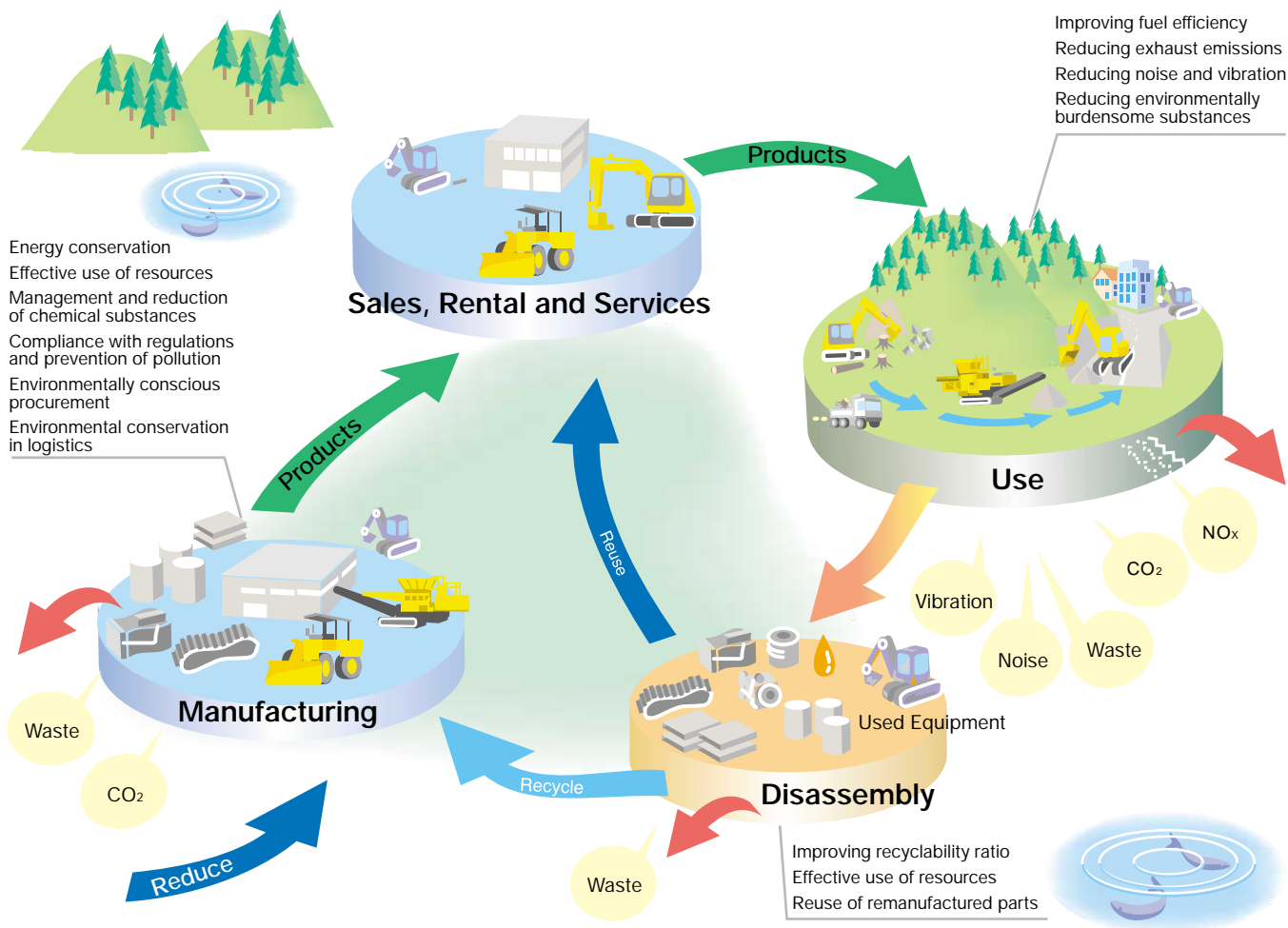


Environmental Impact of Business Activities and the Komatsu Approach



Komatsu Business Operations and the Environment

Komatsu's core business activities are comprised of the manufacturing of construction and mining equipment. Other activities include the production of industrial machinery and electronic systems. Komatsu regards its mission as one of supplying the market with products and services that enable the creation of systems, both necessary and useful, to enhance quality of life. As we head into the 21st century, communities around the world are increasingly struggling with environmental issues of an intensity and scale never experienced before. Environmental protection issues are not the exclusive domain of industrial concerns that engage in the manufacture and sale of products. They are also an important concern for the many customers who use such products in their business operations.

