t	Total emissions of waste	771 t	Total emissions of waste	159 t
Amount recycled	281 t	Amount recycled	2,022 t	Amount recycled	771 t	Amount recycled	159 t
Recycling rate	100 %	Recycling rate	100 %	Recycling rate	100 %	Recycling rate	100 %
BOD emissions	2,757 kg	BOD emissions	1,886 kg	BOD emissions	31 kg	BOD emissions	2,533 kg
COD emissions	— kg	COD emissions	2,372 kg	COD emissions	152 kg	COD emissions	— kg
Wastewater	19,515 m^3	Wastewater	379,000 m^3	Wastewater	12,680 m^3	Wastewater	32,074 m^3
Output of in-house power generation	250 MWh	Output of in-house power generation	7,262 MWh	Output of in-house power generation	3,568 MWh	Output of in-house power generation	170 MWh

Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)
Electricity	6,636 MWh	64,817	Electricity	64,057 MWh	624,036	Electricity	10,239 MWh	99,040	Electricity	9,300 MWh	91,802
Heavy oil A	0 kℓ	0	Heavy oil A	44 kℓ	1,735	Heavy oil A	930 kℓ	36,363	Heavy oil A	0 kℓ	0
Kerosene	0 kℓ	6	Kerosene	1,678 kℓ	61,596	Kerosene	0 kℓ	0	Kerosene	0 kℓ	0
Light oil	226 kℓ	8,621	Light oil	4,560 kℓ	174,207	Light oil	6 kℓ	239	Light oil	7 kℓ	269
Town gas	0 Nkm^3	0	Town gas	2,193 Nkm^3	91,887	Town gas	0 Nkm^3	0	Town gas	75 Nkm^3	3,140
LPG	32 t	1,619	LPG	32 t	1,601	LPG	541 t	27,183	LPG	0 t	0
Other		6	Other		1,162	Other		156	Other		0
Total		75,068	Total		956,223	Total		162,981	Total		95,211

Item	Actual value	Item	Actual value	Item	Actual value	Item	Actual value
Groundwater	0 m^3	Groundwater	422,879 m^3	Groundwater	0 m^3	Groundwater	0 m^3
Industrial water	0 m^3	Industrial water	0 m^3	Industrial water	2,964 m^3	Industrial water	0 m^3
Supply water	19,515 m^3	Supply water	1,846 m^3	Supply water	23,727 m^3	Supply water	32,047 m^3
Total	19,515 m^3	Total	424,725 m^3	Total	26,691 m^3	Total	32,047 m^3

Facility	Regulated value	Actual value	Facility	Regulated value	Actual value	Facility	Regulated value	Actual value	Facility	Regulated value	Actual value
Diesel engine	100	Non-operational	Diesel engine	950	880	Cogeneration engine	950	740	N/A	—	—
			Gas turbine	70	32						
K-value regulation	9	Non-operational	K-value regulation	7.0	0.45	K-value regulation	11.5	0.45			
Diesel engine	0.1	Non-operational	Diesel engine	0.1	0.03	Cogeneration engine	0.1	0.039	N/A	—	—
			Gas turbine	0.05	0.001						

