

Komatsu's Initiatives to Bring about a Sound Material-cycle Society

Promoting on-site recycling using mobile crushers/recyclers, recovering and remanufacturing used components (parts), and effectively utilizing waste derived from manufacturing operations help Komatsu contribute to the creation of a sound material-cycle society.

Providing Solutions for Customers

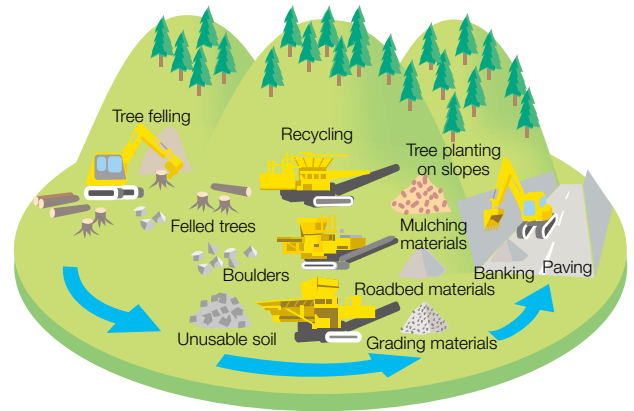
On-site Recycling

Komatsu develops environment-friendly products. To address environmental concerns from society, the company applies the most appropriate technologies to offer high-quality, efficient solutions.

Promoting On-site Recycling through Mobile Crushers/ Recyclers

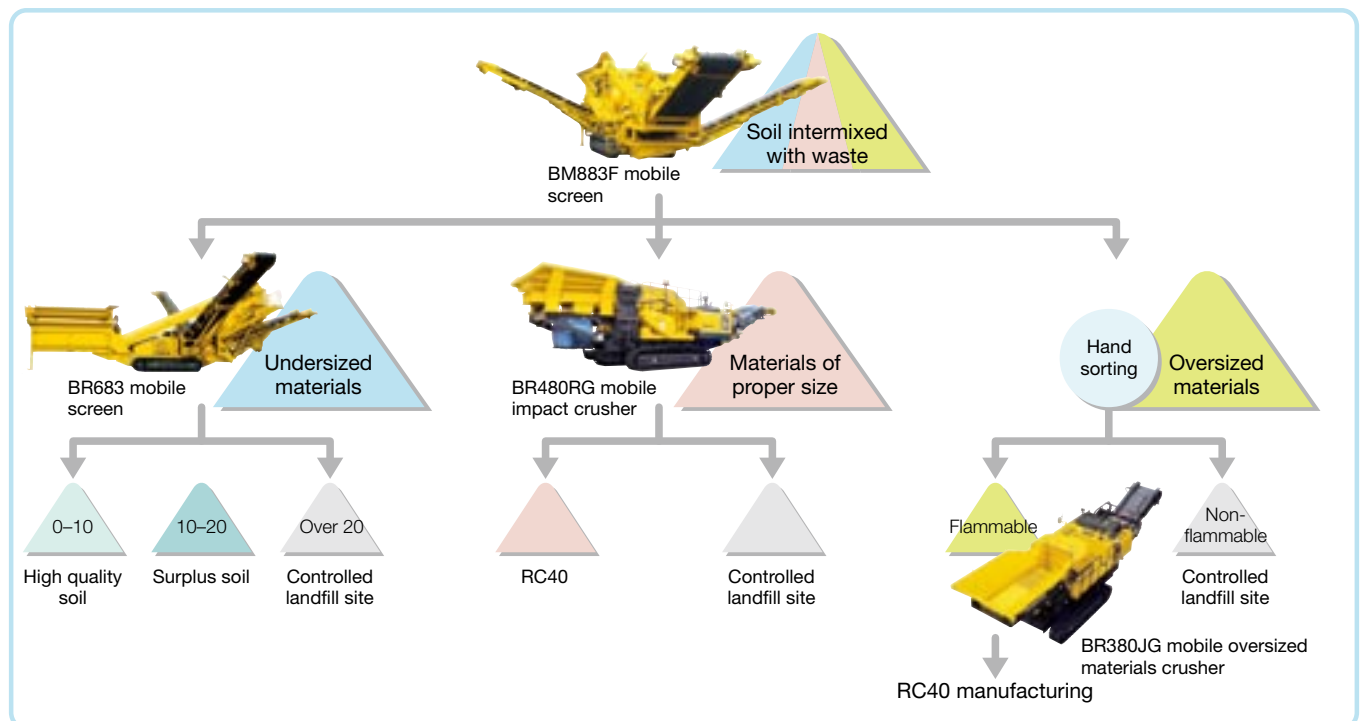
Komatsu's mobile crushers/recyclers process residuals generated at construction sites as a type of on-site recycling. Residuals are effectively utilized without leakage from the site and the introduction of virgin materials is unnecessary, reducing impact to the environment. In response to illegal dumping that has become a social problem in recent years, Komatsu has proposed the "e² separation process" based on the principles of recycling on-site. Soil intermixed with waste is roughly separated in advance by using mobile screens. The soil is then reused as resources. Since this takes place entirely within the construction site, the costs of waste disposal and waste transport are dramatically reduced, solving environmental and cost challenges simultaneously.

