

# Environmental Accounting

## Concept of Environmental Accounting

Komatsu began releasing environmental accounting data in FY1999 to manage ongoing and effective environmental conservation activities and disclose to its customers, shareholders, and all other stakeholders their content, cost, and effects. In FY2000, the company expanded this environmental accounting to its manufacturing facilities outside Japan.

The costs of environmental conservation are calculated in accordance with guidelines and manuals published by the Ministry of the Environment of Japan.

Environmental accounting is still in the developmental stages. Komatsu intends to monitor efficiently the costs and effects of environmental conservation in light of the life cycles of its products and formulate a new environmental accounting system that can be an effective tool for evaluating environmental management.

## Costs and Environmental Effects of Environmental Conservation

Komatsu's investment in Japan declined to 888 million yen, a 32% reduction compared to the high level of the previous fiscal year. This reflected a drop in environmental conservation-related investment to cover expansions in manufacturing capacity. However, there was a 72% rise over the previous year to 1,215 million yen outside Japan, owing to an increase in investment in pollution mitigation equipment and energy conservation measures, in keeping with the growth of the market for construction and mining equipment.

R&D costs in Japan increased by 21% over the previous fiscal year, to 15,590 million yen. Substantial R&D expenditures were devoted to reducing the environmental impact of products, especially new products such as diesel engines meeting Tier 4 emission standards. As a result, the environmental conservation costs arising from R&D activities accounted for over 70% of the company's total expenditures, as in the previous fiscal year.

Expenditures at manufacturing facilities rose by 12% year-on-year due to increased pollution mitigation equipment maintenance fees and waste disposal processing fees resulting from higher manufacturing volumes. Komatsu began thorough remediation measures for soil contamination on the land it currently owns, nearly doubling costs in this area compared to the previous fiscal year.

Komatsu has disclosed numerical data on the following items concerning the effects of environmental conservation.

- Environmental performance improvements that can be measured quantitatively
- Net economic effects that contribute to earnings through cost reduction and avoidance and that can be directly measured in monetary terms: In FY2007, Komatsu was able to achieve considerable positive economic effects through enhanced energy conservation measures. Moreover, the reuse of furnace slag in roadbed materials has increased steadily.

The effects of reducing the environmental impact of Komatsu's products during use and the non-economic effects of external activities are still being assessed.

## Management Based on Environmental Impact Point (EIP)\*1

With the aim of obtaining maximum ecological benefit (environmental performance) with minimum economic cost (financial performance), Komatsu integrated a standard set of indices for assessment of all environmental impacts attributable to its manufacturing facilities. Komatsu can therefore express quantitatively (numerically) such qualitative terms as "environment-friendly plant" and show clearly the progress of targets and measures.

As a rational environmental impact assessment index (JEPIX)\*2 well adapted to the actual conditions of environmental activities in Japan was developed, Komatsu decided to adopt this analytical

## Environmental Costs (Investments and expenses)

Top figure: Komatsu and Komatsu Group manufacturing facilities in Japan  
Bottom figure: Komatsu Group manufacturing facilities outside Japan

Category	Investment			Expenses		
	FY2006		FY2007	FY2006		FY2007
	Investment* (millions of yen)	Investment* (millions of yen)	Contents	Expenses* (millions of yen)	Expenses* (millions of yen)	Contents
(1) Business area cost	1,071	821		3,027	3,413	
	558	895		2,483	2,305	
1. Pollution prevention cost	669	502	•Investment for installation and conversion of pollution mitigation/prevention facilities (installation of effluent processing facilities, conversion of coating booths, etc.)	836	1,031	•Cost of maintaining equipment for mitigation/prevention of air and water pollution and for noise and vibration prevention (labor and depreciation costs)
	359	571		623	610	
2. Global environmental conservation cost	349	222	•Investment for implementing energy conservation measures (introduction of solar energy generation, installation of new ventilation systems, etc.)	1,027	1,082	•Cost of maintaining energy conservation facilities, such as cogeneration systems (labor and depreciation costs)
	190	303		647	482	
3. Resource circulation cost	53	97	•Investment for reducing the volume of waste materials (conversion of recycling facilities, introduction of equipment for separating waste, etc.)	1,164	1,300	•Waste materials processing cost
	9	22		1,214	1,213	
(2) Upstream/downstream cost	0	0		311	280	•Reduction of the environmental impact of components, etc. when shipping to outside Japan
	0	65		1,962	902	•Reduction of the environmental impact of mass-production units
(3) Administration cost	14	14	•Investment for beautifying manufacturing sites	613	668	•Cost of maintaining environmental management systems
	0	0		801	594	•Cost of creating green spaces and beautifying manufacturing sites
(4) R&D cost	219	43	•Investment in research facilities for reduction of environmental impact	12,832	15,590	•Cost of R&D activities to reduce the environmental impact of products
	23	246		836	678	•Cost of R&D activities to develop environment-friendly equipment
(5) Social activity cost	0	11		13	5	
	0	8		27	25	
(6) Environmental remediation cost	0	0		662	1,264	•Cost of conducting surveys and remedial countermeasures related to soil contamination
	125	0		109	45	
Total	1,304	888		17,457	21,221	
	707	1,215		6,219	4,548	

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

technique in FY2002. Visualization and understanding of which process is generating what environmental impact can be done through the analytical method known as the "material flow network," which was adopted in FY2003.