Regulated value (Sewage Water Law)	Actual value			Regulated value	Actual value			Regulated value	Actual value			Regulated value (Sewage Water Law)	Actual value		
	Maximum	Minimum	Average		Maximum	Minimum	Average		Maximum	Minimum	Average		Maximum	Minimum	Average
5~9	8.8	7.7	8.4	5.8~8.6	7.6	6.9	7.2	5.8~8.6	7.7	6.9	7.4	5~9	8.6	6.9	7.9
600	310	47	141	25	9	1.4	5.0	40	5	ND	2.5	600	410	ND	61
—	—	—	—	25	10.1	ND	6.3	40	19	5.4	12.0	—	—	—	—
600	540	83	237	50	13	ND	4.8	70	4.2	1	2.8	600	150	ND	29
5	ND	ND	ND	5	1.2	ND	0.8	1	ND	ND	ND	5	9.0	ND	2.0
—	—	—	—	3	ND	ND	ND	2	ND	ND	—	3	ND	ND	ND
—	—	—	—	2	0.2	ND	0.1	2	0.06	0.06	—	2	0.09	ND	0.05
—	—	—	—	20	8.5	0.7	4.6	120	20	20	—	—	—	—	—
—	—	—	—	2	0.4	ND	0.2	16	2.4	2.4	—	—	—	—	—
—	—	—	—	0.03	ND	ND	ND	0.03	ND	ND	—	0.03	ND	ND	ND
—	—	—	—	0.1	ND	ND	ND	0.1	ND	ND	ND	0.1	ND	ND	ND
—	—	—	—	0.1	ND	ND	ND	0.2	ND	ND	ND	0.5	ND	ND	ND
—	—	—	—	0.1	ND	ND	ND	0.1	ND	ND	—	0.1	ND	ND	ND
—	—	—	—	0.1	ND	ND	ND	0.1	ND	ND	—	0.1	ND	ND	ND
—	—	—	—	—	—	—	—	0.2	ND	ND	—	0.2	ND	ND	ND
—	—	—	—	3	ND	ND	ND	3	ND	ND	—	3	ND	ND	ND

*Data for the Shonan Plant include data for KELK Ltd.(excluding GIGAPHOTON, Inc)

Environmental Data by Manufacturing Facility in Japan

Overview

Manufacturing facility	Tochigi Plant (established in 1968)	Development Division, Technology Innovation Center (established in 1985)	Komatsu Castex Ltd. (established in 1952)
Location	Oyama, Tochigi Prefecture	Hiratsuka, Kanagawa Prefecture	Himi, Toyama Prefecture
Main products	Forklift trucks, mini excavators, mini wheel loaders	R&D on business fields of the Komatsu Group	Ironcastings, steel castings, molds for casting, etc.
Site/Green Landscape (1,000 m²)	215/25	195/124	433/104
Number of employees	650	317	864
Date of ISO14001 certification acquisition	February 1998	May 2008	January 2000

*The number of employees includes those working for Komatsu affiliates on the premises.
*The number of employees as of the end of March 2017.

Major Performance

Environmental impact

*Refer to the Data on Environmental Impact Resulting from Business Activities for details on the methods used to calculate amounts.
*Total emissions of waste are expressed as a composite of the amount recycled (excluding valuables) and the amount disposed.
*Recycling rate is calculated by dividing the amount recycled (including valuables) by the amount generated (including valuables).
*Total emissions of BOD and COD are calculated by multiplying the average concentration by the amount of wastewater.

Item	Actual value	Item	Actual value	Item	Actual value
Total CO_2 emissions	3,151 t-CO_2	Total CO_2 emissions	1,538 t-CO_2	Total CO_2 emissions	52,351 t-CO_2
NOx total amount	1,459 kg	NOx total amount	260 kg	NOx total amount	11,197 kg
SOx total amount	1,115 kg	SOx total amount	1 kg	SOx total amount	2,154 kg
Total emissions of waste	416 t	Total emissions of waste	70 t	Total emissions of waste	5,750 t
Amount recycled	416 t	Amount recycled	70 t	Amount recycled	5,713 t
Recycling rate	100 %	Recycling rate	99.8 %	Recycling rate	99.8 %
BOD emissions	268 kg	BOD emissions	8 kg	BOD emissions	1,174 kg
COD emissions	307 kg	COD emissions	20 kg	COD emissions	2,283 kg
Wastewater	53,990 m³	Wastewater	3,339 m³	Wastewater	555,327 m³
Output of in-house power generation	384 MWh	Output of in-house power generation	117 MWh	Output of in-house power generation	0 MWh

Energy consumption

*The heat energy conversion factor is calculated in keeping with Greenhouse Gas Emissions Calculation - Reporting Manual, which is based on the act on Promotion of Global Warming Countermeasures.

Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)
Electricity	4,556 MWh	44,395	Electricity	3,012 MWh	29,113	Electricity	104,336 MWh	1,022,434
Heavy oil A	445 kℓ	17,399	Heavy oil A	0 kℓ	0	Heavy oil A	1,598 kℓ	62,485
Kerosene	0 kℓ	0	Kerosene	104 kℓ	3,813	Kerosene	689 kℓ	25,298
Light oil	30 kℓ	1,138	Light oil	37 kℓ	1,420	Light oil	211 kℓ	8,048
Town gas	0 Nkm³	0	Town gas	0 Nkm³	0	Town gas	0 Nkm³	0
LPG	38 t	1,889	LPG	8 t	416	LPG	1,896 t	95,178
Other		63	Other		14	Other		0
Total		64,885	Total		34,776	Total		1,213,443

Water consumption

Item	Actual value	Item	Actual value	Item	Actual value
Groundwater	65,458 m³	Groundwater	0 m³	Groundwater	555,327 m³
Industrial water	0 m³	Industrial water	0 m³	Industrial water	0 m³
Supply water	0 m³	Supply water	7,290 m³	Supply water	20,938 m³
Total	65,458 m³	Total	7,290 m³	Total	576,265 m³

Compliance Conditions to Major Regulations

Air

Item	Unit	Facility	Regulated value	Actual value	Facility	Regulated value	Actual value	Facility	Regulated value	Actual value
Nitrogen oxides (NOx)	ppm	Small boilers	(260)	74	Service generator	190	130	Annealing furnace	200	170
	ppm				Cold/hot water generator	390	47	Calciners	220	21
	ppm									
	ppm									
Sulfur oxides (SOx)	—	K-value regulation	7.0	0.51	K-value regulation	11.5	0.05	K-value regulation	17.5	2
Soot and dust	g/m³N	Small boilers	(0.5)	0.002	Service generator	0.1	0.038	Annealing furnace	0.25	0.01 or less
	g/m³N				Cold/hot water generator	0.2	0.004	Calciners	0.15	0.01 or less
	g/m³N							Arch furnace	0.1	0.01 or less
	g/m³N									

*Regulated values are in accordance with the Air Pollution Control Law and local regulations.
*Regulated values of NOx, soot and dust are in accordance with self-regulatory measures, because these boilers are small.

Wastewater

Item	Regulated value according to the Water Pollution Control Law	Regulated value	Actual value			Regulated value	Actual value			Regulated value	Actual value		
			Maximum	Minimum	Average		Maximum	Minimum	Average		Maximum	Minimum	Average
pH	5.8~8.6	5.8~8.6	7.6	7.0	7.2	5.8~8.6	7.6	6.9	7.3	5.8~8.6	8.3	7.2	7.6
BOD (Biochemical oxygen demand)	160mg/ℓ	25	14.1	1	5.0	10	5	1	2.5	25	4	ND	1.7
COD (Chemical Oxygen Demand)	160mg/ℓ	25	9.5	2.3	5.7	25	8	4	6.2	160	5.5	1	3.2
Suspended solids (SS)	200mg/ℓ	50	18.8	ND	6.4	65	14	ND	6.3	90	15	ND	5.1
Mineral oils	5mg/ℓ	5	1.9	ND	0.8	5	ND	ND	ND	5	ND	ND	ND
Copper	3mg/ℓ	3	ND	ND	ND	1	ND	ND	ND	1	ND	ND	ND
Zinc	2mg/ℓ	2	0.3	ND	0.2	1	0.2	ND	0.05	2	0.06	0.02	0.04
Nitrogen	120mg/ℓ	20	9.5	1.1	4.8	—	—	—	—	120	7	1.7	4.9
Phosphorus	16mg/ℓ	2	1.0	ND	0.4	—	—	—	—	16	1.5	0.1	0.8
Cadmium	0.03mg/ℓ	0.03	ND	ND	ND	0.03	ND	ND	ND	0.03	ND	ND	ND
Lead	0.1mg/ℓ	0.1	ND	ND	ND	0.1	ND	ND	ND	0.1	ND	ND	ND
Chromium (VI)	0.5mg/ℓ	0.1	ND	ND	ND	0.5	ND	ND	ND	0.5	ND	ND	ND
Trichloroethylene	0.1mg/ℓ	0.1	ND	ND	ND	0.1	ND	ND	ND	0.1	ND	ND	ND
Tetrachloroethylene	0.1mg/ℓ	0.1	ND	ND	ND	0.1	ND	ND	ND	0.1	ND	ND	ND
Dichloromethane	0.2mg/ℓ	—	—	—	—	0.2	ND	ND	ND	0.2	ND	ND	ND
1,1,1-trichloroethane	3mg/ℓ	3	ND	ND	ND	3	ND	ND	ND	3	ND	ND	ND

