

## Environmental Action Plan and Results for FY2008

### Environmental Management

Implementation policies	Objectives for FY2008	Results for FY2008	Medium- and long-term objectives	Further information
1. Strengthen environmental management systems	Acquire ISO14001 integrated certification for the Komatsu Group in Japan	<ul style="list-style-type: none"> <li>Acquired integrated certification for Komatsu Group in Japan, including the Komatsu Head Office</li> <li>Expanded the scope of companies in Japan included in integrated certification (Komatsu Logistics Corp., Komatsu Cabtec Co., Ltd.)</li> </ul>	Further expand the scope of companies in Japan included in integrated certification	P. 11
2. Environmental education and training: <ul style="list-style-type: none"> <li>Carry out compliance and risk audits</li> </ul>	Audit seven Group companies in Japan not included in the ISO14001 integrated certification	<ul style="list-style-type: none"> <li>Audited seven Group companies in Japan not included in the integrated certification</li> </ul>	Transition into cross-auditing to meet requirements of integrated certification	P. 35
<ul style="list-style-type: none"> <li>Implement the Plan</li> </ul>	Draw up and promote the Plan	<ul style="list-style-type: none"> <li>Held 13 courses with over 7,300 participants</li> </ul>	Continue to organize courses	P. 43
3. Environmental communication: Publish an environmental & social report	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</li> </ul>	Enhance quality of content; release report earlier than in previous years	—
4. Environmental accounting: Manage operations using standard indices for assessing environmental impact	Apply standard indices to Komatsu Group facilities	<ul style="list-style-type: none"> <li>Compared the development of Komatsu's four manufacturing facilities by applying standard indices for assessing environmental impact</li> </ul>	Apply standard indices across Group manufacturing facilities	P. 51