Since FY2004, the company has raised the level of environmental management by increasing the number of types of waste undergoing thermal recycling and chemical substances being assessed. Aiming to create truly zero emissions plants, Komatsu will be considering improvements from even more diversified aspects in the years to come.

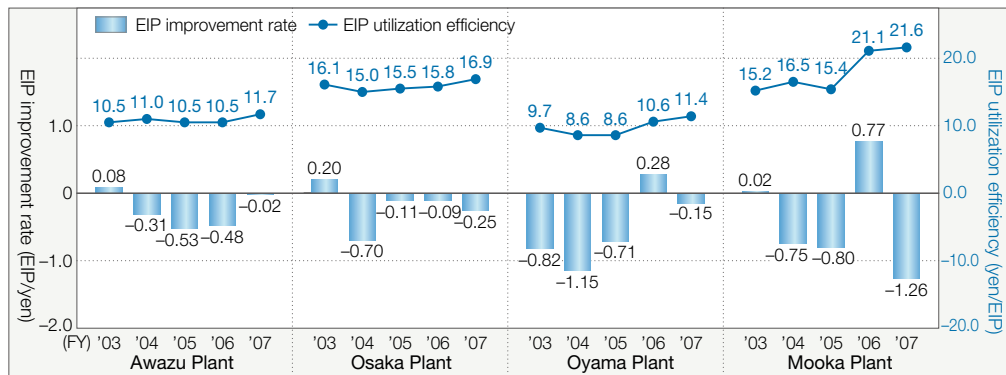
\*1 An integrated index of various environmental impacts

\*2 The Environmental Policy Priorities Index for Japan (JEPIX) was developed at International Christian University as part of the 21<sup>st</sup> Century COE Program of the Ministry of Education, Culture, Sports, Science and Technology.

### Assessing the Degree of Environment Friendliness

Komatsu made an attempt to evaluate the environmental impact of operations at each of its manufacturing facilities, associate the values obtained with environmental accounting, and use the two indices shown in the diagram below to evaluate the degree to which indices are being met.

#### Environmental Effects



EIP improvement rate:

- Effect of environmental impact reduction in relation to cost (EIP/yen) for environmental conservation activities, used to measure the extent of environmental impact reduction for each monetary unit of 1 yen for environmental conservation activities.
- The company uses this rate to assess the effectiveness of environmental conservation activities.

EIP utilization efficiency:

- Manufacturing value in relation to the degree of environmental impact (yen/EIP), used to measure the amount of monetary value added (manufacturing value) in relation to the degree of environmental impact.
- The company uses this value to assess the environmental impact utilization efficiency rate directly related to business activities.

Cost of environmental conservation activities: costs + investment amounts - depreciation amount  
EIP: Environmental Impact Point

#### Environmental Effects

Top figure: Komatsu and Komatsu Group manufacturing facilities in Japan  
Bottom figure: Komatsu Group manufacturing facilities outside Japan

Environmental impact reduction effects			Economic benefits		Avoidance benefits of environmental risks (see Note below)	Contribution to profits (see Note below)
Items of environmental impact	Reduction volume (t/year)	Rate of year-on-year changes (%)	Type	Monetary value* (millions of yen)		
CO <sub>2</sub> emissions	-28,039	10.0	Energy conservation	848	• There were no accidents or pollution in Japan during FY2007 that led to violations of the law. • No litigation costs were required in Japan during FY2007.	• Proceeds from mobile recycling equipment • Proceeds from value added due to reduced environmental impact of products (engines) • Proceeds from Reman business
	-9,120	5.0	Resource conservation	17		
Water consumption	-501,422	9.0	Waste materials reduction	265	• Promotion of recycling through thoroughgoing sorting • Reuse of furnace slag for roadbed materials	
	-27,455	3.6	Gain on sale of valuables	460		
Waste materials generation	-817	2.6	Other	5		
	6,785	-7.6	Total	1,596		
				453		

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

Note: Komatsu used statements instead of numeral 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 FY2007 are as follows:

- Mobile recycling equipment business: 9.6 billion yen
- Engine business: 99.5 billion yen (Total for intra-Group sales from the Engine & Hydraulics Business Division)
- Reman business: 28.6 billion yen (Worldwide Reman business sales from April 2007 to March 2008)

As a result, it was found that the manufacturing facility that was most effective in reducing its environmental impact in FY2007 was the Awazu Plant. However, Komatsu could not offset the total rise in environmental impact generated through increased manufacturing volumes by environmental impact reduction activities. Consequently, EIP improvement rates were negative for every plant.

In FY2007 for the second year in a row, the Mooka Plant obtained the equivalent value added (manufacturing value) with the least integrated environmental impact. From these facts, it follows that the Mooka Plant is the "most environment-friendly plant" when expressed in quantitative terms.

Komatsu considers it important to continue evaluating the degree of conformance to environmental standards set based on time-series data obtained by using the two indices of overall environmental impact improvement efficiency and overall environmental impact utilization efficiency. Komatsu has plans to introduce this concept to the Komatsu Group manufacturing facilities both in and outside Japan to practice ecological business management on a consolidated basis.

#### Effects on Society during the Product Use Stage\*

Environmental impact reduction effects	Tangible benefits
• Environmental impact reduction resulting from on-site recycling methods	• Reduction of expenses for processing waste materials
• Environmental impact reduction resulting from product operation	• Savings in operating and maintenance costs
• Waste components reduction resulting from Reman business	• Reduction of repair costs

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