*Regulated values are in accordance with the Water Pollution Control Law, Sewerage Law and local regulations.
*ND ("not detected") indicates a value below the lower limit of detection.
*ND is considered to be the lower limit of detection when calculating the average.
*Other items are confirmed to be below the regulated value.

Overview

Manufacturing facility	Komatsu NTC Ltd. (established in 1945)	Komatsu Cabtec Co., Ltd. (established in 1918)
Location	Nanto, Toyama Prefecture	Ryuou-cho, Gamou, Shiga Prefecture
Main products	Machine tools, wire saws	Cabs for construction equipment, Exhaust-gas aftertreatment device
Site/Green Landscape (1,000 m²)	216/22	42/10
Number of employees	1,499	348
Date of ISO14001 certification acquisition	June 1999	December 2007

*The number of employees includes those working for Komatsu affiliates on the premises.
*The number of employees as of the end of March 2017.

Major Performance

Environmental impact
*Refer to the Data on Environmental Impact Resulting from Business Activities for details on the methods used to calculate amounts.
*Total emissions of waste are expressed as a composite of the amount recycled (excluding valuables) and the amount disposed.
*Recycling rate is calculated by dividing the amount recycled (including valuables) by the amount generated (including valuables).
*Total emissions of BOD and COD are calculated by multiplying the average concentration by the amount of wastewater.

Item	Actual value	Item	Actual value
Total CO_2 emissions	7,368 t-CO_2	Total CO_2 emissions	3,336 t-CO_2
NOx total amount	— kg	NOx total amount	— kg
SOx total amount	1 kg	SOx total amount	0 kg
Total emissions of waste	1,266 t	Total emissions of waste	955 t
Amount recycled	1,266 t	Amount recycled	871 t
Recycling rate	100 %	Recycling rate	98.1 %
BOD emissions	825 kg	BOD emissions	0 kg
COD emissions	— kg	COD emissions	1 kg
Wastewater	706,369 m³	Wastewater	22,716 m³
Output of in-house power generation	65 MWh	Output of in-house power generation	0 MWh

Energy consumption
*The heat energy conversion factor is calculated in keeping with Greenhouse Gas Emissions Calculation - Reporting Manual, which is based on the act on Promotion of Global Warming Countermeasures.

Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)
Electricity	18,387 MWh	180,050	Electricity	6,759 MWh	65,969
Heavy oil A	0 kℓ	0	Heavy oil A	0 kℓ	0
Kerosene	0 kℓ	0	Kerosene	4 kℓ	159
Light oil	49 kℓ	1,860	Light oil	32 kℓ	1,215
Town gas	0 Nkm³	0	Town gas	0 Nkm³	0
LPG	60 t	3,006	LPG	211 t	10,601
Other		11	Other		188
Total		184,928	Total		78,131

Water consumption

Item	Actual value	Item	Actual value
Groundwater	714,369 m³	Groundwater	0 m³
Industrial water	0 m³	Industrial water	0 m³
Supply water	11,020 m³	Supply water	22,716 m³
Total	725,389 m³	Total	22,716 m³

Compliance Conditions to Major Regulations

Air

Item	Unit	Facility	Regulated value	Actual value	Facility	Regulated value	Actual value
Nitrogen oxides (NOx)	ppm	N/A	—	—	N/A	—	—
Sulfur oxides (SOx)	—						
Soot and dust	g/m³N	N/A	—	—	N/A	—	—

*Regulated values are in accordance with the Air Pollution Control Law and local regulations.