The Komatsu Approach

Komatsu is focusing on the following activities in order to deal effectively with key environmental conservation issues.

Providing Environment-Friendly Products and Services:

(1) Komatsu supplies machinery and systems effective in

conserving the environment through recycling and reusing waste created at construction sites.

(2) Komatsu works to reduce the impact of its products on the environment at the operation, servicing and disposal stages. This involves:

- Reducing the amount of energy and secondary materials consumed during the product operation and servicing stages and reducing the overall volume of environmentally burdensome substances generated.
- Reducing the levels of noise and vibration generated during operation.
- Improving recyclability ratio and remanufacturing components.
- Reducing the volume of environmentally burdensome substances that occur at the disposal stage.

Environmental Conservation in Manufacturing

- (1) Reducing the volume of resources, materials and fuel used at the manufacturing stage.
- (2) Reducing the volume of chemical substances used during the manufacturing stage.

Environmental Action Plan and Results for Fiscal 2000

| | Policies for implementation | Objectives for fiscal 2000 | Results for fiscal 2000 (The "*" indicates activities conducted during fiscal 2000.) | |
|---|---|--|---|--|
| Environmental Management | 1. Establishing a concept for implementation (Specific implementation decisions determined by individual corporate units and facilities) | Expand environmental management system to overseas manufacturing facilities. | Established Global Environment Committee (February 1991), drew up Earth Environment Charter (March 1992) and established "Global Environment Committee (Sept. 2000) (photo 1) | |
| | 2. Improvements in the company-wide environmental management system | Acquire certification at 10 manufacturing facilities. | * Total of 6 Komatsu Group and overseas manufacturing facilities acquired ISO14001 certification by March 2001. Central Research Laboratory became the first non-manufacturing facility to acquire certification ISO14001. | |
| | <ul style="list-style-type: none"> ISO14001 certification (acquire certification for all Komatsu Group including overseas manufacturing facilities by fiscal 2001). Collect data regarding environmental performance. | | Extend to all manufacturing facilities, including those overseas. | * Komatsu Group including overseas manufacturing facilities established a unified reporting format, which is being implemented with follow-up checks. |
| | <ul style="list-style-type: none"> Strengthen environmental accounting. | | Expand the range of application. | * Guidelines according to function for consolidated environmental accounting were drawn up and implemented at Komatsu Group including overseas manufacturing facilities. |
| Research and Development | 1. Develop on-site recycling construction equipment. | Extend model lineup. | * Introduced three new models of mobile recycle equipment series. (photo 2) * Introduced stationary recycling plants to the market. | |
| | 2. Construction equipment: Reduce environmental impact | | | |
| | <ul style="list-style-type: none"> Develop environment-friendly diesel engines | Implement changes ahead of scheduled regulations, where appropriate. | * Commenced mass production of four lines of engines certified to the U.S. EPA's Tier 2 Emission Regulations before their implementation. (photo 3) * Developed water emulsion fuel and compatible engines for use in electric generators. | |
| | <ul style="list-style-type: none"> Improve exhaust emissions | | | |
| | <ul style="list-style-type: none"> Improve fuel efficiency | Make improvements to coincide with improvements to exhaust emissions. | * Developed electronically controlled, high-pressure fuel-injection common rail system. | |
| | <ul style="list-style-type: none"> Reduce the environmental impact of construction equipment. | Implement development plan. | * Reduced fuel consumption rates and CO ₂ emissions (Example: by 15% in Eco mode for the minimal-swing radius mini PC228US-3 excavator) (photo 4) | |
| | <ul style="list-style-type: none"> Reduce CO₂ emissions (by 5% by fiscal 2005 from fiscal 1998 level) | | | |
| | <ul style="list-style-type: none"> Improve the recyclability ratio (to over 97% by fiscal 2005) | Establish relevant indicators and develop technology. | * Developed and implemented a software system tailored to specific development objectives, which calculates the recyclability ratio based on design data. | |
| <ul style="list-style-type: none"> Reduce environmentally burdensome substances (by 50% by fiscal 2005 from fiscal 1998 level) | Establish relevant indicators and develop technology. | * Developed and implemented a software system tailored to specific development objectives, which calculates the weight of environmentally burdensome substances. | | |
| <ul style="list-style-type: none"> Reduce O&O cost (by 20% by fiscal 2005 from fiscal 1998 level) | Implement development plan. | * The owning and operating cost have been reduced in newly developed models. | | |
| 3. Research environmental technology with long-term perspective | Implement action plan. | * Progress has been made according to plan. | | |

