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## Editorial Policy

- The Environmental Report Digest 2014 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.
- This report principle covers data for the period from April 2013 to the end of March 2014, with some information from after April 2014.
- Each item of the "Environmental Report" and "Data" on this website indicates that it has received an independent practitioner's assurance.

Website: <http://www.komatsu.com/CompanyInfo/csr/>

### Scope of This Report

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

The Awazu Plant [including the Komatsu NTC Ltd (KM Division).], 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 four business units

Komatsu Castex Ltd., Komatsu Cabtec Co., Ltd., Komatsu NTC Ltd. and Komatsu House Ltd.

#### ● Komatsu Group manufacturing facilities outside Japan, specifically the following 20 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 Hanomag GmbH (Germany), 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., Komatsu (Shandong) Construction Machinery Corp, and Komatsu Undercarriage China Corp.

Komatsu Group manufacturing facilities including outside Japan: All of the 32 above-mentioned offices are shown.

#### Period Covered

This report principally covers data for the period from April 2013 to the end of March 2014, with some information from after April 2014.

# 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

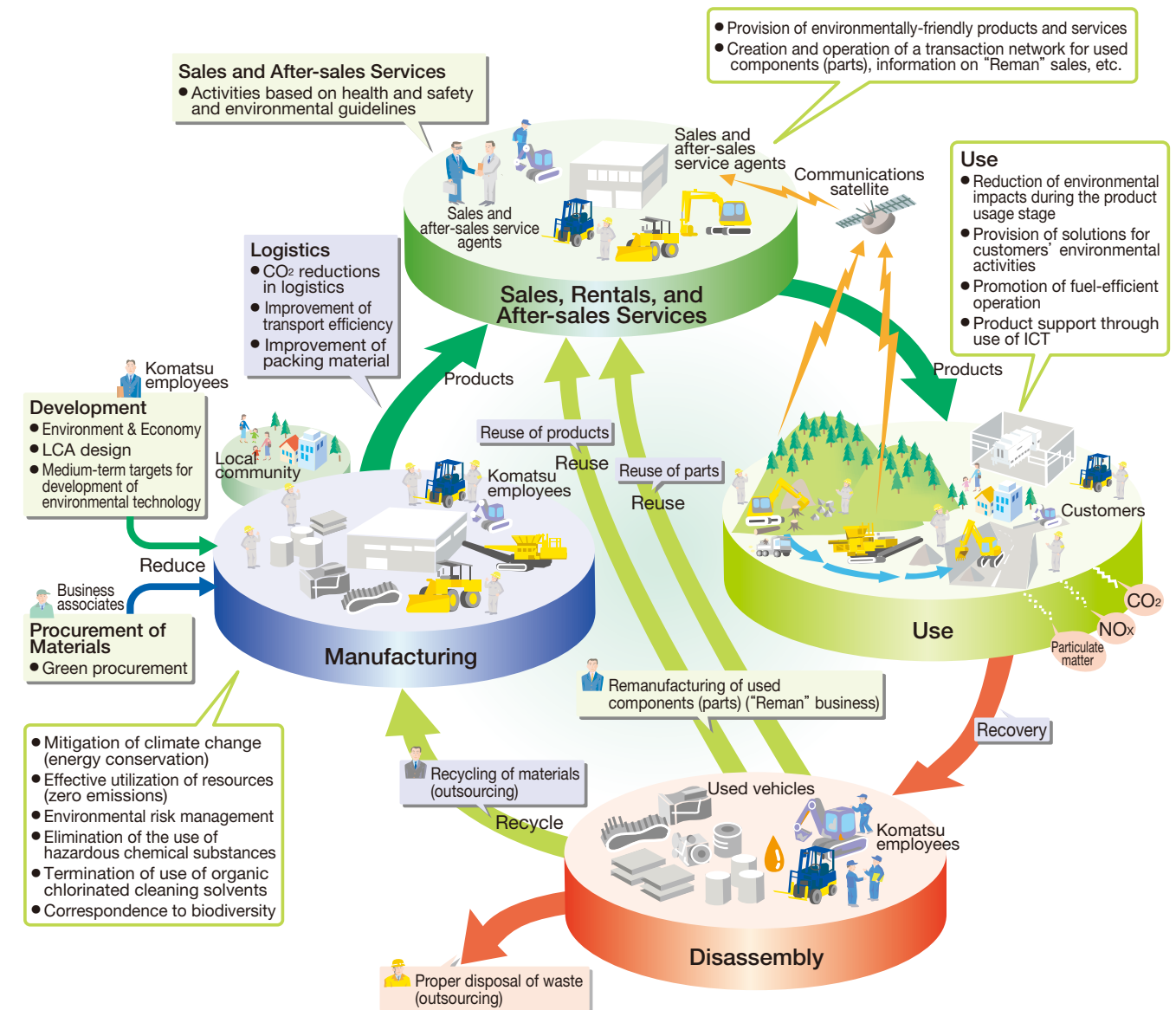
In recognition of the fact that our business activities affect the environment on a regional and global level, we, at Komatsu, have placed the focus on the following four key areas:

- 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



# Pursuing Environmental Management

## 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<sub>2</sub> 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.

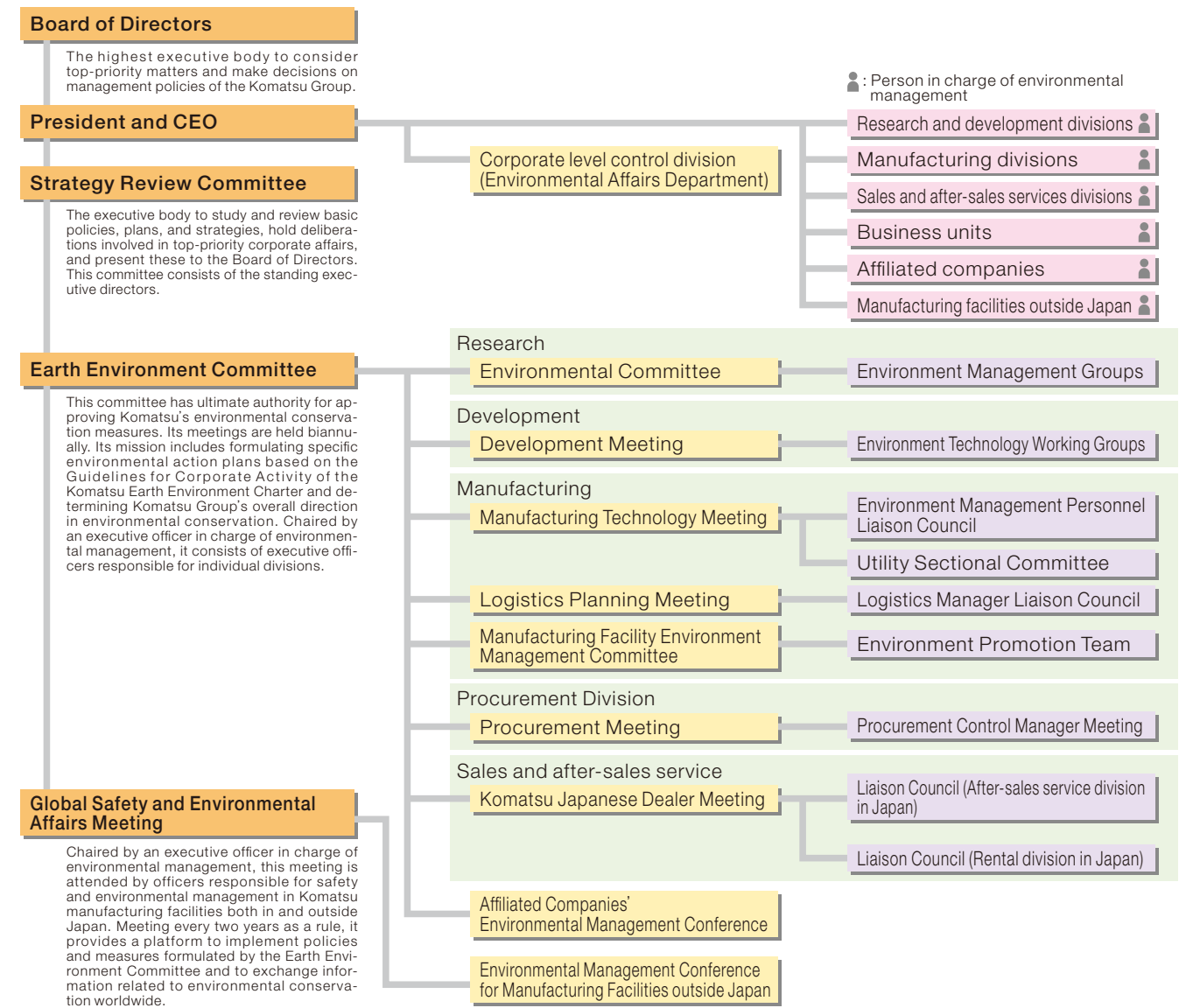
The Komatsu Environmental Committee develops environmental action plans and common guidelines for the Komatsu Group. Based on these Group-wide plans and guidelines, each division or company sets up its own mid- to long-term targets, develops and implements specific action plans, reviews them regularly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

## Organizational Chart of the Environmental Management Structure



## 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

seeks to raise the level of management in Japan.

Komatsu aims for 100% of overseas production facilities to acquire certification by FY2015, and in FY2013 "Komatsu (Shandong) Construction Machinery Corp.", "Komatsu Manufacturing Rus. LLC", and "Hensley Lingfeng Co., Ltd (China)" acquired certification.



ISO14001 Integrated Certification

# Pursuing Environmental Management

## Environmental Action Plan and Results for FY2013

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 FY2013	Results for FY2013	Medium- and long-term objectives
<b>1. Strengthen environmental management systems</b>	Expand certification of Lossev Technology Corporation Certification of overseas production sites (4 companies)	<ul style="list-style-type: none"> <li>Certification carried on by maintenance and by accepting extended reviews of Lossev Technology Corporation</li> <li>Three companies (KSD, KMR, Hensley Lingheng) obtained certification</li> </ul>	Acquisition of integrated certification by the Komatsu Group Manufacturing Facilities in Japan Certification acquired for overseas subsidiaries (Production)
<b>2. Environmental education and training: Implement the education plan</b>	Draw up and promote the education plan	<ul style="list-style-type: none"> <li>Held 15 courses with over 8,600 participants</li> </ul>	Continue to organize courses and expand them to overseas locations
<b>3. Conduct environmental audits for overseas subsidiaries</b>	Environmental survey of the North American affiliated companies	<ul style="list-style-type: none"> <li>Implement environmental survey of Hensley</li> </ul>	Continuation of activity
<b>4. Environmental communication: Publish a CSR &amp; Environmental report</b>	Formulate a communication plan and publish the report	<ul style="list-style-type: none"> <li>Published the Japanese version in July 2013 and the English version in July 2013</li> </ul>	Enhance the quality of the content; release report earlier than in previous years

### Research and Development

Implementation policies	Objectives for FY2013	Results for FY2013	Medium- and long-term objectives
<b>1. Reduce the environmental impact of construction equipment</b>	Develop vehicles compliant with Tier4-Interim emission standards	<ul style="list-style-type: none"> <li>Developed a vehicle equipped with an engine compliant to Tier4-Interim emission standards (PC228US-10/WA100-7/WA200-7, etc.)</li> <li>Vehicles equipped with engines compliant to Tier4 final emission standards under development (PC220-11/PC400-11/D155-8/D65-18, etc.)</li> </ul>	Development of Tier4 final (STAGE IV) emission standard compliant vehicle in Japan, US, and EU by 2014
Reduce CO <sub>2</sub> emissions from construction equipment (improve fuel efficiency of products)	Reduction in emissions with Tier4-interim emission standard (Hydraulic excavators: 10-13% reduction compared to Tier3)	<ul style="list-style-type: none"> <li>Achieved 10% to 13% reduction in emissions with vehicles compliant to Tier4-Interim emission standards (PC220-11, PC400-11)</li> </ul>	Decrease emissions by 10% from Tier4 standard compliant vehicle (hydraulic excavator) by 2015.
Reduce CO <sub>2</sub> Emissions from construction equipment (Biodiesel Fuel (BDF) measures: Carbon Offset)	Reduction in emissions with hybrid vehicle (Hydraulic excavators: 25-35% reduction in emissions compared to current Tier3-normal vehicles)	<ul style="list-style-type: none"> <li>Expansion of the hybrid hydraulic excavator line-up (Tier3 compliant HB205-1M0/PC335-1-365-1)</li> <li>Development of Tier4-interim compliant hydraulic excavator (HB205-2)</li> </ul>	Decrease emissions by 35% from hybrid vehicles (hydraulic excavators)
Improving recyclability rate of construction equipment	B5/B7 mixed light oil measures	<ul style="list-style-type: none"> <li>Addressed by B5 (ASTM, compulsory METI standard)/B7 (EN) mixed light oil</li> <li>B20 mixed light oil measure (being confirmed)</li> </ul>	Use of B20, light oil blended with BDF (standard construction equipment)
Maintain reduction of hazardous substances at 75% reduction compared to 1998 levels	Achieve 99% for recyclability rate equipment compliant with the next developed vehicles	<ul style="list-style-type: none"> <li>Achieved 99% recyclability with Tier4 compliant vehicles</li> <li>Making GFRP recyclable (revised manual for construction machinery mechanics)</li> </ul>	Achieve recyclability rate of 99.5 ± 0.5%
Reduce the use of mercury and lead in vehicles compliant with Tier4 emission standards	Reduce the use of SVHC (substances of very high concern) pursuant to REACH regulations	<ul style="list-style-type: none"> <li>Maintained 75% reduction of hazardous substances with newly developed vehicles as compared to 1998 levels</li> <li>Additional reduction of lead usage in crawler type construction equipment (active, implementation delayed)</li> <li>The disable of mercury is attained (HID: banned from additions/LCD backlight: banned from Tier4 vehicles)</li> <li>Expand transition from lead solders (excluding PCBs (printed circuit board))</li> <li>Ban RCF (Refractory Ceramic Fiber) usage (Insulation material: banned/DPF buffer mat: banned from Tier4 final)</li> <li>Ban bromine flame retardant type treatment agent (HBCDD/DBDE) from usage in new designs</li> <li>Limit parts using phthalic ester plasticizer (DEHP/DBP/BBP/DIBP) in new designs</li> </ul>	End usage of lead soldering by 2015 (excluding PCBs (printed circuit board)) End use of RCF (refractory ceramic fibers) by 2014
Strictly control and reduce substances of environmental concern in construction equipment	Utilize a separate hazardous substances control system for each product type (to comply with REACH regulations)	<ul style="list-style-type: none"> <li>Conducted surveys of substances by product type in Japan and the EU for mass production (Implementation of component-specific substance surveys)</li> <li>The control system is being implemented outside Japan (with the exception of EU)</li> </ul>	Manage substances of each component pursuant with new data
<b>2. Reduce the environmental impact of industrial machinery</b>	Expand business affiliations for AC servo presses	<ul style="list-style-type: none"> <li>Promoted the development of H1F200 (200 tons) as a successor to the H1F110 (pressure 110 tons)</li> </ul>	Expand AC servo press sales ratio
Market high-performance AC servo presses	Expand business affiliations for specialized machinery for diamond wire	<ul style="list-style-type: none"> <li>Participated in activities to slim down silicon materials through the national project "Next Generation Crystalline Silicon PV Consortium"</li> </ul>	Slimming down silicon material (finer wires) and expand applications
Market compact machining center	Expand business affiliations for compact machining center	<ul style="list-style-type: none"> <li>Development and market introduction of N40Hi, a successor of energy-saving and space-saving N30Hi</li> <li>Development of a desktop grinder (DTF) that saves energy (decreased by 70%) and space (decreased by 90%)</li> </ul>	Expand business affiliations
Market the energy-saving fiber laser cutting machine	Development of the fiber laser cutting machine	<ul style="list-style-type: none"> <li>Promoting the development of the 3kW model, a successor to the fiber laser processing machine (KFL)</li> </ul>	Expand business affiliations
Market thermoelectric power generation that uses waste heat from plants	Development of thermoelectric generation system	<ul style="list-style-type: none"> <li>Promoting the practicalization of thermoelectric generators</li> </ul>	Commercialization
<b>3. Promote reuse and recycling</b>	Expand and promote the remanufacturing ("Reman") business and improve recyclability rate	<ul style="list-style-type: none"> <li>Innovation of new recycling-related technologies (expand to hydraulic pump parts)</li> <li>Expand menu of remanufacturing products (subcomponents, new configuration of long blocks, and expanding the sales area of cylinders)</li> </ul>	Promote reuse and recycling through further improvements in recycling-related technologies for parts Stimulate reuse and recycling worldwide by expanding Reman bases to accommodate demands