In FY2007, Komatsu added rough crushing specifications to the BR300S-2 dual-axle shearer and also to the BR580JG-1, whose other features include an engine satisfying emissions standards and the fully automatic crusher that had been well received on the BR380JG. These specifications result in large-scale work capacity and resistance to wear and abrasion from processing the earth.



BR580JG-1 fully automatic crusher

The e² Separation Process



Effective Utilization of Resources in the Provision of Services

Reuse and Recycling Activities

Promoting the Reman Business

In its "Reman" business, the Komatsu Group remakes used engines, transmissions, and other construction and mining equipment components into "remanned" components (parts) having the same quality as newly manufactured ones and provides them back to the market. The Group is promoting the Reman business at eight Reman Centers around the world.

"Reman," an abbreviation of "remanufacturing," offers customers the following benefits.

- Quality and performance guaranteed to be the same as those of new components
- Lower cost for "remanned" components than new ones
- Reduced construction equipment idle time through proper inventory levels of "remanned" components
- Resource conservation and waste reduction through the reuse and recycling of components

A new Reman company in Jakarta, Indonesia began operations in 2007 to provide "remanned" components globally. This promotes reuse and recycling activities in new regions as well as in regions covered by existing centers.

Providing Reman-related Information

The Komatsu Group has set up "Reman-Net," networking Komatsu Reman Centers around the world. The Group is actively using this network to develop Reman operations for reusing and recycling items at the global level. IC tags and two-dimensional codes are employed to manage components' remanufacturing history and track their quality and durability information. This important information is provided as feedback to the Group for developing components (parts) with appropriate life spans.

Acquiring ISO14001 Certification for Reman Centers

The eight Komatsu Reman Centers around the world have been pursuing ISO14001 certification to further environmental conservation. Five of the centers have been certified and the remaining three centers in the U.S., South Africa, and Indonesia are working to attain it. These centers advance environmental conservation through daily operations and inspections for maintaining and renewing certification.

Future Steps

To further increase the reuse rate of used components (parts), the Komatsu Group is reducing the amount of disposed parts through

- increasing the range of items covered under its Reman operations
- further improving the usage rate of remanufactured parts through the development of parts made to suitable sizes or those designed exclusively for future remanufacturing use, and
- developing recycling-related technologies.

The Group is carefully considering the future of the Reman business in regions not currently covered by its existing Reman Centers to further advance recycling and reuse.