Wastewater

Item	Regulated value according to the Water Pollution Control Law	Regulated value	Actual value			Regulated value	Actual value		
			Maximum	Minimum	Average		Maximum	Minimum	Average
pH	5.8~8.6	5.8~8.6	7.6	6.3	7.0	5.8~8.6	7.6	6.7	7.1
BOD (Biochemical oxygen demand)	160mg/ℓ	160	4.9	ND	1.6	20	3.0	1.0	1.8
COD (Chemical Oxygen Demand)	160mg/ℓ	—	—	—	—	20	5.8	1.5	2.5
Suspended solids (SS)	200mg/ℓ	200	15	ND	2.5	20	3.2	ND	1.3
Mineral oils	5mg/ℓ	5	0.5	ND	0.5	—	—	—	—
Copper	3mg/ℓ	—	—	—	—	0.1	ND	ND	ND
Zinc	2mg/ℓ	—	—	—	—	0.5	0.04	ND	0.02
Nitrogen	120mg/ℓ	—	—	—	—	8	7.4	0.7	2.2
Phosphorus	16mg/ℓ	—	—	—	—	0.6	ND	ND	ND
Lead	0.1mg/ℓ	—	—	—	—	0.1	ND	ND	ND

*Regulated values are in accordance with the Water Pollution Control Law, Sewerage Law and local regulations.
*ND ("not detected") indicates a value below the lower limit of detection.
*ND is considered to be the lower limit of detection when calculating the average.
*Other items are confirmed to be below the regulated value.
*Data for Komatsu NTC Ltd. include data for the Toyama plant and the Fukuno Plant.

Overview

Manufacturing facility	Komatsu Construction Equipment Sales and Service Japan Ltd. (established in March 1967)	Komatsu Rental Ltd. (established in Oct. 2006)	Komatsu Forklift Japan Ltd. (established in Jan. 1973)
Location	Kawasaki-shi, Kanagawa Prefecture (Head office)	Yokohama, Kanagawa Prefecture (Head office)	Shinagawa, Tokyo metropolitan (Head office)
Activities	Sales and service for construction machinery	Rentals for construction machinery, engineering works construction machine apparatuses, and vehicles	Sales and service for forklift
Number of bases	102	131	125
Number of employees	1,895	891	1,569
Date of ISO14001 certification acquisition	—	—	—

*The number of business sites and employees as of the end of March 2017.

Major Performance

Environmental impact
*Total emissions of waste are expressed as a composite of the amount recycled (including valuables) and the amount disposed.
*Recycling rate is calculated by dividing the amount recycled (including valuables) by the amount generated (including valuables).

Item	Actual value	Item	Actual value	Item	Actual value
Total CO_2 emissions	4,352 t-CO_2	Total CO_2 emissions	1,910 t-CO_2	Total CO_2 emissions	2,246 t-CO_2
Total emissions of waste	5,339 t	Total emissions of waste	2,289 t	Total emissions of waste	5,123 t
Amount recycled	4,492 t	Amount recycled	1,347 t	Amount recycled	4,662 t
Recycling rate	84.1 %	Recycling rate	58.8 %	Recycling rate	91.0 %

Energy consumption
*The heat energy conversion factor is calculated in keeping with Greenhouse Gas Emissions Calculation - Reporting Manual, which is based on the act on Promotion of Global Warming Countermeasures.

Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)
Electricity	7,820 MWh	77,964	Electricity	3,949 MWh	39,370	Electricity	4,667 MWh	46,526
Heavy oil A	39 kℓ	1,529	Heavy oil A	0 kℓ	0	Heavy oil A	0 kℓ	0
Kerosene	386 kℓ	14,181	Kerosene	59 kℓ	2,176	Kerosene	122 kℓ	4,466
Light oil	51 kℓ	1,934	Light oil	88 kℓ	3,310	Light oil	6 kℓ	238
LPG	15 t	772	LPG	3 t	137	LPG	41 t	2,093
Town gas	41	1,823	Town gas	0	0	Town gas	2	90
Total		98,203	Total		44,993	Total		53,412