### Manufacturing

Implementation policies	Objectives for FY2013	Results for FY2013	Medium- and long-term objectives
<b>1. Mitigation of climate change (energy conservation)</b>	Make a 54% improvement by FY2015 in the amount of CO <sub>2</sub> emissions per unit of manufacturing value compared to the FY2000 level at the Komatsu Group manufacturing facilities in Japan	<ul style="list-style-type: none"> <li>Improved 30.7% from the FY2000 level</li> </ul>	The former reduction goal (a 43% reduction for FY2020 from the FY1990 level) is under review now
Make a 41% improvement by FY2015 in the amount of CO <sub>2</sub> emissions per unit of manufacturing value compared to the FY2005 level at the Komatsu Group manufacturing facilities outside Japan	An improvement of 35% compared to FY2000	<ul style="list-style-type: none"> <li>Improved 32.4% from the FY2005 level</li> </ul>	Achieve a 44% reduction by FY2020 compared to the 2005 levels
<b>2. Effective utilization of resources</b>	Maintain or make further progress in attaining 99.5% or greater recyclability rate by FY2015 (improvement towards zero emissions) (Komatsu Group manufacturing facilities in Japan)	<ul style="list-style-type: none"> <li>Attained a recycling rate of 99.5% across the Komatsu Group (Japan)</li> </ul>	By FY2015, Japan: Attain a recycling rate of 99.5% or greater
Maintain or make further progress in attaining 95% or greater recyclability rate by FY2015 (Komatsu Group manufacturing facilities in Overseas)	Attain a recycling rate of 95% or greater by FY2015	<ul style="list-style-type: none"> <li>Attained a recycling rate of 89.8% across the Komatsu Group (overseas)</li> </ul>	By FY2015, Overseas: Attain a recycling rate of 95% or greater
Achieve a reduction of more than 20% by FY2015 in the amount of waste generated per unit of manufacturing value compared to the FY2005 level (Komatsu Group manufacturing facilities in Japan)	Improve 1% over the previous fiscal year	<ul style="list-style-type: none"> <li>Achieved a 33.3% reduction in the amount of waste generated per unit of manufacturing value over the FY2005 level</li> </ul>	Achieve a 20% reduction by FY2015 compared to the FY2005 level
Achieve a reduction of more than 25% by FY2015 in the amount of water used per unit of manufacturing value compared to FY2005 (Komatsu Group manufacturing facilities in Japan)	Improve 3% over the previous fiscal year	<ul style="list-style-type: none"> <li>Achieved a 52.4% reduction in the amount of water used per unit of manufacturing value over the FY2005 level</li> </ul>	Achieve a 50% reduction in FY2015 from the FY2005 level (Goal upwardly revised from 25% to 50% during FY2013)

Implementation policies	Objectives for FY2013	Results for FY2013	Medium- and long-term objectives
<b>3. Environmental risk management</b>	Implement voluntary reductions in the release of chemical substances including volatile organic compounds ("VOCs"), which constitute the majority of chemical substances released	<ul style="list-style-type: none"> <li>Accomplished a 38.2% reduction in the amount of VOCs released per unit of manufacturing value over the FY2005 level</li> </ul>	Achieve a 50% reduction compared with the FY2005 level
Undertake soil and groundwater remediation (Komatsu Group manufacturing facilities in Japan)	Continue the cleanup	<ul style="list-style-type: none"> <li>In progress</li> </ul>	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	<ul style="list-style-type: none"> <li>No applicable underground tanks</li> </ul>	Sequentially address each underground tank that has been in operation for 20 years or more
<b>4. Other</b>	Improve greenery rate by 20% or greater by FY2015 across the Komatsu Group. (Komatsu Group manufacturing facilities)	<ul style="list-style-type: none"> <li>Komatsu Group achieved a total rate of 19.1%</li> </ul>	Rate of 20% or greater by FY2015

### Procurement and Logistics

Implementation policies	Objectives for FY2013	Results for FY2013	Medium- and long-term objectives
<b>1. Green procurement</b>	Promote improvements at suppliers through the establishment of environmental management systems ("EMSS") and by specifying matters that require environmental consideration	<ul style="list-style-type: none"> <li>All subject companies acquired certification for a total of 163 certified companies, and are promoting environmental management activities</li> </ul>	Within three years, have newly admitted Komatsu "Midori-ka" admission company masters' attestation of environmental management systems (ISO 14001, Eco-stage, etc.)
<b>2. Environmental conservation in logistics</b>	Reduce CO <sub>2</sub> emissions per unit of cargo weight generated through shipping of products and components (Komatsu manufacturing facilities in Japan) (in the scope of revised Law concerning the Rational Use of Energy of Japan)	<ul style="list-style-type: none"> <li>Improved CO<sub>2</sub> emission cargo weight by 2.2% compared to FY2006 levels</li> </ul>	Improve the basic unit of CO <sub>2</sub> emissions generated through shipping of products and components by 27% compared to FY2006 by FY2015 (Komatsu logistics facilities in Japan) From FY2013, the basic unit of CO <sub>2</sub> emissions was globally unified and changed from per sales to per cargo weight.
Shift to means of shipping with low environmental impact	Promote modal shifts in shipping from trucks to inland ferries or rail	<ul style="list-style-type: none"> <li>Achieved 21.1% improvement compared to FY2006. CO<sub>2</sub> emissions decreased by 6.3% compared to the previous fiscal year from improved logistic efficiency but the basic unit of CO<sub>2</sub> emissions increased by +4.6% compared to the previous fiscal year (cause of increase: increase in domestic long-distance transport requirements where the average transport distance per case increased +6.2% from 386km/case to 410km/case).</li> <li>The total modal shift rate in FY2013 was 28.7% (+12.4% compared to FY2006: +4.0% by railway, +8.4% by domestic vessels)</li> <li>By proactively increasing the usage of domestic vessels in place of long-distance trucking to the north-east, which increased after the Great Eastern Japan Earthquake Disaster, the domestic vessel usage rate increased +5.3%</li> <li>In the overall modal shift, the usage of railways has increased, increasing by +5.7% in total compared to the last fiscal year (modal shift ratio: 22.9% ⇒ 28.7%)</li> </ul>	Continue to promote modal shift. Curb the increase in CO <sub>2</sub> emissions through the modal shift, switching long-distance trucking to domestic vessel shipment, in the transportation of products from the Awazu and Osaka to north-east Japan. Expand rail usage for engines, hydraulic equipment, transmission, etc.
Shift to battery powered forklifts	Shift to battery powered forklifts	<ul style="list-style-type: none"> <li>Shift to hybrid and battery-powered forklifts that pose less strain on the environment for in-plant logistics. The ratio of hybrid and battery-powered forklifts has increased to 46.4%, +27.0% compared to FY2006 (+0.2% reduction compared to FY2012)</li> <li>(Shift ratio to battery powered forklifts: FY2012 46.2% ⇒ FY2013 46.4%)</li> </ul>	Promote reduction in environmental strain by increasing the ratio of battery powered and particularly hybrid forklifts.
Strive to eliminate the procurement of new wrapping materials through promotion of returnable packaging containers.	Promote the returnability of packaging containers	<ul style="list-style-type: none"> <li>In FY2013, general-purpose packing containers utilizing wood material continued to be improved from the point of supporting biodiversity. Returnable rate of general-purpose packing containers for CKD parts: 39.3% → 49.0% (+9.6%) Returnable rate of general-purpose packing containers for replacement parts: 32.8% → 53.7% (+20.9%) Reduced new purchases of packing material due to improved returnable rates.</li> </ul>	Continue improvements in effort to achieve "zero" usage of new packaging material. Continue improvement in the returnability ratio of containers designated for CKD parts. Further improve the returnable rate of general-purpose containers for CKD/spare parts.
Measures for protecting biodiversity and reduction in wood used in packaging containers	Reduction in the usage of wooden/cardboard packaging containers	<ul style="list-style-type: none"> <li>Amount of wood/cardboard used in FY2013: 5,015 tons</li> <li>Achieved a reduction by 37.7% compared to FY2010</li> <li>27.8% reduction compared to the previous year (improvement of returnability and transition of materials for wooden containers)</li> </ul>	10% improvement in ratio of wood and cardboard packaging material used per shipment weight by FY2015 compared to the FY2010 level.
Promote reduction in shipping distances and improvements in shipping efficiency	Increase the size of shipped units to large lots	<ul style="list-style-type: none"> <li>The continued improvement through the use of vans in CKD plants enhanced improvement from 96.9% to 98.4% (+1.5%). The enlargement of shipment units has reached the level of sustainability through increasing the use of containers in shipment.</li> <li>The usage of vans at supply component plants, which we focused on improving in FY2012, increased from 56.3% to 99.1% (+42.8%). The transported amount of supply components increased from 7.8 tons per shipment to 8.3 tons per shipment (+6.6%), lowering CO<sub>2</sub> emissions by reducing vehicles used.</li> </ul>	Improvement in the operation and management of CKD parts. Increase the use of vans in plants for supply parts.
Continue improving to reduce the distance per shipment by utilizing nearby ports	Continue improving to reduce the distance per shipment by utilizing nearby ports	<ul style="list-style-type: none"> <li>In FY2007, Komatsu constructed harbor plants for assembling large-size shipping machinery in Kanazawa and Ibaraki; following this, the utilization rate of the Kanazawa and Hitachinaka Port were improved by the general consolidation of products from the Mooka and Komatsu Plants. As a result, the shipping distance was significantly reduced through the utilization of nearby ports. In FY2010, the average truck/trailer distance was shortened to 158km per shipment. The improvement increased by 27.7% (compared to 2007) and contributed directly to lowering CO<sub>2</sub> emissions.</li> <li>&lt;Suppression Measures for Increased Transport Distance and the Worsening CO<sub>2</sub> Emission Basic Unit Due to Changes in Domestic Transport Configuration&gt;</li> <li>The configuration of domestic transport destinations greatly changed since the Great East Japan Earthquake in 2011 due to increased long-distance transport to the Tohoku region as well as export CKD with shorter transport distances and a sharp decline in export models (mining) produced at the port factories of Kanazawa and Ibaraki. As a result, the average transport distance of truck trailers increased to 204km/case in FY2013 and the rate of increase was +28.7% compared to FY2010. This increase in average distance directly translated to a worsening of the CO<sub>2</sub> emissions basic unit. In order to improve the CO<sub>2</sub> emissions basic unit, Komatsu sees the expansion of modal shift as a crucial measure and implemented actions to improve the modal shift rate.</li> <li>&lt;Improvements in Transport Distance Reduction by Utilizing Nearby Ports&gt;</li> <li>Kanazawa Port utilization improved by +9% from 2012 to 45% against a mid-term target of 50%.</li> <li>Hitachinaka Port utilization is 96% against the mid-term goal of 95%, thereby maintaining the achievement of the mid-term plan.</li> </ul>	Continue reducing transportation distance by utilizing near-by ports. Continue operation and management post achievement in the usage rate goal of the Hitachinaka Port. Undertake improvement activities to improve the usage rate (main) of the Kanazawa Port from 40% to 50%.
<b>From 2011</b>	Implement environmental conservation activities in global logistics (both national and international)	<ul style="list-style-type: none"> <li>Per cargo weight CO<sub>2</sub> emissions basic unit improvement of 4% compared to FY2011</li> </ul>	8% improvement in the ratio of CO <sub>2</sub> emission per shipment weight in the logistics of products and parts by FY2015 compared to FY2011 levels. (10 major overseas Komatsu Group Plants)

### Sales and After-sales Services

Implementation policies	Objectives for FY2013	Results for FY2013	Medium- and long-term objectives
<b>Encourage Komatsu Group sales agencies and rental companies in Japan to reduce their environmental impact</b>	Enhance awareness of the environment through education and training based on the Group's environmental guidelines	<ul style="list-style-type: none"> <li>Carried out activities for improvement through guidance provided during onsite visits to total 78 sites</li> <li>Regularly issued the Safety and Environment Newsletter (24 editions published yearly)</li> </ul>	Support environmental conservation activities by Komatsu Group sales agencies and rental companies in Japan based on the Group's environmental guidelines

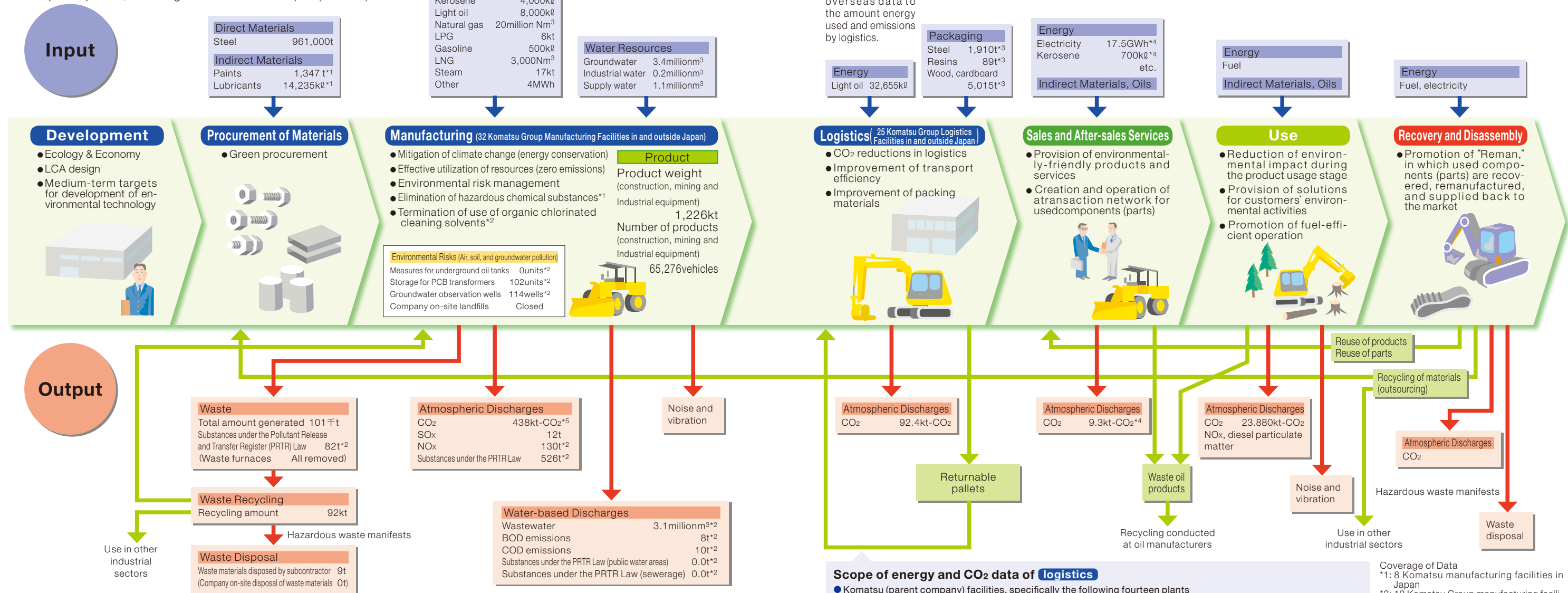
# Pursuing Environmental Management

## 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.

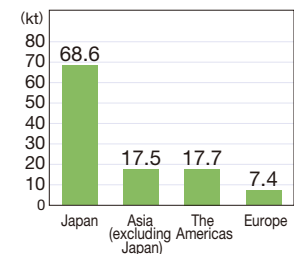
The Komatsu Group will continue to provide high value-added products and services while assessing the environmental impacts resulting from its business activities, formulating medium- and long-term objectives, and introducing measures to reduce such impacts.