Note: O&O stands for owning and operating.



1 1st Global Environment Committee Meeting (Tokyo head office)



2 BR120T



3 EPA Tier 2 emission regulation certified engine (used in PC228US-3 excavator).



4 US series (PC228US-3)

| | Policies for implementation | Objectives for fiscal 2000 | Results for fiscal 2000 (The "*" indicates activities conducted during fiscal 2000.) |
|---|---|---|--|
| Procurement and Manufacturing | 1. Energy conservation • By fiscal 2010, Komatsu aims to reduce the energy consumption per unit of manufacturing value by 25 percent (original plan was 15 percent) from that of the fiscal 1990 level. (Komatsu manufacturing facilities and Komatsu Castex Ltd.) | Reduce energy consumption by 1.5 percent from the previous term's figure. | * Reduced energy consumption by 1.7 percent from the previous term's figure and 14 percent reduction from the level of fiscal 1990. |
| | 2. Protection of the ozone layer. | - | Use of the specified CFCs and 1.1.1-trichloroethane was abolished in fiscal 1995, and we are now promoting measures to reduce the use of halons and HCFCs. |
| | 3. Effective use of resources • Komatsu aims to achieve zero emission by fiscal 2002. (original plan was fiscal 2010). (Komatsu manufacturing facilities and Komatsu Castex Ltd.) | Implement action plans for a model manufacturing facility. | * Zero emissions target attained in November 2000 (original target was fiscal 2003) at model manufacturing facility (Oyama Plant). (photo 5) |
| | | Extend the activities to other facilities. | * A 86 percent recycle ratio was achieved at Komatsu manufacturing facilities. |
| | 4. Development of environment-friendly technologies. | Expand the range of dry-cutting applications. | * Application to approximately 70 percent of target facilities (505 units) was completed as of the end of 2000 at Komatsu Group manufacturing facilities in Japan. |
| | | Change over to chlorine-free cutting fluids. | * Changeover was completed at Komatsu manufacturing facilities. |
| | | Develop arc furnace dust recycling technology. | * Launched trial operation of a new arc furnace dust-slag conversion machine. |
| | 5. Compliance with regulations, prevention of pollution and reduction of environmentally burdensome substances. • Make thorough efforts to reduce environmentally burdensome substances. • Take measures to prevent pollution. • Comply with regulations | Reduce use of organic chlorine-based substances. | At Komatsu Group manufacturing facilities in Japan the use of chlorine-based substances was reduced by 86 percent from the fiscal 1997 levels. (Komatsu completely eliminated the use of the specified substances in fiscal 1998 within Komatsu manufacturing facilities.) |
| | | Eliminate waste incinerators. | * Komatsu Group manufacturing facilities in Japan eliminated all incinerators in fiscal 2000. (Eliminated at all Komatsu manufacturing facilities in fiscal 1999.) |
| | | Implement plan for renovating underground tanks in service for 20 or more years. | * Komatsu Group manufacturing facilities in Japan replaced 17 tanks, bringing the total number replaced to 124 out of 143. (Replaced at all Komatsu manufacturing facilities in fiscal 2000.) |
| | | Comply with PRTR law to be introduced in fiscal 2001. | * A program was initiated in fiscal 2000 to achieve compliance with the PRTR law. |
| | 6. Environment-conscious procurement • We intend to clarify environmental awareness among suppliers, and intend to promote the implementation of such procurement practices. | Promote self environmental assesment. | * Suppliers (133 firms) conducted self-assessment using Environmental Checksheets prepared by Komatsu. * Procurement-related education was provided to a total of 119 firms. |
| | | Improve materials procurement practices. | * Expand use of recycled poly-ethylene terephthalate (PET) based high-performance sound-absorbent material and natural plant fiber (principally kenaf) on the interior of cabins. |
| | | 7. Environmental conservation in logistics • Reduce volume of packing material consumed. • Reduce levels of CO ₂ and exhaust emissions generated during transport. | Reduce volume of packing materials consumed. Extend program to overseas facilities. |
| Develop comprehensive transportation system. | * Development was completed and tests (conducted during July and August 2000) verified effectiveness. Plans are underway for full practical application. | | |
| Minimize transportation distances and level of CO ₂ emissions. | * A modal shift is being implemented to use of local port facilities and use of train freight. | | |
| Sales and Services | 1. Establish remanufacturing (Reman) system for components. | Expand the volume. | * Expand the remanufacturing volume by 15 percent from fiscal 1999. |
| | 2. Reduce environmentally burdensome substances generated by service activities. | Introduce technology to recycle used coolant. | * Initiated program to recycle used coolant. |
| | | Extend the life of air cleaners. | * Introduced automatic dust removal type pre-cleaner. |
| | | Reduce the environmental impact generated from changing oil. | * Installed "eco-drain valves" and automatic oil replacement units. |
| | Extend the life of oil filters. | * Adopted "eco-white" element for oil filters that doubles filter life and reduces size by one-half. | |