Launching Expanded Recycling of Used Rubber Crawler Shoes and Rubber Pads

There has been a strong desire to recycle used rubber crawler shoes and rubber pads, types of waste unique to construction equipment posing various disposal complexities. Comprised of about 50% steel, these shoes and pads represent a valuable resource for material recycling. The Komatsu Group has focused on them as a major focal point in advancing recycling.

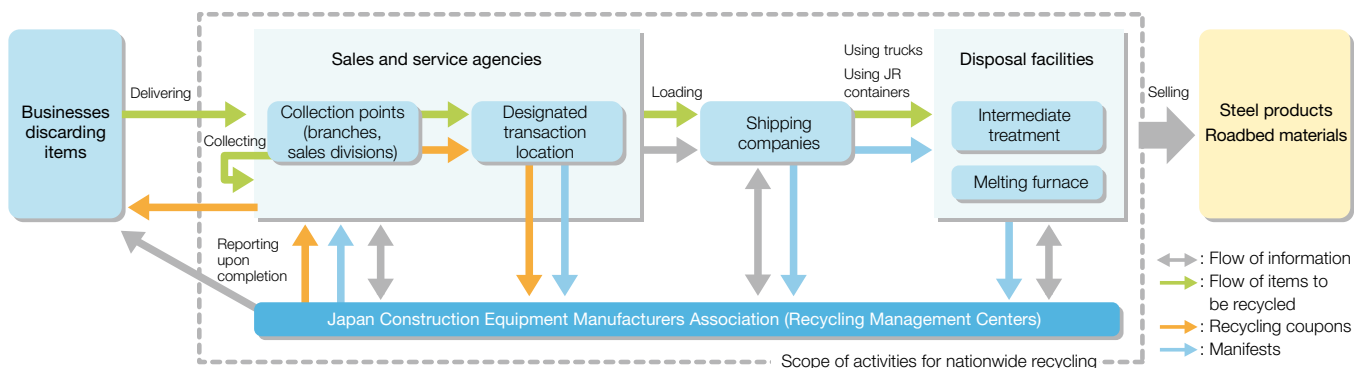
Initiatives at Recycling Management Centers

Komatsu Ltd. and nine other construction equipment manufacturers have worked jointly with five rubber crawler shoe manufacturers in Japan to establish Recycling Management Centers as the parent organization for new recycling endeavors by the Japan Construction Equipment Manufacturers Association. In December 2007, the Recycling Management Centers received authorization from the Ministry of the Environment of Japan as nationwide recycling collectors*, and from early 2008 they have been formulating concrete recycling activities.

Making full use of its sales and service network for construction equipment, Komatsu collects used rubber crawler shoes and pads efficiently from businesses all around Japan that are discarding these items. Almost 100% recycling is possible, including the use of thermal recycling by means of a melting furnace that has been certified by the Ministry of the Environment of Japan for recycling. Recycling Management Centers each cover a smaller geographical area of Japan and began their operations in March 2008 in the Chubu region of central Japan. In August 2008, they are expected to expand their activities to a nationwide scale.

*A system of special exceptions through which it is unnecessary to get the permission of each local public body for waste treatment, even though such permission is fundamental under the legal system governing waste treatment operations in Japan. To qualify under this system, the items in question must be waste and treatment must be conducted by the manufacturer of the items in question across an extended area for the purpose of ensuring waste reduction or other proper waste treatment.

Overview of Recycling System in Japan for Used Rubber Crawler Shoes and Rubber Pads



Effective Utilization of Resources in Business Operations

Effective Utilization of Resources in Manufacturing

Waste

In tandem with reducing the volume of waste generated during manufacturing operations, Komatsu conducts zero emissions* activities to recycle waste materials.