### Environmental Impact Resulting from Business Activities of Komatsu Group Companies, including Facilities outside Japan (FY2013)

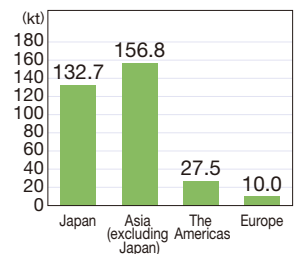


### CO<sub>2</sub> Emissions by Scope

Scope1: CO<sub>2</sub> emitted directly by manufacturing facilities (by using generators, boilers, etc.)

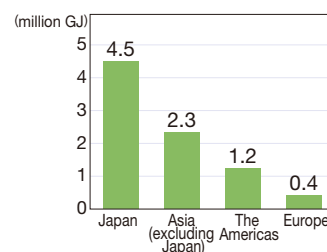


Scope2: CO<sub>2</sub> emitted indirectly by manufacturing facilities (by purchasing electricity, steam and hot water)

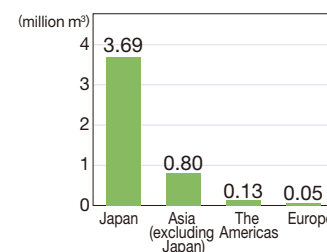


### Environmental Impact Indicators by Region

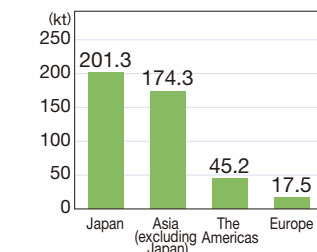
Energy



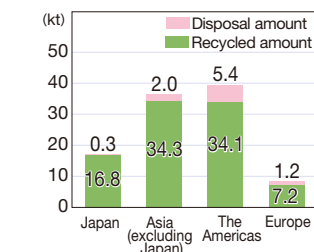
Water Resources



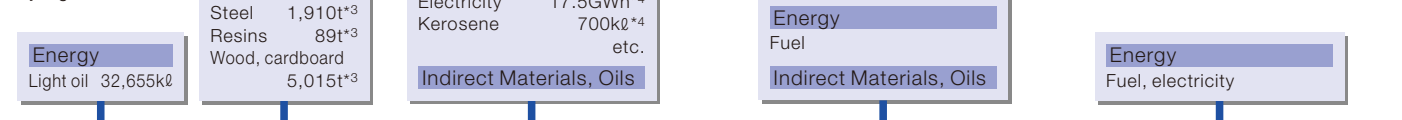
CO<sub>2</sub>



Waste



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



### Logistics (25 Komatsu Group Logistics Facilities in and outside Japan)

- CO<sub>2</sub> reductions in logistics
- Improvement of transport efficiency
- Improvement of packing materials

### Sales and After-sales Services

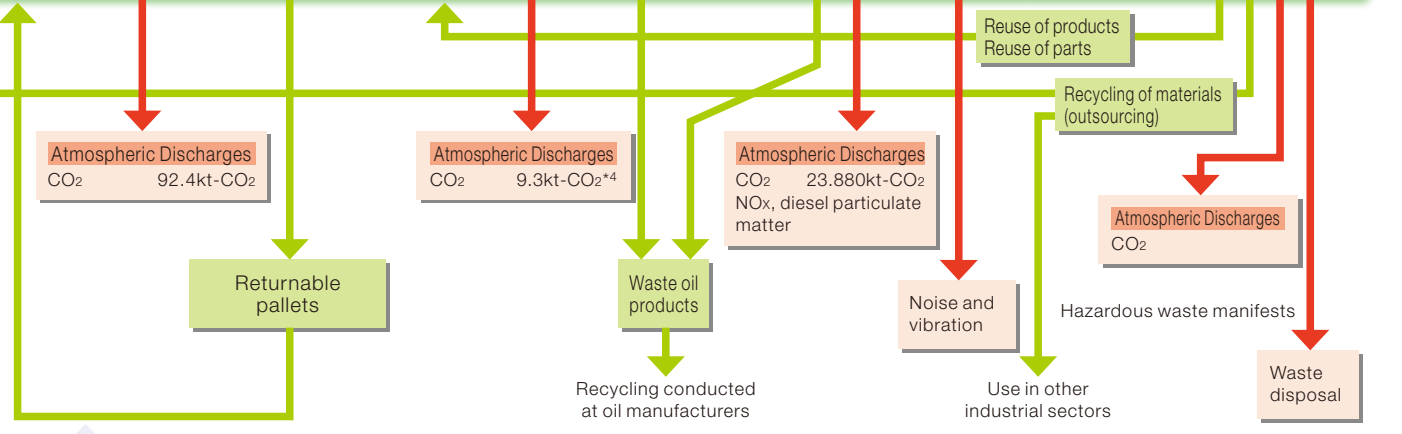
- Provision of environmentally-friendly products and services
- Creation and operation of transaction network for used components (parts)

### Use

- Reduction of environmental impact during the product usage stage
- Provision of solutions for customers' environmental activities
- Promotion of fuel-efficient operation

### Recovery and Disassembly

- Promotion of "Reman," in which used components (parts) are recovered, remanufactured, and supplied back to the market



### Scope of energy and CO<sub>2</sub> 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 Oya-ma 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

CO<sub>2</sub> emissions: Calculated by multiplying the electric power, heavy oil, etc. consumed (see Energy section of Input column) by the CO<sub>2</sub> 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)

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.

# Pursuing Environmental Management

## Environmental Inspection

### Environmental Inspection of North American affiliated company

In accordance with the "Earth Environment Charter", environmental protection guidelines are being established for the purpose of improving the environmental protection level and reducing the environmental risks in developing countries.

In 2013, although not a developing country, the North American affiliated company (Hensley) was visited for an inspection of environmental facilities and to exchange views on environmental preservation.

Since it was a foundry, there was the unique smell of casting but there were no complaints regarding odor or noise in the past five years. In addition, measures to prevent the leakage of black waste water were implemented as well as the recycling of waste casting sand, electrodes, and wood waste; no large environmental risks were discovered.

Environmental inspections of overseas affiliated companies will continue to be carried out and the environmental efforts of the entire Komatsu Group will continue to be improved.



Environmental Inspection in Hensley

### Past Environment Inspections

2007	China
2008	-
2009	Thailand and Indonesia
2010	India
2011	Brazil
2012	Russia and Czech Republic

### Promoting Environmental Activities at Group Sales and Rental Agencies

Komatsu supports the environmental activities of forklift sales agencies as well as construction machinery and rental companies through education and guidance.

The "Environmental Guidelines for Sales Agencies" comprises of guidelines and standards pertaining to environmental issues that are of direct relevance to operations at sales agencies and rental companies (waste treatment, waste-oil treatment, oil-and-grease management, and treatment of wastewater from vehicle washing).

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 a total of 78 locations in FY2013).

Also, in FY2013, an environmental education program was implemented for the management at sales and service locations of Komatsu Fork Lift Japan Ltd., and its domestic forklift sales companies (10 locations and 336 participants).

As a result, environmental awareness is higher at sales agencies and rental companies, leading to various improvement activities.



Management Training at a Forklift Sales Company

## 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 76% of funds raised are requested to obtain certification for their environmental management system.

In FY2013, 163 companies (all companies requested to obtain environmental management system certification) had been certified for "ISO14001", "ECOSTAGE", etc., promoting environmental management activities.

### Strengthening Environmental Management Systems in China

In order to strengthen environmental management in China, from FY2013, environment committees were established in each production plant in China to facilitate the management of waste water, exhaust, noise, etc.

Additionally, a Global Environment Committee similar to Japan was established in China from March 2014, to promote environmental activities (CO2 reduction, power reduction, improve the recycling rate of waste, green coverage improvement, logistics improvement, etc.) in each of the production plants in China.



The first Global Environment Committee Meeting in the China Region (March 2014)

## Amount of CO2 Emissions by Scope 3

From actual data gathered by one of our group companies, KOMTRAX, Komatsu has gained perspective on the amount of CO2 emissions (Scope 3 Category 11) produced by our products in operation world-wide.

The calculation was performed as follows.

### [Calculation of Emissions from Customer Use]

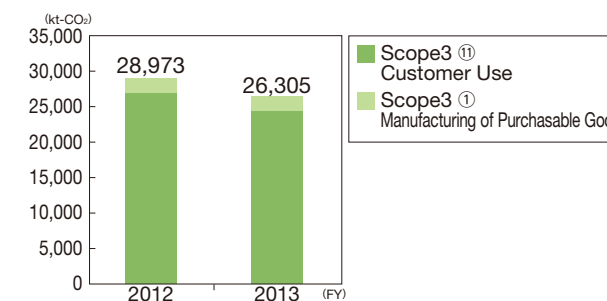
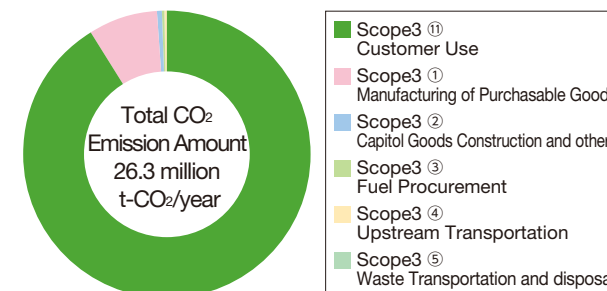
#### (1) Calculate the following by each model

CO2 emissions over the life of each model  
 = (2013 Production Volume) × (Fuel Consumption; L/kWh) × (Engine Output; kW) × (Engine Life; as product life; h) × (CO2 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 CO2 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 CO2 emissions by operator (ex: private power generation)  
 \*3: Scope2 is indirect CO2 emissions by operator (ex: power purchase)  
 \*4: Scope3 is CO2 emissions by operator from supply chain (ex: emissions of product during operation, emissions from suppliers, transportation, business trips and commuting)

## Amount of CO2 Emissions Data by Scope3

Category	Rate %	Summary Data t-CO2
Scope3 (11) Customer Use	90.8	23,880
Scope3 (1) Manufaing of Purchasable Goods	7.9	2,079
Scope3 (2) Capitol Goods Construction and others	0.5	128
Scope3 (3) Fuel Procurement	0.3	84
Scope3 (4) Upstream Transportation	0.1	17
Scope3 (5) Waste Transportation and disposal	0.0	8
Scope3 (6) Business Tips	0.1	27
Scope3 (7) Commuting	0.1	19
Scope3 (8) Upstream Leased Assets Operation	-	-
Scope3 (9) Downstream Transportation	0.2	63
Scope3 (10) Processing Sold Products	-	-
Scope3 (12) Transportation for Product Disposal	-	-
Scope3 (13) Downstream Leased Assets Operation	-	-
Scope3 (14) Franchies Member Companies	-	-
Scope3 (15) Investment Management	-	-
Total CO2 Emission Amount (t-CO2/year)	100.0	26,305

- Although it is calculating in the total range of domestic and an overseas in calculation of each category, the category (4) and (5) is calculating only domestic data. Moreover, presumption of a category (3) goes into overseas data in part.

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

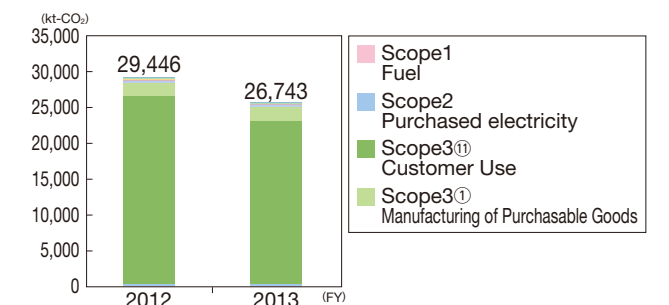
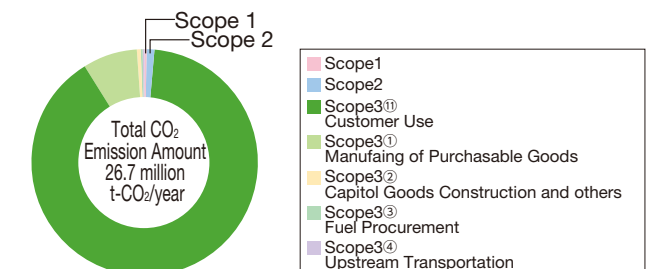
From this, we can see that fuel-efficient products have a significant effect on reducing CO2 emissions.

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 ICT-based computer-aided 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

## Mitigating Climate Change through Products and Services

### Hybrid Hydraulic Excavator Lineup Expansion

#### Medium-Sized Hybrid Hydraulic Excavator "HB205-2"

The HB205-2 greatly reduces the emissions of NOx (nitrogen oxide) and PM (particulate matter), newly equipped with a next generation engine that meets the emission regulations of Japan (Emissions from Non-Road Special Motor Vehicles, 2011 Standards), North America (EPA Tier4 Interim), and the EU (EU Stage 3B). Additionally, loss was reduced for the body's main valve and hydraulic circuit, a large capacity and high efficiency hydraulic pump as well as high efficiency hydraulic oil was adopted, along with other measures to reduce fuel consumption by 5% compared to our previous hybrid models (compared to previous standard models, this is a 20% reduction [for PC200-10 Tier4 Interim] and a 30% reduction [for PC200-8N1 Tier3]).



HB205-2

Item	Units	HB205-2
Machine	kg	19900
Rated Horsepower Net (JIS D0006-1)	kW/min <sup>-1</sup> (PS/rpm)	104/2000 (141/2000)

#### Medium-Sized Hybrid Hydraulic Excavator "HB335-1" \*1

The HB335 series emerged as the long-awaited 30-ton class based on the hybrid technology developed through HB205. Fuel consumption is reduced by 20% compared to our conventional engine models.