Environmental Data by Manufacturing Facility outside Japan

The Americas / Europe

		CMO	PMO	NMO	KDB	Hensley	KUK	KGC	KGM
Overview	Manufacturing facilities	Komatsu America Corp.			Komatsu do Brasil Ltda.	Hensley Industries, Inc.	Komatsu UK Ltd.	Komatsu Germany GmbH	
		Chattanooga Manufacturing Operation	Peoria Manufacturing Operation	Newberry Manufacturing Operation				Hanover Plant	Düsseldorf Plant
	Location	Tennessee, U.S.A.	Illinois, U.S.A.	South Carolina, U.S.A.	São Paulo, Brazil	Texas, U.S.A.	Birtley, United Kingdom	Hannover, Germany	Düsseldorf, Germany
	Main products	Hydraulic excavators, motor graders	Large wheel loaders, large dump trucks	Utility equipment (small construction equipment)	Hydraulic excavators, bulldozers	Buckets, teeth and edges	Hydraulic excavators	Wheel loaders	Ultra-large hydraulic excavators
	Number of employees	1684			859	447	311	515	617
Energy consumption	Electricity (MWh)	7,491	12,164*	2,502	21,847	28,859	4,933	4,787	6,224
	Heavy oil, light oil, et al. (kℓ)	—	67	—	98	82	9	5	45
	Natural gas (thousand m³)	116	1,497	158	—	2,501	793	928	1,100
	LPG, et al. (t)	—	16 (LPG)	—	430 (LPG·LNG)	84 (LPG)	—	2,187* (District heating)	15 (LPG)
	Total energy consumption (GJ)	79,070	181,592	30,945	244,888	389,889	92,596	84,342	103,897
	CO_2 (t-CO_2)	4,500	3,216	1,741	3,011	21,896	4,065	4,033	4,873
Water consumption (t)		12,847	14,061	4,075	14,499	27,181	12,784	10,537	7,305
Total emissions of waste (t)		1,000	1,519	24	6,294	27,217	1,279	1,284	2,292
Date of ISO14001 certification acquisition		April 1998	March 2002	March 2004	January 2002	November 2009	December 1998	September 2000	July 2002

*Electricity of a renewable source is used.

*Unit:MWh

Europe / Asia

		KIM	KFAB	KMR	KI	KUI	BKC	KIPL	KSC
Overview	Manufacturing facilities	Komatsu Italia Manufacturing S.p.A	Komatsu Forest AB	Komatsu Manufacturing Rus, LLC	PT Komatsu Indonesia Tbk	PT Komatsu Undercarriage Indonesia	Bangkok Komatsu Co., Ltd.	Komatsu India Pvt.	Komatsu Shantui Construction Machinery Co., Ltd.
	Location	Este (PD), Italy	Umeå, Sweden	Yaroslavl, Russia	Jakarta, Indonesia	West Java, Indonesia	Chonburi, Thailand	Chennai, India	Shandong, China
	Main products	Utility equipment (small construction equipment)	Forestry equipment	Hydraulic excavators	Hydraulic excavators, bulldozers, wheel loaders	Components for construction equipment, crawler type for construction machinery, pins	Hydraulic excavators, castiron parts	Dump trucks	Hydraulic excavators
	Number of employees	317	596	226	1,010	749	722	377	659
Energy consumption	Electricity (MWh)	3,760	2,650	2,920	19,625	39,753	20,325	5,262	6,031
	Heavy oil, light oil, et al. (kℓ)	—	31	32	226	369	143	119	34
	Natural gas (thousand m³)	483	—	964	1,293	869	—	—	—
	LPG, et al. (t)	—	2,100* (District heating)	—	205 (LPG)	280 (LPG)	180 (LPG)	100 (LPG)	9,479 (LNG·Steam)
	Total energy consumption (GJ)	56,053	30,862	69,749	267,192	460,212	217,189	62,090	108,278
	CO_2 (t-CO_2)	2,515	307	2,949	17,367	31,126	11,787	5,542	6,068
Water consumption (t)		12,081	4,389	11,255	44,200	67,393	63,919	33,477	65,157
Total emissions of waste (t)		1,466	369	1,197	2,779	4,072	4,140	336	464
Date of ISO14001 certification acquisition		November 2001	October 2003	January 2014	June 2000	October 2008	September 2001	January 2010	December 2000