### Research and Development

Implementation policies	Objectives for FY2008	Results for FY2008	Medium- and long-term objectives	Further information
1. Reduce the environmental impact of construction equipment <ul style="list-style-type: none"> <li>Develop low-emission construction equipment</li> </ul>	Develop engine compliant with Tier 4 emission standards	<ul style="list-style-type: none"> <li>Worked to increase the types of equipment with engines compliant with Tier 3 emission standards</li> <li>Engine compliant with Tier 4 emission standards under development</li> </ul>	Develop engine and equipment compliant with Tier 4 emission standards in the U.S., Europe, and Japan, effective 2011	P. 13
<ul style="list-style-type: none"> <li>Meet noise and vibration standards</li> </ul>	Meet 2008 EU vibration standards <ul style="list-style-type: none"> <li>Whole-body vibration: 0.5 m/sec<sup>2</sup></li> <li>Hand-arm vibration: 2.5 m/sec<sup>2</sup></li> </ul>	<ul style="list-style-type: none"> <li>Achieved vibration exposure values for all types of equipment</li> <li>Whole-body vibration: 0.5 m/sec<sup>2</sup></li> <li>Hand-arm vibration: 2.5 m/sec<sup>2</sup></li> </ul>	Maintain compliance with EU Stage II standards on noise emissions from outdoor equipment, effective 2006, and standards on noise exposure for operators; maintain compliance with 2008 EU vibration standards	—
<ul style="list-style-type: none"> <li>Reduce CO<sub>2</sub> emissions from construction equipment (Improve fuel efficiency of products)</li> </ul>	Develop hydraulic excavators, wheel loaders, bulldozers, etc.	<ul style="list-style-type: none"> <li>Main achievements: <ul style="list-style-type: none"> <li>WA470, 480 medium-sized wheel loaders: 15% reductions</li> <li>D65 medium-sized bulldozer: 25% reduction (Fuel consumption reduced 10%; work capacity enhanced 15%)</li> </ul> </li> </ul>	Reduce CO <sub>2</sub> emissions by 10% by FY2010 compared to the FY1998 level	P. 13
<ul style="list-style-type: none"> <li>Improve recyclability rate of construction equipment</li> </ul>	Improve overall recyclability rate of construction equipment	<ul style="list-style-type: none"> <li>Recycling of canned counterweights: Became able to be classified as recyclable (thereby increasing the recyclability rate of medium-sized hydraulic excavators from 78% to 98–99%)</li> <li>Use of chlorine-free hoses: Currently being improved</li> </ul>	Achieve recyclability rate of 99.5% by FY2010	P. 17
<ul style="list-style-type: none"> <li>Strictly control and reduce substances of environmental concern in construction equipment</li> </ul>	Reduce hazardous substances in construction equipment by 50% compared to the FY1998 levels Ban use of chromium (VI), cadmium  Introduce separate hazardous substances control system for each product type (to comply with REACH regulations)	<ul style="list-style-type: none"> <li>Achieved a 50% reduction in existing models</li> <li>Made all newly designed products chromium (VI)- and cadmium-free</li> <li>Initiated a control system for REACH-regulated substances that covers global manufacturing facilities</li> </ul>	Achieve a 75% reduction by FY2010 (for construction equipment under development, in compliance with upcoming standards) Ban from January 2010  Launch system by end of 2010	—  P. 43
2. Reduce the environmental impact of industrial machinery <ul style="list-style-type: none"> <li>Develop environment-friendly forge rolling machines</li> </ul>	Improve energy efficiency of AC servo presses	<ul style="list-style-type: none"> <li>Developed energy charge module (ECM) Power consumption: Reduced up to 4% Capacity of transformers for presses: Reduced as much as 40%</li> </ul>	Expand number of AC servo press models	P. 15
3. Reduce the environmental impact of industrial vehicles <ul style="list-style-type: none"> <li>Develop environment-friendly forklift trucks</li> </ul>	Expand number of hybrid electric forklift truck models	<ul style="list-style-type: none"> <li>Expanded number of models beyond 1-ton class into 2-ton class models</li> </ul>	Further expand number of models	P. 14
4. Provide solutions for customers' environmental activities <ul style="list-style-type: none"> <li>Promote on-site recycling using mobile crushers/recyclers/tub grinders</li> </ul>	Expand scope of application and promote social recognition of on-site recycling engineering	<ul style="list-style-type: none"> <li>Promoted on-site recycling of construction residuals at point of generation by mobile crushers/recyclers/tub grinders</li> </ul>	Expand range of machines in the mobile crusher/recycler/tub grinders; expand areas of applicability	P. 17
5. Promote reuse and recycling <ul style="list-style-type: none"> <li>Promote "Reman" business</li> </ul>	Expand and promote "Reman" business	<ul style="list-style-type: none"> <li>Reorganized the "Reman" business globally (concentrated operations into five Reman Centers in regions with high demand for remanufactured parts)</li> <li>Expanded the range of items covered under "Reman" operations to include wheel motors, hydraulic cylinders, etc.</li> </ul>	Promote reuse and recycling through further improvements in recycling-related technologies for parts	P. 18

## Manufacturing

Implementation policies	Objectives for FY2008	Results for FY2008	Medium- and long-term objectives	Further information
1. Mitigation of climate change (energy conservation) •Make a 20% or more improvement by FY2010 (average results from FY2008 to FY2012) in the amount of CO <sub>2</sub> emissions per unit of manufacturing value from the level of achievement in FY2000 at the Komatsu Group manufacturing facilities in Japan •Curb the amount of CO <sub>2</sub> emissions to the FY1990 level at the Komatsu Group manufacturing facilities in Japan	Improve 1% over previous fiscal year	•Improved 27.3% from the level of achievement in FY2000; attained a 7.3% improvement over the previous fiscal year	Set and achieve new targets	P. 16
		•Attained a 15% reduction in the total amount of CO <sub>2</sub> emissions compared to the FY1990 level		
2. Effective utilization of resources •Maintain or make further progress on attainment of zero emissions at the Komatsu Group manufacturing facilities in Japan •Achieve a reduction of more than 15% by FY2010 in the amount of waste generated per unit of manufacturing value from the level of achievement in FY2005 at the Komatsu Group manufacturing facilities in Japan •Achieve a reduction of more than 10% by FY2010 in the amount of water used per unit of manufacturing value from the level of achievement in FY2005 at the Komatsu Group manufacturing facilities in Japan	Attain recycling rate of 99% or more	•Attained recycling rate of 99.0% across the Komatsu Group	Maintain zero emissions; attain zero emissions at the Komatsu Group manufacturing facilities outside Japan	P. 19
	Improve 3% over previous fiscal year	•Accomplished a 10.3% reduction in the amount of waste generated per unit of manufacturing value from the level of achievement in FY2005	Achieve by FY2010	P. 19
	Improve 2% over previous fiscal year	•Accomplished a 17.8% reduction in the amount of water used per unit of manufacturing value from the level of achievement in FY2005	Further promote reductions	P. 19
3. Environmental risk management •Implement voluntary reductions on the release of chemical substances Substitute reductions in the amount of VOCs released, which accounts for the majority of the amount of chemical substances released •Implement voluntary reductions on 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 from the level of achievement in FY2005 •Undertake soil and groundwater remediation at the Komatsu Group manufacturing facilities in Japan •Implement permanent measures required to renovate underground tanks in operation for 20 or more years by the end of FY2001 at the Komatsu Group manufacturing facilities in Japan	Establish a control system for chemical substances and reduce amount of released chemical substances	•Accomplished a 21.2% reduction in the amount of VOCs released per unit of manufacturing value from the level of achievement in FY2005	Achieve by FY2008 and FY2010	P. 20 P. 44
	Complete all scheduled remediation work	•Completed remediation work of all soil and groundwater issues that had been identified by FY2007	Cleanup completed	P. 20
	One tank requiring renovations	•Discontinued use of the underground tank after the conversion of a kerosene boiler to a gas-fired type (scheduled to be removed in the latter half of FY2009)	Address sequentially all underground tanks in operation for 20 or more years	P. 20