The HB335/335LC-1 is best suited for construction site by maintaining the work performance of previous models while being equipped with hybrid technology. The work equipment as well as various parts of the body were enhanced and fortified, making the HB365/365LC-1 ideal for crushed stone sites and gravel extraction work along with a wide selection of lineup.

\*1: For overseas markets such as Australia



HB335LC-1

Item	Units	HB335LC-1 (For Australia)
Machine Mass	kg	33480
Rated Horsepower Net	kW/min <sup>-1</sup>	189/1950

### Market Introduction of Newly Developed Forklifts

#### FE25-1

The new model forklift, "FE25-1", shares the characteristic of previous battery-powered forklifts of having "1/3 the CO<sub>2</sub> emissions and 1/5 fuel costs" (compared to diesel engine models) combined with KOMATSU's original rapid supplementary recharging system to realize extended operation time. Additionally, enhanced water and dust resistance allows it to handle various site environments including outdoors or dusty environments. By quickly expanding the previously limited operation environment to outdoor usage, it will contribute to the reduction of CO<sub>2</sub> emissions from the 2.5-ton class, which accounts for approximately 40% of the market.

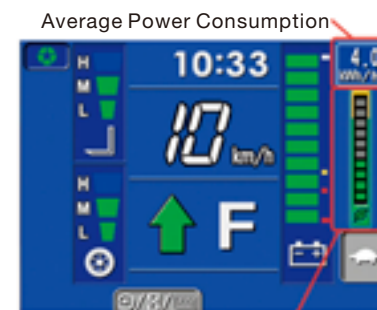
Also, the driver's side monitor displays an "eco gauge" to support environmental-friendly and energy-efficient driving.



FE25-1



Rapid Charger



Instantaneous Power Consumption (Eco Gauge)

Eco Gauge

#### FH series

The new forklift models FH40-1, FH45-1, and FH50-1 announced in July 2012 are more environmental-friendly and easy to operate. The electronically controlled Hydro-Static Transmission (HST, hydraulics powered transmission) technology, developed by Komatsu achieves unprecedented fuel efficiency by reducing fuel consumption by up to 30% compared to our previous models.

In 2013, the "FH35-1" was also added to the line up and over 500 units were ordered by March 2014.

The product range for the environmental-friendly FH series will continue to be expanded in the future.



FH35-1

### Market Introduction of the "DTF" Desktop Grinding Machine

#### "DTF" Desktop Grinding Machine

Komatsu NTC Ltd., reviewed the structure of grinding machines for tooling small parts and developed an energy-efficient and compact desktop grinding machine, "DTF". This machine drastically reduces the grinding room, greatly reduces the use of coolants with a proprietary coolant supply method, and achieve both air-less and hydraulics-less to reduce power consumption by 70%. Also, the installation space is only 1/10 compared to previous machines.

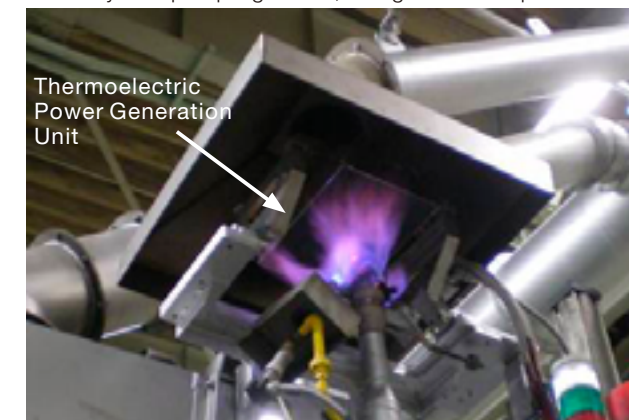


Desktop Grinding Machine "DTF"

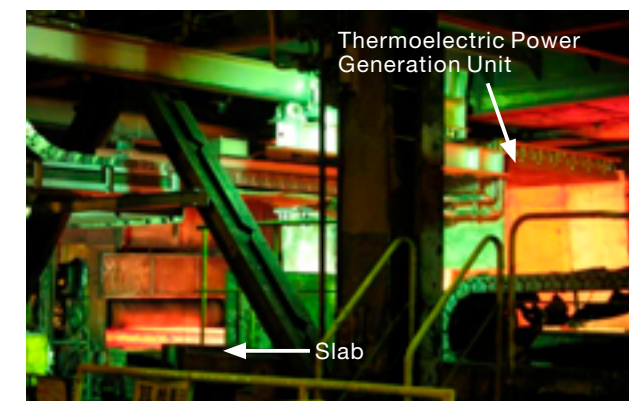
### Thermoelectric Power Generation

The thermoelectric power generation module is a device that utilizes the Seebeck effect, where two different metals are connected and temperature difference is applied at the point of contact, which creates an electrical current that flows between the metals. We are distributing this device through KELK Ltd. Through the heat-treating furnace after burner's combustion heat at the Awazu plant, power is continuously generated and fed back into the power system. In addition, we are participating in NEDO's (New Energy and Industrial Technology Development Organization) "Research and Development of a Thermoelectric Power Generation Technology using Heat Exhaust from Steel-making Process" project, and have begun 10kW class power generation verification tests using radiant heat from JFE Steel's continuous-casting machine.

Thermoelectric power generation could reduce CO<sub>2</sub> emissions by up to 1 million tons per year if plant heat exhaust recovery in Japan progresses, and grows to 50 percent.



Example of Verification Test in Heat-treating Furnace at Awazu Plant



Example of Verification Test with Continuous-casting Machine (Provided by JFE Steel)

# Mitigating Climate Change

## Initiatives to Mitigate Climate Change in Business Operations

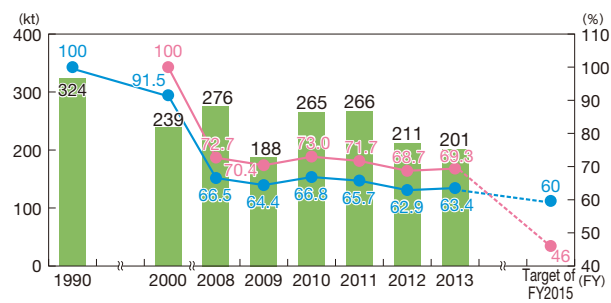
### Reducing CO<sub>2</sub> Emissions in Manufacturing Operations

As part of our efforts to mitigate climate change, Komatsu has adopted an indicator of CO<sub>2</sub> emissions per unit of manufacturing value with respect to the amount of electricity, fuel gas, fuel oil, and other types of energy used in manufacturing operations, the company established more aggressive mid to long term objectives in FY2013.

In 2010, to contribute to Post Kyoto Protocol climate change measures, a mid-term goal for 40% reduction compared to 1990 levels by 2015 was established but following the start of activities to halve power consumption, activities are under way to achieve an ambitious 54% reduction compared to FY2000 levels.

Energy-saving activities were undertaken through the establishment and start of high efficiency lines and removal of old lines along with adopting renewable energy and horizontal expansion of various production improvements revolving around the "Company-Wide Power Reduction Project Team" established in May 2012. However, due to the increased fuel consumption by engine research and testing, the index for the CO<sub>2</sub> emissions per unit of manufacturing value worsened compared to the previous fiscal year. Development of a new generation engine will continue this fiscal year but the CO<sub>2</sub> emissions index will be reduced through measures such as renewing old buildings of over 40 years with a building that adopts the latest energy-saving technology.

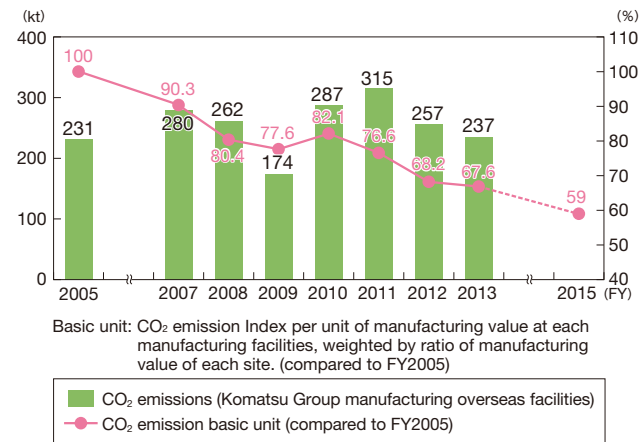
### CO<sub>2</sub> Emissions (Japan)



Manufacturing value: Total production cost excluding direct material cost, other facilities' components, and procured components

■ Total amount of CO<sub>2</sub> emissions of all Komatsu Group manufacturing facilities in Japan  
 ● (New target) CO<sub>2</sub> emission index per unit of manufacturing value at Komatsu Group manufacturing facilities in Japan (compared to FY2000)  
 ● (Previous target) CO<sub>2</sub> emission index per unit of manufacturing value at Komatsu Group manufacturing facilities in Japan (compared to FY1990)

### CO<sub>2</sub> Emissions (Overseas)



Basic unit: CO<sub>2</sub> emission index per unit of manufacturing value at each manufacturing facilities, weighted by ratio of manufacturing value of each site. (compared to FY2005)

■ CO<sub>2</sub> emissions (Komatsu Group manufacturing overseas facilities)  
 ● CO<sub>2</sub> emission basic unit (compared to FY2005)

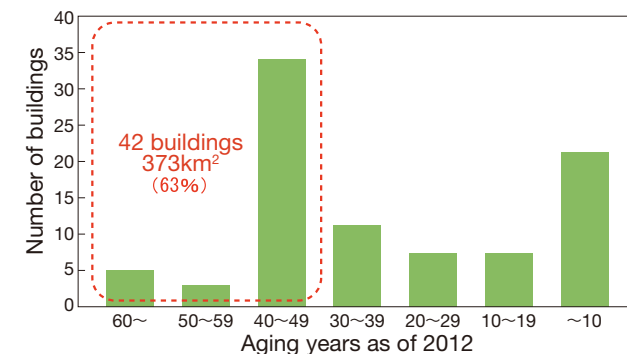
### Halving Electricity Usage Project

#### New energy-saving buildings

Updating the buildings using the latest energy-saving technology

While implementing power usage reduction activities company-wide, we found that if we incorporate energy-saving technology in structures being rebuilt, it would be possible to reduce power consumption by about 50% in places such as office buildings and assembly plants, where the primary power consumption is due to lighting and air conditioning. Because over 60% of Komatsu production buildings were built over 40 years ago, there have been cases where the narrow spacing between posts inhibits the construction of efficient production systems.

#### Distribution of the aging of the production factory



Therefore, we have decided to move forward with the integrated renewal of production buildings.

In addition to utilizing the latest energy-saving technologies, we are aiming for significant improvement in production efficiency by incorporating production reform (streamlining) and reducing power consumption by decreasing overall square footage of buildings.

Starting with completion of construction at the Awazu Plant in spring, 2014, we are expecting to invest 30-40 billion yen by 2020.

#### Basic Ideas

- (1) Use the latest energy-saving technology to achieve 50% reduction in power usage
- (2) Increase efficiency by production reform, and reduce size of facilities by 30%

- (3) Construct new buildings that use natural energy (sunlight, groundwater, etc.) more effectively

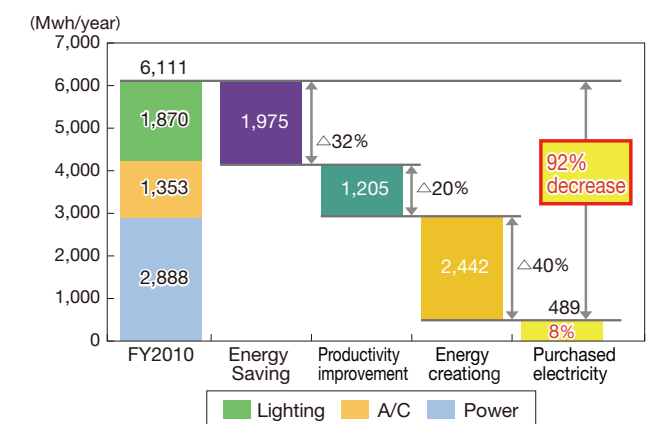
#### Efforts at the Awazu Plant's New Assembly Plant

The Awazu Plant's new assembly plant completed in May 2014 is the realization of a next-generation assembly plant that foresees a future where superior environmental performance is combined with productivity through the restructuring of the assembly line by incorporating the latest energy conservation, ICT, and production technology. By relentlessly conserving energy and creating energy through renewable energy such as solar power, ground water, and biomass as well as combining this with Komatsu Group's proprietary technology, a 92% reduction in power consumption will be achieved.



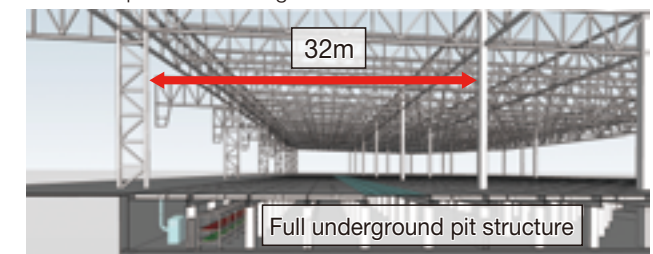
New Awazu Assembly Plant

#### Reduction in power consumption at the newly rebuilt structure (Awazu Plant)



The following will introduce energy-saving technology that was incorporated into the new assembly plant.

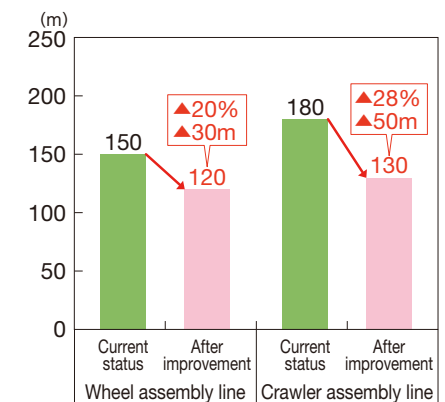
A wide space with a maximum pillar spacing of 32m and a "full underground pit structure" was adopted. Additional energy saving is realized while realizing high work efficiency and an improved working environment.



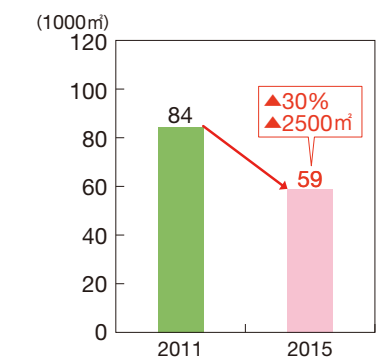
When the building was renewed, the wheel assembly line and crawler assembly line were consolidated into the new assembly plant and by improving production efficiency, the assembly line was made more compact and the area of the factory was made 30% smaller.

This also reduced the energy required for air conditioning and lighting.

#### Length of assembly line

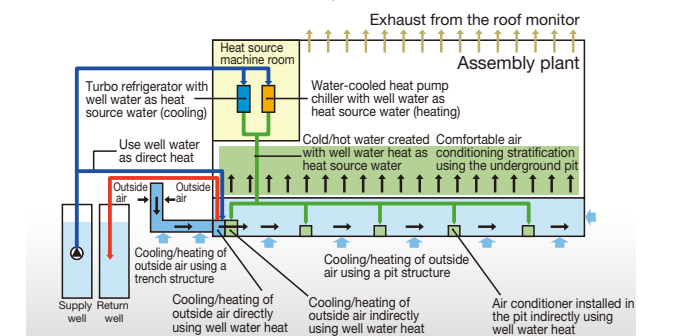


#### Building area



A high-efficiency air-conditioning system was built using ground water with a constant temperature year-round and the earth thermal heat that is conducted into the underground pit.