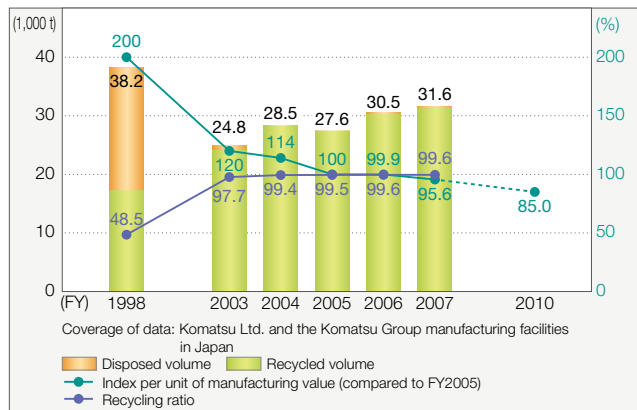
In FY2005, Komatsu achieved its objective of reducing the volume of waste generated per unit of manufacturing value by 50% at its manufacturing facilities in Japan from the level of achievement in FY1998. Since FY2006, Komatsu has been working to achieve newly established medium-term targets. The new targets are

- (1) continuing zero emissions activities and
- (2) achieving a 15% or more reduction by FY2010 in the volume of waste generated per unit of manufacturing value compared with the FY2005 level.

In FY2007, Komatsu continued to achieve zero emissions through strict waste separation and utilization of waste material as valuables, boasting a recycling ratio of 99.6%. The company's greater production volume has caused an increase in the amount of waste generated for three years in a row, beginning with FY2005. However, Komatsu reduced by 4.4% the volume of waste generated per unit of manufacturing value compared with FY2005 (a 4.3% reduction compared with the previous fiscal year), attaining its single-year target of an average 3% reduction per year. The company will redouble its waste separation efforts to achieve its medium-term objective.

*Komatsu defines "zero emissions" as a waste material recycling ratio of 99% or more.

Volume of Waste* Generated by Komatsu and the Komatsu Group Manufacturing Facilities in Japan



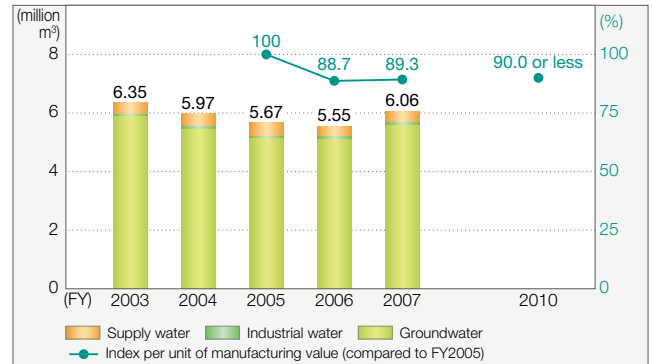
*In keeping with changes to the definition of the volume of waste generated, figures from previous fiscal years have been modified accordingly.

Conserving Water Resources

Since FY2006 Komatsu manufacturing facilities in Japan have taken up a new medium-term target of achieving a 10% or more reduction by FY2010 in the volume of water used per unit of manufacturing value compared with the FY2005 level.

Although overall water usage has risen in step with increases in manufacturing volume, the company has reduced the volume of water used per unit of manufacturing value by 10.7% compared with FY2005 by reusing water during processing and eliminating wasteful day-to-day practices. In particular, the Osaka Plant and the Komatsu Utility Kawagoe Plant reduced their usage volume more than 40% per unit of manufacturing value compared with FY2005. In the years to come Komatsu will make further attempts to reduce the volume of water resources used.

Volume of Water Resources Used by Komatsu and the Komatsu Group Manufacturing Facilities in Japan



Effective Utilization of Resources in Logistics

Improvements in Packaging

In FY2007, Komatsu expanded its returnable packaging endeavors beyond the improvements in specialized shipping containers already underway to include general-purpose containers. This led to an 8% increase in packaging return ratio across plants at Komatsu and a consequent 10% decrease in CO₂ emissions generated during the production process for steel and other packaging materials per unit of net sales.

Returnable packaging has lowered packaging costs and CO₂ emissions while conserving the earth's resources. Komatsu will continue to revise its packaging in FY2008.