## Procurement and Logistics

Implementation policies	Objectives for FY2008	Results for FY2008	Medium- and long-term objectives	Further information
1. Green procurement •Promote improvements at suppliers through the establishment of environmental management systems and by specifying matters that require environmental consideration	Provide guidance and assistance for the acquisition of environmental management system (EMS) certification at all suppliers in Japan	•EMS certification acquired in FY2008 at all of the 126 business associates in Japan that had been requested by Komatsu in FY2006 to pursue certification	Reinforce linkages with suppliers' EMSs	P. 12
2. Environmental conservation in logistics •Promote reductions in traveling distances and improvements in shipping efficiency •Shift to means of shipping with low environmental impact •Promote "zero packaging"	Begin construction on Kanazawa Plant No. 2 and improve product shipping from new plants (increase the size of shipping lots)	•Commenced construction of the new Kanazawa Plant No. 2 adjacent to the port of Kanazawa in Ishikawa Prefecture, Japan, aiming at launch of manufacturing operations in August 2009 •Increased the size of shipping lots by 4.3% by making use of the Ibaraki, Kanazawa, and Rokko Plants, which are adjacent to ports	Reduce CO <sub>2</sub> emissions generated through shipping and increase the size of shipping lots by launching manufacturing operations at the Kanazawa Plant No. 2 (currently under construction) and transferring some manufacturing operations to the Ibaraki and Kanazawa Plants, which are adjacent to ports	P. 16 P. 20
	Promote modal shifts in shipping from trucks to inland ferries or rail	•Improved modal shifts in shipping across the entire company by 1.4%, including through the launch of inland shipping for transport from the Rokko Plant to Osaka port in Osaka Prefecture, Japan	Continue to promote modal shifts	P. 16
	Increase the packaging return ratio	•Increased the packaging return ratio by 15% by making improvements in cardboard containers and large-sized boxes for shipping containers	Make improvements to achieve "zero packaging"	P. 19
	Shift to electric-powered forklift trucks	•Shifted to either hybrid electric or standard electric-powered forklift trucks for logistics in plants and increased the percentage of electric-powered vehicles by 4%; adopted more hybrid electric vehicles	Reduce the number of gasoline-powered forklift trucks in use; adopt more hybrid electric forklift trucks	P. 16

## Sales and After-sales Services

Implementation policy	Objective for FY2008	Results for FY2008	Medium- and long-term objective	Further information
1. Encourage Komatsu Group sales agencies and rental companies in Japan to reduce their environmental impact	Enhance awareness of the environment through education and training based on the Group's environmental guidelines	•Conduct education and training at two companies •Carried out activities for improvement through guidance provided during onsite visits to 178 sites in total •Regularly issued the <i>Safety and Environment Newsletter</i>	Support environmental conservation activities by Komatsu Group sales agencies and rental companies in Japan based on the Group's environmental guidelines	P. 12