The groundwater air conditioning, from an industry-academic partnership with Kanazawa University, was evaluated for its effectiveness and health safety through repeated small-scale demonstration experiments and then introduced into the development center, prototype plant, and other facilities before full adoption.





# Mitigating Climate Change

By housing all equipment in the underground pit, making the air conditioning blow from the floor, and only air conditioning (stratified air conditioning) the work area which is only 2-3m over the floor, comfort is improved along with saving energy.



Air Conditioning Equipment Installed in the Pit and Vents on the Floor

At facilities that perform repetitive operations and frequent starts and stops such as overhead cranes and vehicle testing devices, power regeneration functions are added to allow for the effective utilization of energy.



Overhead crane



Brake test equipment

Energy storage system that utilizes the forklift's maintenance-free battery. Energy generated by renewable energy power generation is stored during off-peak times and by discharging during the day when demand is high, electric power is effectively utilized as well as shifting the peak.



Maintenance-free battery power storage system

## Power Generation with KELK's Thermoelectric Elements

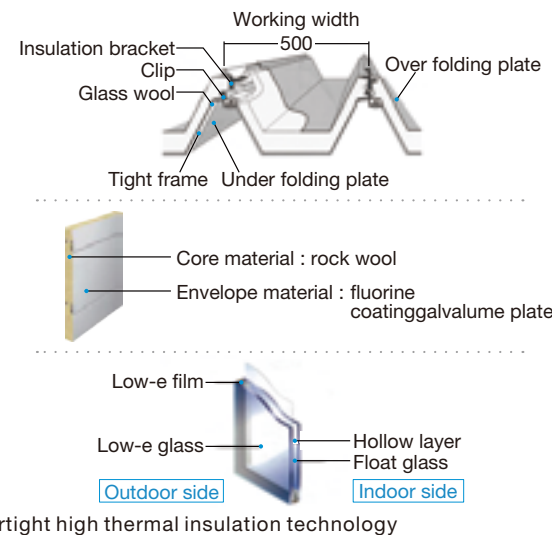
Five years ago the Awazu Plant introduced KELK's thermoelectric element power generation for their carburizing furnace for the "improvement of durability and establishment of a safety system".

This time, KELK's newly developed power generation unit was introduced and we will continue working jointly with KELK to "confirm durability, develop heat recovery technology, and reduce costs".



Example of Thermoelectric Power Generation for Carburizing Furnace

The building itself adopted a double folded-plate roof containing insulation material, insulated wall panel, and Low-e glass with a heat-insulating layer. Improved air conditioning efficiency was realized through airtight high thermal insulation.



By deeply integrating ceiling lighting and making LED lighting modulated, fine-tuned control of lighting is possible. This allows for a reduction in lighting power during the day.

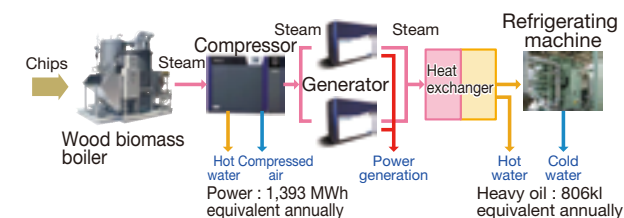


Ceiling lighting and modulated LEDs

## Wood Biomass Power Generation

Awazu Plant is jointly working with Ishikawa Prefecture's KAGA Forest Association to implement biomass power generation with wood chips.

Around 7,000 tons of wood chips are supplied by KAGA Forest Association every year and the steam generated by the boiler is used to power the compressor, generator and refrigerating machine to create compressed air, electricity, hot water, and cold water that is used within the plant. Savings amounting to approximately 1.4GWh of electric power and about 800kl of heavy oil are expected annually.



Wood Biomass Boiler System

## CO<sub>2</sub> Reduction of Suppliers

In order to promote the "CO<sub>2</sub> emission reduction" of suppliers, major outsourcing suppliers were targeted for promoting the spread of Komatsu's energy-saving activities (activities to reduce power consumption by 50% [= production reform]).

In FY2013, more suppliers were introduced to power reduction categories adopted by various business facilities and case studies; horizontal expansion through the cooperation of Komatsu and suppliers will broaden power reduction activity field and promote activities.

In FY2014 the activities will continue to be promoted by working to visualize the improvement activities of each company and horizontal expansion.

## Reducing CO<sub>2</sub> Emissions in Logistics

### Lower the CO<sub>2</sub> of Global Transport (Basic Unit of CO<sub>2</sub> Emissions per Cargo Weight)

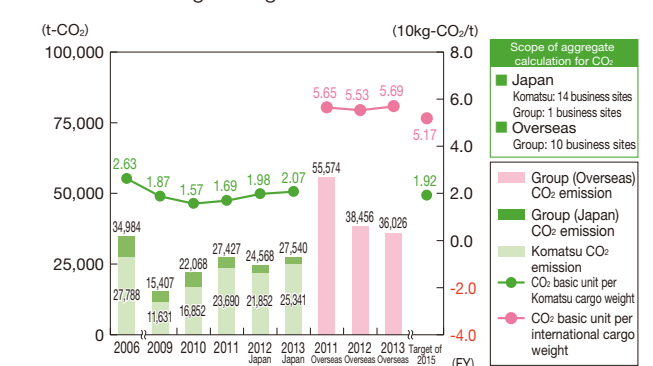
In 2011, Komatsu began improving its assessment of CO<sub>2</sub> emissions from logistics operations for its 10 major international business locations.

Improvements were made on a consolidated basis globally at all 25 business locations, including domestic locations.

Average transport distance increased for domestic and overseas in FY2013. As a measure to address the reduction of increasing CO<sub>2</sub>, expanding the modal shift will be central to furthering improvements.

As a result, improvements of -6.3% domestically and -1.8% abroad were achieved but there was a variation in the average distance of transportation due to a change in destination and the basic unit of CO<sub>2</sub> emissions per cargo weight increased 4.6% domestically and 3.0% abroad.

### Global Shipment CO<sub>2</sub> Emissions Volume and CO<sub>2</sub> Emissions Per Cargo Weight



### Improving the Rate of Modal Shift

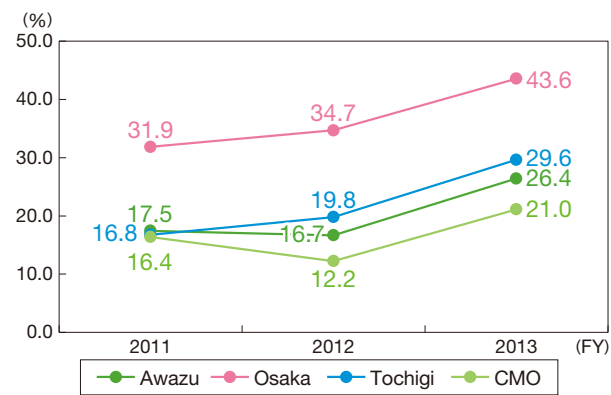
In FY2013, CO<sub>2</sub> reduction activities were implemented with a focus on improving the modal shift of four global plants where long-distance transport by truck trailers were increasing due to changes in the transport destination.

Japan: Product transport from Awazu, Osaka, and Tochigi plants

International: Product transport from CMO (Chattanooga, America) Plant

# Mitigating Climate Change

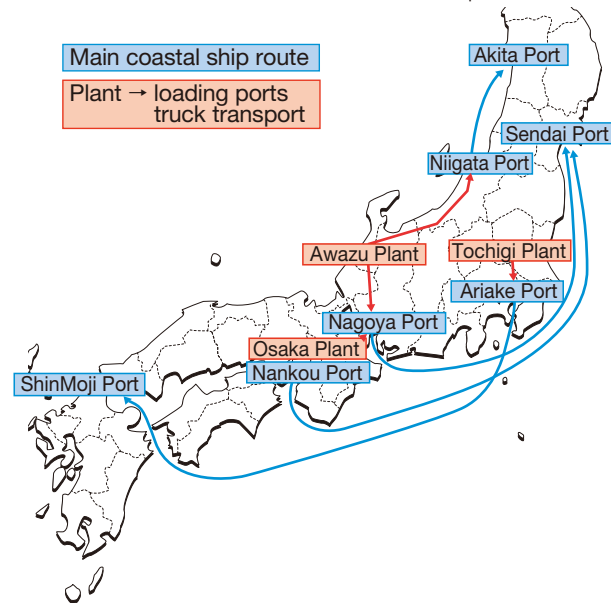
▶ Modal Shift Rate Changes at Global Plants Targeted for Improvement



**Japan: Focus on Switching Tohoku Bound Long-Distance Truck Transport that Increased Since the Great East Japan Earthquake to Coastal Shipping**

Efforts were made to reduce increasing CO<sub>2</sub> volume through the promotion of low energy basic unit transport. Improvements focused on increasing the use of coastal shipping for construction machinery products shipped from Awazu/Osaka plants to Tohoku region and using coastal shipping for forklifts shipped to Kyushu region from Tochigi plant.

In FY2013, the effect of CO<sub>2</sub> emission reductions at domestic plants targeted for modal shift improvements was -1,086 (tCO<sub>2</sub>/year) and contributed to 4.5% reduction in the total CO<sub>2</sub> emissions from Komatsu transport.



**Overseas: Switching Long-Distance Transport of Products to Rail Transport on the American Continent**

CO<sub>2</sub> was reduced through the promotion of low energy basic unit transport. The main improvement was to switch the transport of CMO (Chattanooga, America) plant products from truck transport to rail transport.

Previously components were transported by containers (rail) but products (finished vehicles) were transported by long-distance trucks. From FY2012 the transport of products (finished vehicles) were also transitioned to rail trans-

port.

The distance from CMO to the intermediate stockyard Rochester for supplying West Coast of the United State's and Canada's West Coast area customers is a very long 4,145km and the CO<sub>2</sub> reduction effect of switching to rail is also great.



▶ Reduction in CO<sub>2</sub> Emissions (t-CO<sub>2</sub>/year)

FY2012	▲1,260
FY2013	▲455
Total	▲1,716

The effect in FY2013 contributed to a 2.6% reduction in total CO<sub>2</sub> emission volume from North American region transport and a 1.3% reduction in CO<sub>2</sub> emissions by transporting from all targeted plants abroad.

## Reducing CO<sub>2</sub> Emissions in Non-manufacturing Divisions

With the revision of the Act on the Rational Use of Energy, all Komatsu business units are assessing CO<sub>2</sub> emissions in an effort to achieve reductions. The energy consumption of non-manufacturing divisions, including the Head Office building and the Research Division is shown in the table below.

▶ Energy Consumption of Non-manufacturing Divisions (FY2013)

	Komatsu Non-manufacturing	Main partner companies (97 companies)	Main sales and after-sales service divisions		
			Sales of construction equipment	Rental	Lift
CO <sub>2</sub> (1000t)	6.1	373.1	4.5	2.1	2.7
Crude-oil equivalent (1000kl)	3.1	193.5	2.6	1.3	1.6

# Promoting Recycling

## Promoting the Remanufacturing Business

In our Reman business, the Komatsu Group remanufactures used engines, transmissions, and other key components (parts) of construction and mining equipment into "re-manned" 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 eleven Reman Centers around the world.



The Brazil (KDB) Reman Center established in January 2013

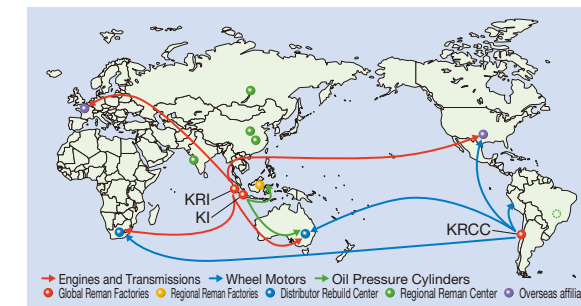
## Promoting the Reman Business to the World

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

- Quality and performance that is the same as new components
- Lower cost for "re-manned" 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.

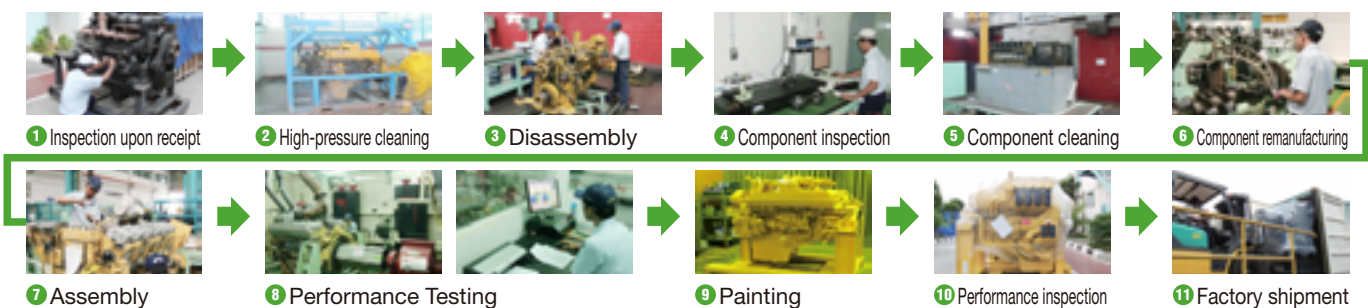
As the global center, Komatsu established PT Komatsu Reman Indonesia (KRI), which supplies parts, such as engines and transmissions for large-size construction machinery, and PT Komatsu Indonesia (KI), which supplies oil-pressure cylinders. Komatsu also established another global center, Komatsu Reman Center Chile (KRCC), which provides components for electric dump trucks.

Additionally, Komatsu established PT KOMATSU REMANUFACTURING ASIA (KRA) in Indonesia to recycle components of large-size construction machinery. For countries that are not part of our global supply chains, such as China, Russia, India and Brazil, we have established individual Reman Centers.



Reman Factories and Centers map

▶ Reman Process



## 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.

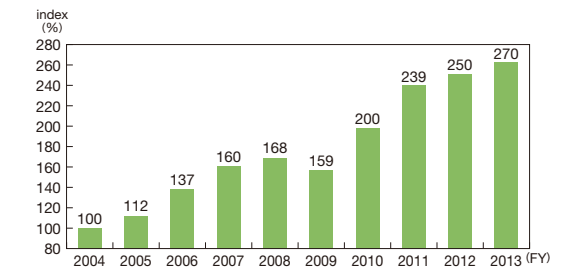
IC tags and two-dimensional bar codes are used to manage each item's remanufacturing history, and to track quality and durability information. This important information is reported to the Group, to help develop components with optimal service life.

## 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, manufacturing worn-out parts, high-pressure cleaning, heat treatment, etc.) to reduce waste components, and thereby further increase reuse and recycling activities.

