

## Environmental Action Plan and Results for FY2010

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.

### ◆ Environmental Management

Implementation policies	Objectives for FY2010	Results for FY2010	Medium-and long-term objectives	Future information
<b>1. Strengthen environmental management systems</b>	Integrated certification of Komatsu House Ltd.	<ul style="list-style-type: none"> <li>Maintenance for the Integrated Certification of environmental management systems (EMSs) is in progress.</li> <li>Integrated certification of Komatsu House postponed to next FY</li> </ul>	Acquisition of integrated certification by the Komatsu Group Manufacturing Facilities in Japan	P.19
<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 13 courses with over 5,200 participants</li> </ul>	Continue to organize courses and expand them to overseas locations	P.20
<b>3. Environmental communication: Publish an environmental &amp; social report</b>	Formulate a communication plan and publish the report	<ul style="list-style-type: none"> <li>Published the Japanese version in July and the English version in August 2010</li> </ul>	Enhance the quality of the content; release report earlier than in previous years	—

### ◆ Research and Development

Implementation policies	Objectives for FY2010	Results for FY2010	Medium-and long-term objectives	Future information
<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 with Tier4-interim emission standards (130 – 560kW) (D65-17, PC220/240LC-10, WA380-7, HM300-3, etc.)</li> <li>Introduced an engine oil (low ash oil) developed specifically for KDPF equipped vehicles</li> </ul>	Develop vehicles compliant with the Tier4 emission standards effective from 2011 in the U.S.A., Europe, and Japan	P.11 P.12
<ul style="list-style-type: none"> <li>Develop low-emission construction equipment</li> </ul>	Reduce CO <sub>2</sub> emissions of equipment compliant with Tier4-interim emission standards (hydraulic excavators: Δ 10% compared to existing models) and hybrid equipment (hydraulic excavators: Δ 25% compared to existing ordinary models)	<ul style="list-style-type: none"> <li>Achieved 10% reduction with a hydraulic excavator compliant with Tier4-interim emission standards</li> <li>Mass production of hybrid hydraulic excavators (HB205-1 and HB215LC-1)</li> </ul>	10% reduction by 2015 compared to the 2007 level for vehicles compliant with Tier4 emission standards (hydraulic excavator) 35% reduction for hybrid vehicle (hydraulic excavator)	P.11 P.21
<ul style="list-style-type: none"> <li>Reduce CO<sub>2</sub> emissions from construction equipment (improve fuel efficiency of products)</li> </ul>	Achieve 99.5±0.5% for equipment compliant with the next emission standards	<ul style="list-style-type: none"> <li>Started indicating the substances contained in canned counterweights (according to the manuals by Japan Construction Equipment Manufacturers Association)</li> <li>Adopted chlorine-free hydraulic hoses (changeover underway)</li> <li>Established a recycling route for electric double-layer capacitors</li> </ul>	Recyclability rate of 99.5±0.5% by 2015	P.23
<ul style="list-style-type: none"> <li>Improve the recyclability rate of construction equipment</li> </ul>	Maintain reduction of hazardous substances at 75% compared to 1998	<ul style="list-style-type: none"> <li>Achieved 75% reduction using a newly developed vehicle (strict control of continuous use of aluminium radiators/rigorous management of packing materials for canned counterweights)</li> </ul>	Maintain the reduction of hazardous substances at 75% compared to the 1998 level until 2015	—
<ul style="list-style-type: none"> <li>Strictly control and reduce substances of environmental concern in construction equipment</li> </ul>	Reduce the use of mercury and lead in vehicles compliant with Tier4 emission standards	<ul style="list-style-type: none"> <li>Monitor panel of Tier4-compliant vehicles changed over to a mercury-free LCD panel</li> </ul>	—	—
<ul style="list-style-type: none"> <li>Introduce a separate hazardous substances control system for each product type (to comply with REACH regulations)</li> </ul>	Expand business affiliations for AC servo presses	<ul style="list-style-type: none"> <li>Conducted surveys of substances by product type in Japan and the EU for mass production</li> <li>The control system is being implemented outside Japan (with the exception of the EU)</li> </ul>	100% hazardous substances control for parts destined for the EU by May 2011	P.26
<b>2. Reduce the environmental impact of industrial machinery</b>	Expand business affiliations for AC servo presses	<ul style="list-style-type: none"> <li>Launched more compact AC servo presses</li> </ul>	Expand AC servo press sales ratio	—
<ul style="list-style-type: none"> <li>Market high-performance AC servo presses</li> </ul>	Develop minor-change model	<ul style="list-style-type: none"> <li>Minor-change model of multi-wire saws for solar cells developed and released to the market</li> </ul>	Expand business affiliations for high-efficiency wire saws	P.21
<ul style="list-style-type: none"> <li>Market high-efficiency wire saws for solar cells</li> </ul>	Expand and promote the "Reman" business	<ul style="list-style-type: none"> <li>Reorganized the "Reman" business globally (concentrate operations into ten Reman Centers in regions with a high demand for remanufactured parts)</li> </ul>	Promote reuse and recycling through further improvements in recycling-related technologies for parts	P.23
<b>3. Promote reuse and recycling</b>	Expand and promote the "Reman" business			