*Unit:MWh

Asia

		KCCM	KCF	KSD
Overview	Manufacturing facilities	Komatsu (Changzhou) Construction Machinery Corp.	Komatsu (Changzhou) Foundry Corp.	Komatsu (Shandong) Construction Machinery Corp.
	Location	Jiangsu, China	Jiangsu, China	Shandong, China
	Main products	Wheel loaders, hydraulic excavators	Iron castings and foundry molds for construction and casting parts	Mini construction equipment, hydraulic equipment, casting parts and crawler
	Number of employees	471	241	1,119
Energy consumption	Electricity (MWh)	5,747	19,734	50,140
	Heavy oil, light oil, et al. (kℓ)	150	47	274
	Natural gas (thousand m³)	—	—	—
	LPG, et al. (t)	101 (LNG)	1,253 (LPG·LNG·Steam)	5,190 (LPG·LNG·Steam)
	Total energy consumption (GJ)	68,474	207,628	616,774
	CO_2 (t-CO_2)	5,119	15,934	44,065
Water consumption (t)		49,630	40,163	175,038
Total emissions of waste (t)		920	5,967	6,553
Date of ISO14001 certification acquisition		September 2000	December 1999	September 2013

Notes 1. All data, except the number of employees, were derived from performances of all manufacturing facilities during FY2016.
The number of employees was based on the companies' data as of March 31, 2017.
2. Conversion to CO_2 and total energy consumption were based on statistical data of each region, country, and that of IEA for 2005.
3. Total emissions of waste are expressed as a composite of the amount recycled and the amount disposed.

Environmental Education and Environmental Accounting

Courses in Environmental Education and Training in Japan (excluding general environmental courses)

Komatsu and Komatsu Group manufacturing facilities in Japan (including Technology Innovation Center, Field Testing Department)

Organizer	No.	Course name	Target	Participants			
				FY2013	FY2014	FY2015	FY2016
Head Office	1	Advanced environmental education (held every two years)	Environmental specialists (Komatsu and affiliates)	19	—	21	—
	2	Overview of the ISO14000 series	Managers (Komatsu, affiliates, and business associates)	80	53	—	80
	3	ISO14001 Standard Amendment (2015 Revision)	Stakeholders regarding ISO14001 amandment	—	—	281	79
	4	Training of internal auditors / Refresher courses	Environmental auditors (Komatsu, affiliates, and business associates)	177	35	—	61
	5	Development and manufacturing (introductory)	Development and manufacturing staff (for second-year employees)	300	341	334	287
	6	Environmental training for manufacturing engineers	Assistant foremen/ foremen/ manufacturing engineers/ students of Komatsu Institute of Technology	152	242	252	230
	7	Training new employees	New Employees (Komatsu and affiliates)	391	261	333	322
	8	Lectures on the environment, experience-oriented education	Komatsu Group employees	1,408	1,527	2,729	1,662
	9	Education to refresh environmental understanding (e-Learning)	Komatsu Group managers and employees	193	154	181	229
	10	Newly appointed manager training	Komatsu Group newly appointed managers	—	155	168	193
Divisions overseeing environmental management at plants	1	Education in the basics of auditing	Managers and employees	257	100	185	120
	2	Overview of the ISO14000 series	Managers and employees	645	1,464	996	1,093
	3	Training of internal auditors	Environmental auditors	16	38	28	13
	4	Training new employees	New Employees	1,107	700	1,618	1,270
	5	Regulatory education and personnel exchange	Employees (and other participants)	3,274	1,245	467	217
	6	Specialist training	Environmental conservation practitioners (persons involved in regulatory affairs, etc.)	616	355	428	435

In addition to the education and training courses listed above, Komatsu also held courses dealing with environmental issues intended for sales agents.