▶ Changes in Reman Ratios (base FY2004 = 100)



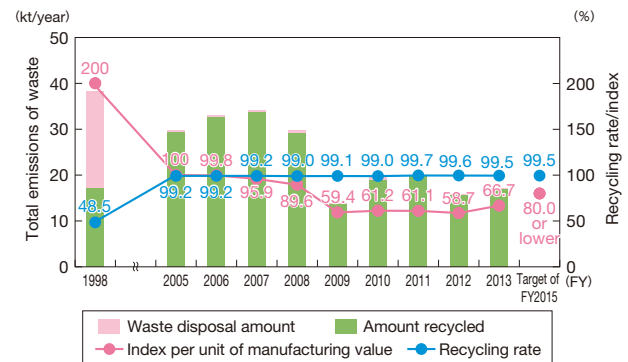
# Mitigating Climate Change

## Effective Utilization of Resources in Manufacturing Operations (Waste)

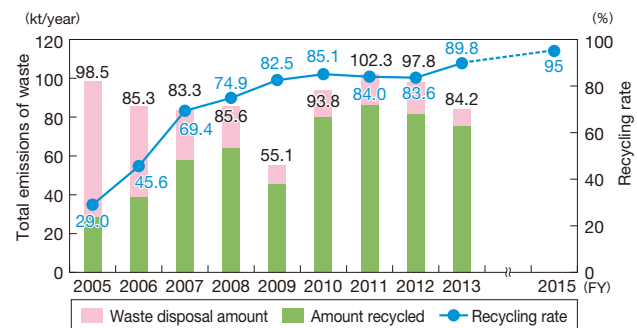
In tandem with reducing the amount of waste produced during manufacturing operations, Komatsu engages in "zero emissions" activities to use waste materials as resources. Starting in FY2011, Komatsu set new medium-term goals for our recycling rate and for the amount of waste generated per unit, and we are working toward those goals. In an effort to attain zero emissions, Komatsu raised the target recycling rate which was 99.5% or greater by FY2015. Then in FY2013, the recycling rate was 99.5%, making it the third year in a row to achieve the mid-term goal early. Komatsu's mid-term goal is to have an above 95% recycling rate in our overseas operations by FY2015, and is working towards effective re-use of waste accordingly.

Komatsu had projected cuts in the amount of waste materials generated per unit of manufacturing value in FY2015 of 20% or greater, compared to the FY2005 level. As a result of strict adherence to separated-waste collection and increased conversion of waste materials to resources, the amount of waste materials generated per unit has been trimmed by 33.3%, compared to the FY2005 level. Komatsu aims to continue its effective separated waste collection policy to achieve its medium-term goals.

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



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



## Effective Utilization of Resources in Manufacturing Operations (Water Resources)

In FY2011, Komatsu set a new medium-term target of achieving a 25% or greater reduction in the amount of water used per unit of manufacturing by FY2015, compared to the FY2005 level. The water-conservation campaign concentrates on manufacturing facilities with extensive groundwater usage located in the Hokuriku District. The Company has achieved reductions in the amount of water used per unit of manufacturing by 52.4% compared to the FY2005 level, through the reuse of water during processing and the elimination of wasteful day-to-day practices.

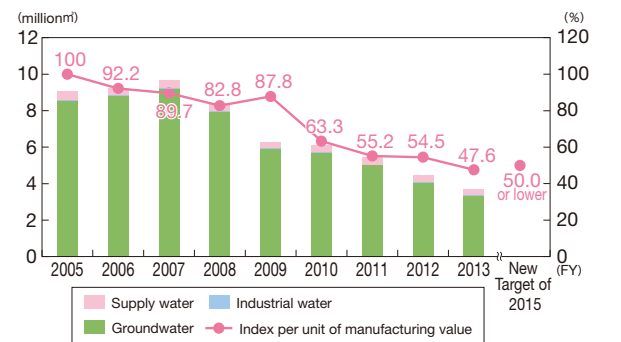
In particular, the Awazu Plant significantly reduced its groundwater consumption through measures such as adjusting the pump discharge, reevaluating the temperature of cooling water used for heat treatment, and the installation of water-circulation equipment. As a result, the Awazu Plant was able to reduce water usage by more than 75% per unit of manufacturing value.

Also, from FY2014, the goal was changed to a mid-term target value of an over 50% reduction compared to FY2005.

Komatsu will continue efforts to save water resources to achieve its medium-term goals.

### Amount of Water Resources Used and Index Per Units of Manufacturing Value

(Data coverage: Komatsu Ltd. and the Komatsu Group manufacturing facilities in Japan) (Reflects results of the reviews of the data on KCX for the year of 2009 and earlier)



### China: Wastewater Reuse Initiatives

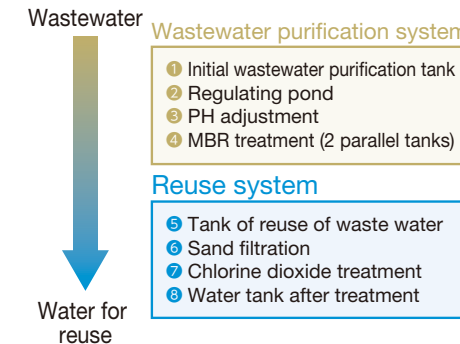
In order to become a model company for environmental protection, Komatsu Shantui Construction Machinery Co., Ltd., is striving to reduce environmental burdens through environmental improvement efforts to fulfill social responsibilities and contribute to regional development.

### A Purification System that Far Exceeds Local Government Emission Standards (Introduced in 2011)

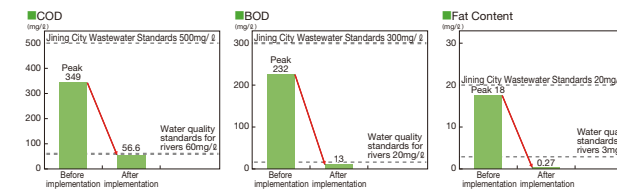
To become a model of environmental improvement in China's Jining district, Komatsu Shantui Construction Machinery Co., Ltd., introduced Membrane Bioreactors (MBR), a purification technology, which is being implemented domestically in China, combines microorganisms with a filtration membrane. As a result, the quality of waste water was far below the local government emission standards and also river standards (South to North Water Division Project Wastewater Standards).



Wastewater Purification System and Flow



### Situation of Wastewater Quality Improvement (COD, BOD, Oil and Fat Content)



### Fiscal 2013 Initiatives for Wastewater Reuse

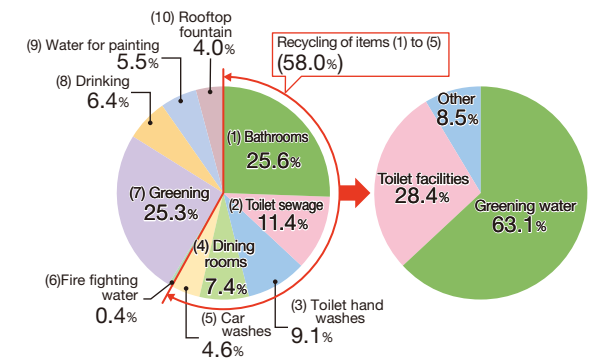
The wastewater purification system described above purified 58% of the water used at plants and the water quality was improved to the allowable level of reuse for farm fields. At the time, water was discarded after treatment and not being reused.

As a company striving for the conservation of water resources and the CEO policy of "becoming the world's No. 1 medium-sized hydraulic excavator plant", a new wastewater reuse system was installed for the purpose of social accountability and public interest. Water treated to meet national wastewater reuse standards are further filtered and chemically treated with chlorine dioxide for the use of watering greenery and toilet facilities.

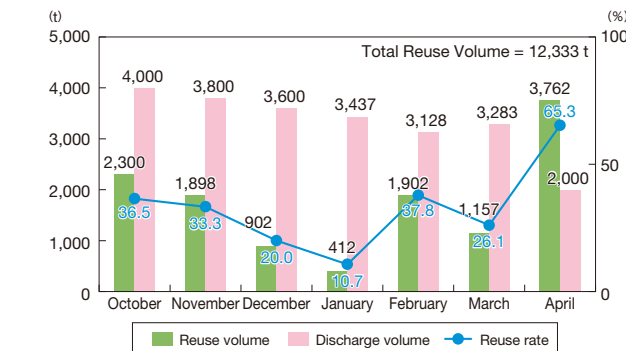
Since operating from October 2013, a total of 12,333 tons of water was reused and in April the recycle rate was improved to 65.3%.

For the future, the efforts will be made to reduce water consumption and achieve 100% recycle rates through initiatives such as improving the summer rooftop fountain system. Also, Komatsu Shantui Construction Machinery Co., Ltd., will continue to make improvements regarding the environment and make contributions for the sustainable development of society.

### Volumes of Waters Consumption by Use (112,000 tons in total for 2012) and Recycling Uses



### Wastewater Reuse Volume and Rate from October 2013



## Topics

### Recognized as the World's Best in Greenhouse Gas Reduction Performance

In the "Climate Performance Leadership Index (CPLI) \*2" within the "CDP Global 500 Climate Change Report 2013" published by CDP\*1, Komatsu was one of the companies awarded the highest rank of A. Also, a high score of 95 was awarded for information disclosure.

Komatsu believes that environmental activities are a top priority issue for a company to fulfill social responsibility and foster sustainable development, therefore, activities to reduce environmental impact is being actively promoted across all aspects of business activities.

For example, ICT construction machinery, hybrid hydraulic excavators, activities to halve power consumption, and biodiversity conservation activities are being promoted. The result of these climate change initiatives contributed to the high evaluation of our activities.

Preservation of the global environment is essential for companies to achieve sustainable growth and Komatsu will continue to advance environmental activities more than ever.



\*1: The CDP is environmental disclosure information referenced by 722 institutional investors with a total of 87 trillion US dollars in assets under management which accounts for half of the invested capital of the world.

\*2: The CPLI is an index that selects leading companies with an especially excellent track record for initiatives regarding climate change.

## 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

#### ■ Oyama Plant: Biotope Satoyama Construction (Komatsu Manabino Mori)

At the Oyama Plant, 10,000 tons of flood-control basins and green space (untouched by human hands) were preserved on the plant's premises. We have begun construction to create a biotope and natural wood in this area as "Komatsu Manabino Mori."

Colonies of herons, some ducks, kingfishers and other birds, as well as several rare plant species have been observed in this area. Aside from being the focal point of employees' biodiversity conservation activities, we are also planning to make it a part of the factory visit course, to raise interest in those coming to observe the factory.



Komatsu Manabino Mori (Biotope)



Komatsu Manabino Mori (Satoyama, natural wood area)

#### ■ KOMATSU CASTEX: Natural Revival of Water Lilies (Euryale ferox)

Some euryale ferox water lilies, a plant that has been categorized as extinct in the wild (reference material: Red Data Book Toyama 2002), was transplanted from the Himi City Junicho Lagoon (the only place in the prefecture with wild euryale ferox) to the ponds at the Himi plant.

By caring for the surrounding area and making sure the plants get enough dredging and sunlight, we were able to produce the natural revival of the euryale ferox water lilies.



Euryale ferox

#### ■ Practical Test Section of Development

##### Division takes on the 'Biodiversity No Net Loss' Challenge

The Practical Test Section is challenging themselves to achieve 'Biodiversity No Net Loss' by working to create an environment easy for various creatures to inhabit, and by bringing in saplings from around the factory to protect and care for the trees, with the goal to re-plant it into nature at the right season.



Cultivating Saplings

\*The idea to minimize the effect of business operations on biodiversity, while doing activities that contribute to restoring biodiversity, to offset loss to the whole ecosystem.

#### ■ Ibaraki Plant's Social Contribution Activities

At the nearby government-run Hitachi Seaside Park, some employees and their families volunteered to help with the thinning of the forest area where a rare species of plants called Chimaphila umbellata (spotted winter-green) grows.



Thinning the forest where Chimaphila umbellata grows

## 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 FY2013, there was one instance of a minor violation of environmental laws and regulations (forgetting to submit a notification for a specific facility), but since then the notification has been submitted. However, Komatsu has had no major accidents that could result in pollution.

### Addressing Soil and Groundwater Contamination

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 to check for contamination from volatile organic compounds (VOC) from cleaning solvents that were used in the past.

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.

In FY2013, change in land character notifications were filed for the Awazu Plant, in accordance with the provision of Article 4, Amended Soil Contamination Countermeasures Act. However, no survey order was issued from administrative authorities in relation to these sites because there was no concern regarding possible contamination.

Going forward, along with driving the clean up activities, we will monitor 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

\*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, Research Division in Hiratsuka, Techno Center in Izu and Field Testing Department in Oita.

### Managing PCB (Polychlorinated Biphenyl) Waste

Komatsu stores and manages PCB-containing waste, such as transformers, in accordance with Japan's "Law Concerning Special Measures Against PCB Waste" and the

"Waste Disposal and Public Cleansing Law." In FY2008, Komatsu entrusted PCB disposal to the Japan Environmental Safety Corporation (JESCO). A total of 335 PCB-containing capacitors were disposed of by FY2012. In FY2013, JESCO disposed of an additional 225 capacitors.

Additionally, with the start of treatment of stabilizers at JESCO, 2868 units of fluorescent lamp and mercury lamp stabilizers were treated ahead of schedule in Hokkaido Office.

Continuing through 2014, we plan to carry out further disposal work to locate low-concentration PCB waste as well.

#### ▶ Number of PCB-containing Transformers and Capacitors in Storage

Company	Site	Capacitors, etc.		Stabilizers	
		Number of disposal in FY2013	Number of awaiting disposal	Number of disposal in FY2013	Number of awaiting disposal
Komatsu Ltd.	Head office	0	0	0	35
	Awazu Plant	39	18	1,164	62
	Osaka Plant	0	0	0	119
	Oyama Plant	180	72	1,641	0
	Shonan Plant	0	2	0	0
	Tochigi Plant	0	5	63	0
	Field Testing Department	0	0	0	4
	Construction & Mining Equipment Marketing Division	0	0	0	131
<b>Subtotal of Komatsu</b>		<b>219</b>	<b>97</b>	<b>2,868</b>	<b>351</b>
Komatsu NTC Ltd.		0	2	0	0
Komatsu Cabtec Co., Ltd.		0	2	0	0
Komatsu House Ltd.		0	1	0	0
Komatsu Construction Equipment Sales and Service Japan Ltd.		6	12	0	490
<b>Total of Komatsu group</b>		<b>11</b>	<b>17</b>	<b>0</b>	<b>490</b>
<b>Total</b>		<b>225</b>	<b>114</b>	<b>2,868</b>	<b>841</b>

-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

The number of substances covered by PRTR\* with a handling volume exceeding 1 ton (0.5 tons or more for Class I Specified) is 23, which one substance has been decreased since last fiscal year. The three substances of xylene, ethylbenzene, and toluene included in paints and thinners account for approximately 94% of the emissions from domestic group production sites. Additionally, most of the emissions are released into the atmosphere.

At domestic Komatsu group production facilities, initiatives such as switching to paint with lower content of PRTR substances, using high-solid paints, improving coating efficiency, and reducing film thickness, are being undertaken for the continuous reduction of transaction volume. Also, for substances with a high transaction volume, transitions are being made by secondary materials including chemical substances with lower impact on humans. In fiscal 2013, the transaction and emission volume was reduced by approximately 9% compared to 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 ethylbenzene and xylene. In fiscal 2013, emissions were reduced by approximately 1.7% from the previous fiscal year, but the basic unit slightly increased. At

the Kanazawa plant, solvent recovery equipment is used to recover and reuse thinner in order to reduce the emission of solvents.