## Topics

### Biodiesel Fuel Project — Completion of BDF Pilot Plant —

In 2009, the biodiesel fuel (BDF) project was started at the Adaro Mine in Kalimantan, Indonesia. The project provides for cultivation of the jatropha and other plants for production of BDFs and using these fuels to run Komatsu dump trucks in operation at the mine.

At the Adaro Mine, in 2010, Komatsu built a pilot plant for BDF production and a laboratory where the produced BDFs are analyzed to maintain quality. Komatsu, as the manufacturer, will from now on guarantee the quality of the dump trucks running on BDFs at the Adaro Mine.

The project is an example of a business model for local production of a carbon-neutral biodiesel fuel for local consumption. The future objective is to replace

20% of the kerosene consumed by 1,000 dump trucks with BDFs, with the goal of achieving a reduction in CO<sub>2</sub> emissions of approximately 200,000 tons, roughly the equivalent of the CO<sub>2</sub> emitted by Komatsu manufacturing facilities in Japan in the course of one year.



Pilot plant for BDF production



Local staff and the laboratory

## ◆ Manufacturing

Implementation policies	Objectives for FY2010	Results for FY2010	Medium-and long-term objectives	Future information
<b>1. Mitigation of climate change (energy conservation)</b> <ul style="list-style-type: none"> <li>● Make 20% improvement by FY2010 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</li> <li>● Curb total CO<sub>2</sub> emissions to the 1990 level (Komatsu Group manufacturing facilities in Japan)</li> </ul>	Improve 1% over the previous fiscal year	<ul style="list-style-type: none"> <li>● Improved 27.0% from the FY2000 level; attained 3.8% improvement over the previous fiscal year</li> <li>● Curbed total CO<sub>2</sub> emissions by 18% compared to 1990</li> </ul>	40% reduction by FY2015 compared to 1990 level 43% reduction by FY2020 compared to the 1990 level	P.22
<b>2. Effective utilization of resources</b> <ul style="list-style-type: none"> <li>● Maintain or make further progress in attaining zero emissions at the Komatsu Group manufacturing facilities in Japan</li> <li>● Achieve a reduction of more than 15% by FY2010 in the amount of waste generated per unit of manufacturing value compared to the FY2005 level at the Komatsu Group manufacturing facilities in Japan</li> <li>● Achieve a reduction of more than 10% by FY2010 in the amount of water used per unit of manufacturing value compared to FY2005 at the Komatsu Group manufacturing facilities in Japan</li> </ul>	Attain a recycling rate of 99% or greater	<ul style="list-style-type: none"> <li>● Attained a recycling rate of 99.0% across the Komatsu Group</li> </ul>	By FY2015, Japan: Attain a recycling rate of 99.5% or greater Overseas: Attain a recycling rate of 95% or greater	P.24
	Improve more than 15% compared to the FY2005 level	<ul style="list-style-type: none"> <li>● Achieved 38.8% reduction in the amount of waste generated per unit of manufacturing value over the FY2005 level</li> </ul>	20% reduction by FY2015 compared to the 2005 level	P.24
	Improve more than 10% compared to the FY2005 level	<ul style="list-style-type: none"> <li>● Achieved 30.3% reduction in the amount of water used per unit of manufacturing value over the FY2005 level</li> </ul>	25% reduction by FY2015 compared to the 2005 level	P.24
<b>3. Environmental risk management</b> <ul style="list-style-type: none"> <li>● Implement voluntary reductions in the release of chemical substances Substitute reductions in the amount of VOCs released, which account for the majority of chemical substances released</li> <li>● Implement voluntary reductions in VOCs Achieve reductions of more than 20% and 50% by FY2008 and FY2010, respectively, in the amount of VOCs released per unit of manufacturing value compared to the FY2005 level</li> <li>● Undertake soil and groundwater remediation at the Komatsu Group manufacturing facilities in Japan</li> <li>● Sequentially address each underground tank that has been in operation for 20 years or more at the Komatsu Group manufacturing facilities in Japan</li> </ul>	Establish a control system for chemical substances and reduce the amount of released chemical substances	<ul style="list-style-type: none"> <li>● Achieved 48.7% reduction in the amount of VOCs released per unit of manufacturing value over the FY2005 level</li> </ul>	50% reduction compared to the FY2005 level	P.26
	Continue the cleanup	<ul style="list-style-type: none"> <li>● In progress</li> </ul>	Complete the cleanup work	P.25
	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	P.25