Number of Persons Having Environment-related Certificate

Komatsu and Komatsu Group manufacturing facilities in Japan (including Technology Innovation Center, Field Testing Department)

Certificate name	Number of persons with certificate*			
	FY2013	FY2014	FY2015	FY2016
Pollution control administrators	241 (33)	249 (33)	247 (31)	223 (31)
Energy administrators	45 (10)	50 (10)	41 (9)	41 (9)
Environmental management system auditors	5	4	4	2

*Figures in parentheses indicate the number of officers required.

Environmental Costs (Investments and expenses)

Komatsu and Komatsu Group manufacturing facilities in Japan (including Technology Innovation Center)

Category	Investment			Expenses		
	FY2015	FY2016		FY2015	FY2016	
	Investment*1 (millions of yen)	Investment*1 (millions of yen)	Contents	Expenses*1 (millions of yen)	Expenses*1 (millions of yen)	Contents
1. Business area cost	1,586	1,281		2,603	2,344	
① Pollution prevention cost	235	93	●Investment for installation and conversion of pollution mitigation / prevention facilities (installation of air pollution control equipment, etc.)	673	447	●Cost of maintaining equipment for mitigation / prevention of air and water pollution and for noise and vibration prevention (labor and depreciation costs)
② Global environmental conservation cost	1,164	1,167	●Investment for implementing energy conservation measures (installation of energy-saving air conditioners, energy saving facilities, etc.)	1,106	1,116	●Cost of maintaining energy conservation facilities, such as cogeneration systems (labor and depreciation costs)
③ Resource circulation cost	187	21	●Investment for reducing the volume of waste materials (recycling facilities, etc.)	825	781	●Waste material processing cost
2. Upstream/downstream cost	9	0	●Additional investment needed to provide eco-friendly product services	288	295	●Reduction of the environmental impact of mass-production units
3. Administration cost	25	90	●Investment for beautifying manufacturing sites	731	787	●Cost of maintaining environmental management systems ●Cost of creating green spaces and beautifying manufacturing sites
4. R&D cost	281	204	●Investment in research facilities for reduction of environmental impact	21,514	16,896	●Cost of R&D activities to reduce the environmental impact of products ●Cost of R&D activities to develop environmentally-friendly construction equipment
5. Social activity cost	0	0		10	11	
6. Environmental remediation cost	0	0		123	383	●Cost of conducting surveys and remedial countermeasures related to soil and groundwater contamination ●PCB disposal costs
Total	1,901	1,575		25,270	20,714	

*1: All figures are rounded off to the nearest million yen.

Environmental Effects

Komatsu and Komatsu Group manufacturing facilities in Japan (including Technology Innovation Center)

Environmental impact reduction effects		
Items of environmental impact	Reduction amount (t/year)	Rate of year-on-year changes (%)
CO_2 emissions	13,289	7.9
Water consumption	-312,955	-10.4
Waste materials generation	1,249	9.8

Komatsu and Komatsu Group manufacturing facilities in Japan (including Technology Innovation Center)

Economic benefits				
Tangible benefits			Avoidance benefits of environmental risks*2	Contribution to profits*2
Type	Monetary value*1 (millions of yen)	Major activities		
Energy conservation	300	●Installation of energy-saving facilities	●In FY2016, there were no major accidents or legal infractions that would contaminate the environment. ●No litigation costs were required in Japan during FY2016.	●Proceeds from mobile recycling equipment ●Proceeds from value added due to reduced environmental impact of products (engines)
Resource conservation	3			
Waste materials reduction	39	●Promotion of recycling through thoroughgoing sorting		
Gain on sale of valuables	183	●Sale of scrap, used paper, waste oil, etc.		
Other	3			
Total	528			

*1: Figures are rounded off to the nearest million yen.
*2: Komatsu used statements instead of numeral figures to describe the "Avoidance benefits of environmental risks" and the "Contribution to profits. The sales amounts of businesses for content presented in "Contributions to profits" in FY2016 are as follows:
- Mobile recycling equipment business: 3.5 billion yen
- Engine business: 133.9 billion yen (Total for intra-Group sales from the Engine Business Division)

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Environmental Report Digest

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