In fiscal 2014, the paint consumption volume will be reduced through the reduction of film thickness to further reduce VOC emissions.

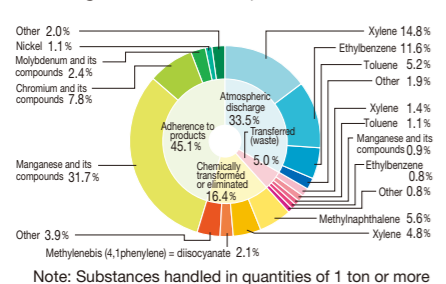


## Names of Class I Designated Chemical Substances and the Amounts Released and Transferred from Komatsu Group Manufacturing Facilities in Japan (handling 1 ton or more, or 0.5 ton or more for Class I Specified Chemical Substances) (applicable PRTR substances from April 2010)

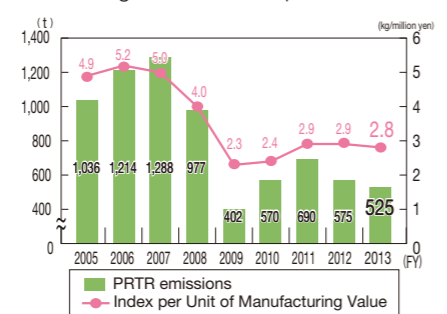
Number under the PRTR Law	Name	Amount handled	Amount released				Amount transferred		Chemically transformed or eliminated	Amount Contained in Products
			Air	Water	Soil	Buried	Sewage	Waste		
412	Manganese and its compounds	512.4	1.2	0.0	-	-	-	13.7	0.0	497.6
80	Xylene	330.8	232.2	-	-	-	-	22.0	74.8	1.8
53	Ethylbenzene	208.1	181.3	-	-	-	-	12.0	14.5	0.3
87	Chromium and chromium (III) compounds	125.1	0.0	-	-	-	-	1.7	0.0	123.4
300	Toluene	105.9	80.9	-	-	-	-	16.8	5.5	2.7
438	Methylol phthalene	94.7	0.5	-	-	-	-	-	87.8	6.4
296	1,2,4-trimethyl benzene	39.9	16.2	-	-	-	-	2.6	21.1	0.0
453	Molybdenum and its compounds	38.6	0.0	-	-	-	-	0.0	0.4	38.2
448	Methylenebis (4,1 phenylene) = diisocyanate	33.8	0.0	-	-	-	-	0.0	33.6	0.2
308	Nickel	17.2	0.0	-	-	-	-	0.3	-	16.9
88	Chromium (VI) compounds *1 *2	10.0	0.0	-	-	-	-	2.4	-	0.0
277	Triethylamine	9.5	2.0	-	-	-	-	0.0	7.4	0.0
297	1,3,5-trimethyl benzene	9.2	4.0	-	-	-	-	0.7	3.7	0.8
321	Vanadium compounds	8.8	0.0	-	-	-	-	0.0	-	8.8
132	Cobalt and its compounds	7.3	0.0	-	-	-	-	1.0	-	6.3
188	N,N-dicyclohexylamine	5.0	0.3	0.0	-	-	-	4.3	0.2	0.1
392	n-hexane	4.6	2.0	-	-	-	-	0.0	1.5	1.0
349	Phenol *3	4.1	1.7	-	-	-	-	-	2.4	0.0
302	Naphthalene	3.2	1.3	-	-	-	-	0.6	1.3	0.0
207	2,6-Di-tert-butyl-4-methylphenol	2.8	0.7	0.0	-	-	-	0.5	0.0	1.6
258	1,3,5,7-tetraaza tricyclo[3, 3, 1, 1(3,7)] decane *3	2.7	-	-	-	-	-	-	2.7	-
1	Zinc compounds (water-soluble)	1.3	-	-	-	-	-	0.1	-	1.2
83	Isopropyl benzene	1.0	0.9	-	-	-	-	0.04	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.

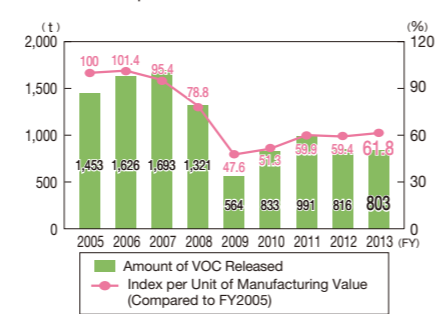
## Breakdown of the Amount of PRTR-related Substances Released and Transferred from Komatsu Group Manufacturing Facilities in Japan



## 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.

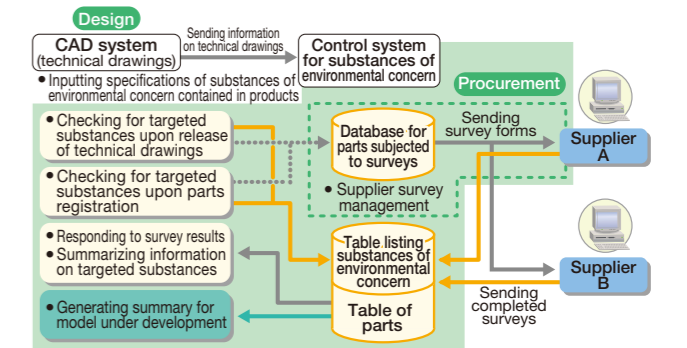
In addition, Komatsu has begun comprehensive control of substances of environmental concern. Recently, in compliance with REACH\*1, Komatsu began revising its listing of substances designated as approved for limited use, "to be reduced," and "banned." Through the cooperation of suppliers, the Company 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 151 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	14	<ul style="list-style-type: none"> <li>Hexavalent Chromium</li> <li>Cadmium</li> <li>Mercury</li> <li>PBB/PBDE</li> <li>Tri-substituted Organostannic Compounds</li> <li>PCB</li> <li>Asbestos</li> <li>Specified CFCs/Alternative CFCs (HCFC)</li> <li>Trichloroethylene</li> <li>Triethanolamine</li> <li>Hexachlorobenzene</li> <li>PFOS (Perfluorooctanesulfates)</li> </ul>
To be reduced (Subject to limited use)	15	<ul style="list-style-type: none"> <li>Lead</li> <li>Arsenic</li> <li>Selenium</li> <li>Alternative CFCs (HFC)</li> <li>Specified phthalate ester (DEHP/DBP/BBP/DIBP) *2,*3</li> <li>Specified Brominated Flame Retardants (HBCDD)*3/ Specified Chlorinated Flame Retardants (TLEP)</li> <li>Polycyclic Aromatic Hydrocarbons (PAH)</li> <li>RCF (Fire-Resistant Ceramic Fibers) (Alumina and Silica Types)*3</li> <li>Methanol</li> <li>DZ</li> <li>BNST</li> </ul>
Substances of Very High Concern (SVHC) under the EU REACH Regulation	(151)*4	Komatsu is subject to control the following substances, which might be used in Komatsu products. <ul style="list-style-type: none"> <li>DEHP/DBP/BBP/DIBP</li> <li>HBCDD/Trisphosphates (2-Chloroethyl)</li> <li>RCF</li> <li>Specified Lead Compounds (SOC 4)</li> </ul>

\*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 December, 2013 (progressively updated). Includes materials that are not contained in Komatsu construction equipment.

## Recent External Commendations and Evaluations on Komatsu's Environmental Conservation and Social Activities

2013	January	Ranked 19th (out of 438 companies) in Nihon Keizai Shimbun's 16th Environmental Management Survey
	September	Selected in Dow Jones Sustainability Index (DJSI)'s World, Asia Pacific category By CDP evaluation, given an A-rating in the Climate Performance Leadership Index, with 95 points for Corporate Information Disclosure
	November	Awarded the 18th IR Excellence Company Award by the IR Japan Council Ranked 17th overall, 2nd in Social Aspects, (out of 537 companies) according to the "NICES" company rating system by Nihon Keizai Shimbun, Inc. Selected by CDP as Japan's "Climate change performance leading companies" and "Climate change information disclosure leading companies"
2014	January	Ranked 20th (out of 429 companies) in Manufacturing Sector in Nihon Keizai Shimbun's 17th Environmental Management Survey
	February	The Autonomous Haulage System won "Nikkei Sangyo Newspaper Launch's 40th Anniversary Special Award" at the Nikkei Superior Products and Services Awards
	April	Achieved a No. 1 ranking (out of 612 companies) in the comprehensive evaluation in the research by IntegreX Ranked 15th overall (out of 1,210 companies) in Toyo Keizai's 8th "CSR Company Ranking"

# Environmental Data by Manufacturing Facility in Japan

Overview	Manufacturing facility	Awazu Plant (established in 1921)	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, armored vehicles, etc.	Ultra-large hydraulic excavators, large presses, medium presses	Large bulldozers, medium-sized and large hydraulic excavators, mobile crushers/recyclers/tub grinders (crushers, soil stabilizers, tub grinders, etc.)	
Site/Green Landscape (1,000 m <sup>2</sup> )	700/85	134/29	591/88	
Number of employees	3,219	694	2,201	
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 2014.

Overview	Ibaraki Plant (established in 2007)	Oyama Plant (established in 1962)	Koriyama Plant (established in 1995)	Shonan Plant (established in 1966)
Location	Hitachinaka, Ibaraki Prefecture	Oyama, Tochigi Prefecture	Koriyama, Fukushima Prefecture	Hiratsuka, Kanagawa Prefecture
Main products	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 Thermolectric modules, temperature control equipment, etc.
Site/Green Landscape (1,000 m <sup>2</sup> )	350/72	591/125	297/123	69/15
Number of employees	910	3,109	443	1,292
Date of ISO14001 certification acquisition	May 2007	May 1997	July 2002	March 2000

Major Performance	Environmental impact		Item		Actual value		Item		Actual value		Item		Actual value			
	*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.		Total CO <sub>2</sub> emissions	35,069 t-CO <sub>2</sub>	Total CO <sub>2</sub> emissions	1,920 t-CO <sub>2</sub>	Total CO <sub>2</sub> emissions	27,393 t-CO <sub>2</sub>	NOx total amount	— kg	NOx total amount	1,231 kg	SOx total amount	201 kg	SOx total amount	201 kg
		NOx total amount	14,998 kg	NOx total amount	— kg	NOx total amount	1,231 kg	SOx total amount	0 kg	SOx total amount	201 kg	Total emissions of waste	1,674 t	Total emissions of waste	207 t	
		SOx total amount	3,773 kg	SOx total amount	0 kg	SOx total amount	201 kg	Total emissions of waste	1,673 t	Amount recycled	1,448 t	Amount recycled	1,448 t	Amount recycled	1,448 t	
		Total emissions of waste	1,674 t	Total emissions of waste	207 t	Total emissions of waste	1,467 t	Recycling rate	100 %	Recycling rate	100 %	Recycling rate	98.8 %	Recycling rate	98.8 %	
		Amount recycled	1,673 t	Amount recycled	207 t	Amount recycled	1,448 t	BOD emissions	1,273 kg	BOD emissions	85 kg	BOD emissions	576 kg	BOD emissions	576 kg	
		Recycling rate	100 %	Recycling rate	100 %	Recycling rate	98.8 %	COD emissions	1,314 kg	COD emissions	204 kg	COD emissions	978 kg	COD emissions	978 kg	
		BOD emissions	1,273 kg	BOD emissions	85 kg	BOD emissions	576 kg	Wastewater	540,027 m <sup>3</sup>	Wastewater	36,817 m <sup>3</sup>	Wastewater	161,513 m <sup>3</sup>	Wastewater	161,513 m <sup>3</sup>	
		COD emissions	1,314 kg	COD emissions	204 kg	COD emissions	978 kg	Output of in-house power generation	5,511 MWh	Output of in-house power generation	425 MWh	Output of in-house power generation	2,200 MWh	Output of in-house power generation	2,200 MWh	
		Wastewater	540,027 m <sup>3</sup>	Wastewater	36,817 m <sup>3</sup>	Wastewater	161,513 m <sup>3</sup>	Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)
		Output of in-house power generation	5,511 MWh	Output of in-house power generation	425 MWh	Output of in-house power generation	2,200 MWh	Electricity	58,480 MWh	567,931	Electricity	4,902 MWh	47,773	Electricity	49,604 MWh	481,699
		Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)	Heavy oil A	2,728 kℓ	106,665	Heavy oil A	0 kℓ	0	Heavy oil A	133 kℓ	5,192
		Electricity	58,480 MWh	567,931	Electricity	4,902 MWh	47,773	Kerosene	11 kℓ	388	Kerosene	0 kℓ	0	Kerosene	12 kℓ	439
		Heavy oil A	2,728 kℓ	106,665	Heavy oil A	0 kℓ	0	Light oil	345 kℓ	13,196	Light oil	1 kℓ	41	Light oil	402 kℓ	15,364
		Kerosene	11 kℓ	388	Kerosene	0 kℓ	0	Town gas	0 Nkm <sup>3</sup>	0	Town gas	0 Nkm <sup>3</sup>	0	Town gas	3,318 Nkm <sup>3</sup>	139,042
		Light oil	345 kℓ	13,196	Light oil	1 kℓ	41	LPG	1,397 t	70,122	LPG	12 t	580	LPG	67 t	3,377
		Town gas	0 Nkm <sup>3</sup>	0	Town gas	0 Nkm <sup>3</sup>	0	Other		1,462	Other		0	Other		1,390
		LPG	1,397 t	70,122	LPG	12 t	580	Total	759,764		Total	48,394		Total	646,504	
		Other		1,462	Other		0									
		Total	759,764		Total	48,394										

Compliance Conditions to Major Regulations	Air	Item		Unit		Facility		Regulated value		Actual value		Facility		Regulated value		Actual value				
		Nitrogen oxides (NOx)		ppm	Boiler	180	94	N/A	—	—	Boiler	150	28	Metal furnace		180	48	Paint drying furnace		230
		ppm	Diesel engine	950	780							Gas engine		600	38					
		ppm	K-value regulation		17.5	1.99														
		ppm	Sulfur oxides (SOx)		—	—														
		g/m <sup>3</sup> N	Boiler	0.3	0.015	N/A	—	—	Boiler	0.05	0.014	Metal furnace		0.1	0.020	Paint drying furnace		0.1	0.015	
		g/m <sup>3</sup> N	Diesel engine	0.1	0.014															
		g/m <sup>3</sup> N																		
		g/m <sup>3</sup> N																		

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

Compliance Conditions to Major Regulations	Wastewater	Item	Regulated value according to the Water Pollution Control Law	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	6.3	6.8	5.0-9.0	7.6	6.4	7.0	5.8-8.6	7.6	7.3	7.5
		BOD (Biochemical oxygen demand)	160mg/ℓ	80	2.7	0.5	2.0	80	2.3	0.7	1.5	25	6.2	0.9	3.6
		COD (Chemical Oxygen Demand)	160mg/ℓ	80	4.2	0.7	2.0	80	23.0	1.0	7.0	25	10.0	3.5	6.1
		Suspended solids (SS)	200mg/ℓ	120	7.2	ND	1.8	120	36.0	ND	7.7	90	8.0	ND	2.5
		Mineral oils	5mg/ℓ	5	ND	ND	ND	5	ND	ND	ND	3	ND	ND	ND
		Copper	3mg/ℓ	3	ND	ND	ND	3	ND	ND	ND	5	ND	ND	ND
		Zinc	2mg/ℓ	2	0.2	ND	0.1	2	ND	ND	ND	2	0.05	ND	0.05
		Nitrogen	120mg/ℓ	120	3.8	1.6	2.7	120	33.0	0.2	16.6	120	19.0	2.1	9.7
		Phosphorus	16mg/ℓ	16	0.25	0.04	0.11	16	4.1	0.015	2.06	16	2.2	0.1	0.9
		Cadmium	0.1mg/ℓ	0.1	ND	ND	ND	0.1	ND	ND	ND	0.01	ND	ND	ND
		Lead	0.1mg/ℓ	0.1	ND	ND	ND	0.1	ND	ND	ND	0.05	ND	ND	ND
		Chromium (VI)	0.5mg/ℓ	0.5	ND	ND	ND	0.5	ND	ND	ND	0.05	ND	ND	ND
		Trichloroethylene	0.3mg/ℓ	0.3	ND	ND	ND	0.3	ND	ND	ND	0.03	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 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 Awazu Plant include data for the Komatsu NTC Ltd (KM Division).  
\*Data for the Kanazawa Plant include data for the Kanazawa Dai-ichi, Dai-ni and the Kawakita Plant (by September 2013).  
\*Data for the Osaka Plant include data for the Rokko Plant.