## ◆ Procurement and Logistics

Implementation policies	Objectives for FY2010	Results for FY2010	Medium-and long-term objectives	Future information
<b>1. Green procurement</b> <ul style="list-style-type: none"> <li>● Promote improvements at suppliers through the establishment of environmental management systems and by specifying matters that require environmental consideration</li> </ul>	Provide guidance and support to member companies of the Komatsu "Midori-kai" for acquiring integrated certification of their environmental management systems (EMS)	<ul style="list-style-type: none"> <li>● Certification acquired within FY2010: 17 out of 17 member companies acquired certification (equal to the target)</li> </ul>	Reinforce linkages with supplier EMSs	P.20
<b>2. Environmental conservation in logistics</b> <ul style="list-style-type: none"> <li>● CO<sub>2</sub> emissions per unit of net sales 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)</li> <li>● Shift to means of shipping with low environmental impact</li> <li>● To save resources, aim at reducing procurement of new packaging materials to zero and make all shipping containers returnable</li> <li>● Promote reduction in shipping distances and improvements in shipping efficiency</li> </ul>	Improve by 14.4% over the FY2006 level	<ul style="list-style-type: none"> <li>● Improve 10.7% over the previous fiscal year</li> <li>● Achieved 38.0% improvement compared to FY2006</li> </ul>	Improve CO <sub>2</sub> emissions per unit of net sales generated through shipping of products and components by 30.6% by FY2015 compared to the 2006 level (Komatsu manufacturing facilities in Japan)	P.22
	Promote modal shifts in shipping from trucks to inland ferries or rail	<ul style="list-style-type: none"> <li>● The Oyama and Koriyama Plants are increasingly emphasizing a shift to Japan Railway containers, raising the modal shift ratio to 3.6%. At the same time, Komatsu's overall modal shift ratio (including the use of domestic vessels) falls on 23.9%, remaining on the same level</li> </ul>	Continue to promote modal shift	—
	Increase the packaging return ratio	<ul style="list-style-type: none"> <li>● The Awazu Plant is focusing on the use of specially designed packaging for containers and has improved the packaging return ratio by 9.4%. The total packaging return ratio for shipments within Japan accounts for 45.1% of all export packaging</li> </ul>	Reduce procurement of new packaging material to zero	P.22
	Increase the size of shipped units to large lots	<ul style="list-style-type: none"> <li>● Improved the cargo weight per shipment index by 13.1% by loading containers directly at the plant, improving the load ratio, increasing production at plants adjacent to ports, increasing the number of self-propelled vehicles and similar measures (11.6 tons/shipment -&gt; 13.1 tons/shipment)</li> </ul>	Promote these efforts with a focus on components	P.22
	Using nearby ports to shorten shipping distances by trucks	<ul style="list-style-type: none"> <li>● The distance per shipment using truck trailers (average haul distance) was reduced by 13.3% (183 km/shipment =&gt; 158 km/shipment) across the Komatsu Group. Transfer of production to the Ibaraki and Kanazawa Plants, which are adjacent to ports, is ongoing to reduce shipping distances</li> </ul>	Implement further improvements, including reducing the operating range of forklifts	P.22

## ◆ Sales and After-sales Services

Implementation policies	Objectives for FY2010	Results for FY2010	Medium-and long-term objectives	Future information
<b>1. 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 107 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	P.20