Major Performance	Environmental impact		Item		Actual value		Item		Actual value		Item		Actual value			
	Total CO <sub>2</sub> emissions		3,061 t-CO <sub>2</sub>	Total CO <sub>2</sub> emissions	51,891 t-CO <sub>2</sub>	Total CO <sub>2</sub> emissions	9,278 t-CO <sub>2</sub>	Total CO <sub>2</sub> emissions	3,438 t-CO <sub>2</sub>	NOx total amount	172 kg	NOx total amount	38,464 kg	NOx total amount	43,046 kg	
		NOx total amount	172 kg	NOx total amount	38,464 kg	NOx total amount	43,046 kg	NOx total amount	— kg	SOx total amount	2 kg	SOx total amount	1,953 kg	SOx total amount	0 kg	
		SOx total amount	2 kg	SOx total amount	694 kg	SOx total amount	1,953 kg	SOx total amount	0 kg	Total emissions of waste	310 t	Total emissions of waste	2,051 t	Total emissions of waste	991 t	
		Total emissions of waste	310 t	Total emissions of waste	2,051 t	Total emissions of waste	991 t	Total emissions of waste	151 t	Amount recycled	310 t	Amount recycled	2,041 t	Amount recycled	991 t	
		Amount recycled	310 t	Amount recycled	2,041 t	Amount recycled	991 t	Amount recycled	151 t	Recycling rate	100 %	Recycling rate	99.7 %	Recycling rate	100 %	
		Recycling rate	100 %	Recycling rate	99.7 %	Recycling rate	100 %	Recycling rate	100 %	BOD emissions	2,818 kg	BOD emissions	2,868 kg	BOD emissions	76 kg	
		BOD emissions	2,818 kg	BOD emissions	2,868 kg	BOD emissions	76 kg	BOD emissions	4,948 kg	COD emissions	— kg	COD emissions	4,373 kg	COD emissions	166 kg	
		COD emissions	— kg	COD emissions	4,373 kg	COD emissions	166 kg	COD emissions	— kg	Wastewater	20,388 m <sup>3</sup>	Wastewater	474,000 m <sup>3</sup>	Wastewater	14,852 m <sup>3</sup>	
		Wastewater	20,388 m <sup>3</sup>	Wastewater	474,000 m <sup>3</sup>	Wastewater	14,852 m <sup>3</sup>	Wastewater	47,563 m <sup>3</sup>	Output of in-house power generation	294 MWh	Output of in-house power generation	12,641 MWh	Output of in-house power generation	5,759 MWh	
		Output of in-house power generation	294 MWh	Output of in-house power generation	12,641 MWh	Output of in-house power generation	5,759 MWh	Output of in-house power generation	0 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)	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	6,533 MWh	63,824	Electricity	72,219 MWh	702,471	Electricity	9,334 MWh	90,230	Electricity	8,807 MWh	87,806	Electricity	8,807 MWh	87,806
		Heavy oil A	0 kℓ	0	Heavy oil A	93 kℓ	3,644	Heavy oil A	1,482 kℓ	57,946	Heavy oil A	0 kℓ	0	Heavy oil A	0 kℓ	0
		Kerosene	9 kℓ	319	Kerosene	2,462 kℓ	90,363	Kerosene	0 kℓ	0	Kerosene	0 kℓ	0	Kerosene	0 kℓ	0
		Light oil	169 kℓ	6,446	Light oil	4,167 kℓ	159,164	Light oil	0 kℓ	0	Light oil	0 kℓ	0	Light oil	0 kℓ	0
		Town gas	0 Nkm <sup>3</sup>	0	Town gas	3,340 Nkm <sup>3</sup>	139,929	Town gas	0 Nkm <sup>3</sup>	0	Town gas	28 Nkm <sup>3</sup>	1,174	Town gas	28 Nkm <sup>3</sup>	1,174
		LPG	30 t	1,481	LPG	35 t	1,734	LPG	559 t	28,079	LPG	0 t	0	LPG	0 t	0
		Other		0	Other		1,675	Other		0	Other		0	Other		0
		Total	72,070		Total	1,098,979		Total	176,256		Total	88,980		Total	88,980	

Compliance Conditions to Major Regulations	Facility	Regulated value		Actual value		Facility	Regulated value		Actual value		Facility	Regulated value		Actual value	
		Diesel engine		100	130*		Diesel engine	950	880	Cogeneration engine		760	750	N/A	—
				Gas turbine	70	18									
				K-value regulation		9	0.05	K-value regulation	7.0	0.68	K-value regulation	11.5	0.46		
				Diesel engine	0.1	0.01	Diesel engine	0.1	0.049	Baking (electric) furnace	0.2	less than 0.003	N/A	—	—
				Gas turbine	0.05	0.001	Cogeneration engine	0.2	0.054						

Compliance Conditions to Major Regulations	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	8.9	7.2	8.5	5.8-8.6	7									



# Environmental Data by Manufacturing Facility outside Japan

		The Americas			Europe				
Overview	Manufacturing facilities	CMO	PMO	NMO	KDB	Hensley	KUK	KOHAG	KMG
		Chattanooga Manufacturing Operation		Peoria Manufacturing Operation	Newberry Manufacturing Operation	Komatsu do Brasil Ltda.	Hensley Industries, Inc.	Komatsu UK Ltd.	Komatsu Hanomag GmbH
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, compactors	Ultra-large hydraulic excavators	
Number of employees	387	442	151	1,138	399	338	509	845	
Energy consumption	Electricity (MWh)	9,479	15,346*	2,503	30,415	31,847	5,797	7,810	
	Heavy oil, light oil, et al. (kl)	—	129	—	137	91	7	44	
	Natural gas (thousand m <sup>3</sup> )	1,026	3,208	298	—	2,851	777	1,034	
	LPG, et al. (t)	—	39 (LPG)	32 (LPG)	47 (LPG)	82 (LPG)	2,736* (District heating)	10 (LPG)	
	Total energy consumption (GJ)	133,383	281,446	41,002	348,660	433,190	84,748	117,086	
	CO <sub>2</sub> (t-CO <sub>2</sub> )	7,373	6,616	2,302	4,849	24,114	4,329	5,185	
	Water consumption (t)	17,434	38,559	1,921	30,047	37,392	7,080	10,007	
	Total emissions of waste (t)	1,643	2,712	28	10,264	24,850	1,143	3,737	
	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				
Overview	Manufacturing facilities	KIM	KFAB	KMR	KI	KUI	BKC	KIPL	KSC
		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.
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, Forklift trucks	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	377	599	240	1,063	942	882	252	841	
Energy consumption	Electricity (MWh)	2,729	2,551	2,770	23,284	41,396	33,728	742	
	Heavy oil, light oil, et al. (kl)	—	—	31	270	—	78	88	
	Natural gas (thousand m <sup>3</sup> )	350	—	872	1,248	—	—	234	
	LPG, et al. (t)	—	1,721* (District heating)	—	164 (LPG)	280 (LPG)	335 (LPG)	10,685 (Steam)	
	Total energy consumption (GJ)	40,649	28,084	64,414	301,286	463,991	356,115	10,803	
	CO <sub>2</sub> (t-CO <sub>2</sub> )	1,808	184	2,720	19,910	32,132	19,258	929	
	Water consumption (t)	11,331	3,861	9,201	101,192	90,930	77,124	23,944	
	Total emissions of waste (t)	841	251	1,570	2,865	4,398	7,015	177	
	Date of ISO14001 certification acquisition	November 2001	October 2003	January 2014	June 2000	October 2008	September 2001	January 2010	December 2000

\*Unit:MWh

\*Include data for BKI

		Asia			
Overview	Manufacturing facilities	KCCM	KCF	KSD	KUCC
		Komatsu (Changzhou) Construction Machinery Corp.		Komatsu (Changzhou) Foundry Corp.	Komatsu (Shandong) Construction Machinery Corp.
Location	Jiangsu, China	Jiangsu, China	Shandong, China	Shandong, China	
Main products	Wheel loaders, hydraulic excavators	Iron castings and foundry molds for construction and casting parts	Mini construction equipment, hydraulic equipment and casting parts	Crawler type for construction machinery	
Number of employees	603	280	767	579	
Energy consumption	Electricity (MWh)	7,203	28,646	31,138	40,798
	Heavy oil, light oil, et al. (kl)	373	64	367	—
	Natural gas (thousand m <sup>3</sup> )	—	—	1,214	1,454
	LPG, et al. (t)	—	3 (Coal, LPG, LNG)	5,130 (LPG, Steam)	—
	Total energy consumption (GJ)	90,215	296,541	396,171	470,180
	CO <sub>2</sub> (t-CO <sub>2</sub> )	6,854	22,987	28,525	35,386
	Water consumption (t)	40,350	76,051	138,080	91,875
	Total emissions of waste (t)	665	9,946	3,104	7,317
	Date of ISO14001 certification acquisition	September 2000	December 1999	September 2013	December 2011

Notes 1. All data, except the number of employees, were derived from performances of all manufacturing facilities during FY2013. The number of employees was based on the companies' data as of March 31, 2014.  
2. Conversion to CO<sub>2</sub> and total energy consumption were based on statistical data of each region, country, and that of IEA for 2012.  
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)

Organizer	No.	Course name	Target	Participants			
				FY2010	FY2011	FY2012	FY2013
Head Office	1	Advanced environmental education (held every two years)	Environmental specialists (Komatsu and affiliates)	—	16	—	19
	2	Overview of the ISO14000 series	Managers (Komatsu, affiliates, and business associates)	83	74	72	80
	3	Training of internal auditors / Refresher courses	Environmental auditors (Komatsu, affiliates, and business associates)	273	103	380	177
	4	Development and manufacturing (introductory)	Development and manufacturing staff (for second-year employees)	112	266	248	300
	5	Environmental training for manufacturing engineers	Assistant foremen/ foremen/ manufacturing engineers/ students of Komatsu Institute of Technology	114	158	160	152
	6	Training new employees	New Employees (Komatsu and affiliates)	200	229	354	391
	7	Lectures on the environment, experience-oriented education	Komatsu Group employees	1,002	1,300	1,316	1,408
	8	Education to refresh environmental understanding (e-Learning)	Komatsu Group managers and employees	194	251	153	193
	9	Education for biodiversity	Komatsu Group employees	—	889	252	53
Divisions overseeing environmental management at plants	1	Education in the basics of auditing	Managers and employees	99	183	221	257
	2	Overview of the ISO14000 series	Managers and employees	468	409	183	645
	3	Training of internal auditors	Environmental auditors	26	27	38	16
	4	Training new employees	New Employees	1,240	1,020	940	1,107
	5	Regulatory education and personnel exchange	Employees (and other participants)	448	1,232	1,066	3,274
	6	Specialist training	Environmental conservation practitioners (persons involved in regulatory affairs, etc.)	952	2,165	2,561	616

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

Certificate name	Number of persons with certificate*			
	FY2010	FY2011	FY2012	FY2013
Pollution control administrators	178 (33)	241 (33)	230 (33)	241 (33)
Energy administrators	42 (10)	45 (10)	45 (10)	45 (10)
Environmental management system auditors	6	6	4	5

\*Figures in parentheses indicate the number of officers required.

## Effects on Society\*1

Environmental impact reduction effects	Tangible benefits
<ul style="list-style-type: none"> <li>Environmental impact reduction resulting from on-site recycling methods</li> <li>Environmental impact reduction resulting from product operation</li> <li>Waste components reduction resulting from "Reman" business</li> </ul>	<ul style="list-style-type: none"> <li>Reduction of expenses for processing waste materials</li> <li>Savings in operating and maintenance costs</li> <li>Reduction of repair costs</li> </ul>

\*1: Concerning the effects on society derived from product use by customers, the major items of qualitative information are shown here as a reference.

## Environmental Costs (Investments and expenses)

Category	Investment		Expenses	
	FY2013		FY2012	FY2013
	Investment*1 (millions of yen)	Investment*1 (millions of yen)	Expenses*1 (millions of yen)	Expenses*1 (millions of yen)
1. Business area cost	3,201	2,895	3,696	3,673
① Pollution prevention cost	1,107	1,061	1,095	880
② Global environmental conservation cost	1,505	1,681	1,322	1,779
③ Resource circulation cost	589	153	1,279	1,014
2. Upstream/downstream cost	0	0	201	197
3. Administration cost	76	160	861	753
4. R&D cost	457	230	18,989	21,112
5. Social activity cost	0	0	10	15
6. Environmental remediation cost	0	0	464	884
Total	3,734	3,285	24,221	26,635

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

## Environmental Effects

Komatsu and Komatsu Group manufacturing facilities in Japan (including the Research Division)

Environmental impact reduction effects		
Items of environmental impact	Reduction amount (t/year)	Rate of year-on-year changes (%)
CO <sub>2</sub> emissions	-8,809	-4.2
Water consumption	-775,531	-17.3
Waste materials generation	1,182	7.4

Komatsu and Komatsu Group manufacturing facilities in Japan (including the Research Division)

Economic benefits			Avoidance benefits of environmental risks*2	Contribution to profits*2
Type	Monetary value*1 (millions of yen)	Major activities		
Energy conservation	610	Energy conversion, etc.	There were no accidents or pollution in Japan during FY2013 that led to violations of the law.	Proceeds from mobile recycling equipment
Resource conservation	0	Promotion of recycling through thoroughgoing sorting		
Waste materials reduction	501	Reuse of furnace slag for roadbed materials	No litigation costs were required in Japan during FY2013.	Proceeds from value added due to reduced environmental impact of products (engines)
Gain on sale of valuables	617			
Other	4			
Total	1,733			

\*1: Figures are rounded off to the nearest million yen.

\*2: Komatsu used statements instead of numerical figures to describe the "Avoidance benefits of environmental risks" and the "Contribution to profits." The company will further develop concepts and ways to understand effects in these categories. The sales amounts of businesses for content presented in "Contributions to profits" in FY2013 are as follows:

Mobile recycling equipment business: 2.3 billion yen  
Engine business: 157.4 billion yen (Total for intra-Group sales from the Engine Business Division)