⑤ Oyama Plant, the model manufacturing facility for zero emissions activities.

Environmental Accounting

Environmental Accounting and Improvements in Fiscal 2000

Komatsu introduced the new system of environmental accounting in fiscal 1999. This new system of accounting is designed to make Komatsu's ongoing environmental activities more effective and to enable accurate disclosure of costs and benefits to stakeholders. Improvements made to the environmental accounting system during fiscal 2000 are described in the following sections.

- Environmental accounting in compliance with "Approach to Establishing Environmental Accounting Systems (2000 Edition)" issued by the Ministry of the Environment in May 2000.
- Standard system for evaluating environmental impact of individual manufacturing facilities and environmental impact improvement index introduced for internal environmental accounting.

Environmental accounting is still at the development stage. Komatsu encourages feedback from customers, affiliates and other stakeholders. This will help to create an effective system of environmental accounting that can be used as a tool for evaluating environmental management.

Introduction of a Standard Set of Indices for Evaluating Environmental Impact

Komatsu is working toward establishing a standard index for evaluating different types of environmental impact as a way to achieve maximum ecological benefits for minimum economic cost. This will enable Komatsu to translate the qualitative

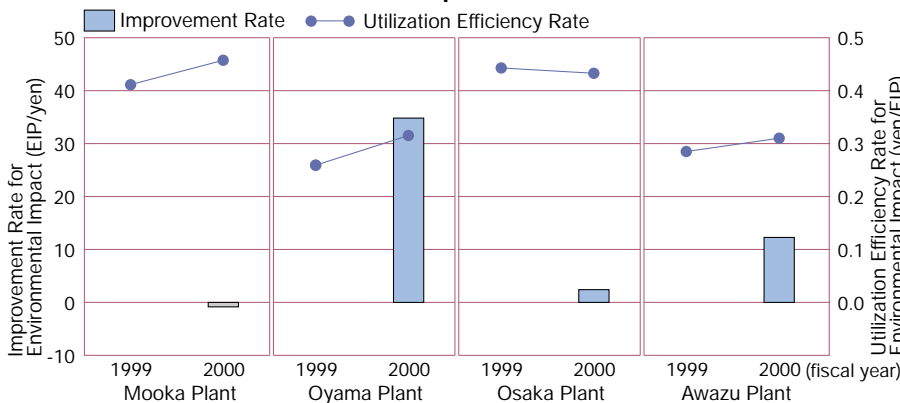
concept of environment-friendly manufacturing facility into quantitative and concrete statistics. It will also enable the Company to provide personnel with accurate information on progress in achieving specific targets and the quality of the work they are doing.

Since Japan has not yet established standards for creating an integrated environmental accounting index, Komatsu has taken the initiative to develop its own unique approach to integrating assessment of environmental impact based on environmental evaluation procedures (BUWAL SR297) developed in accordance with new laws enacted in Switzerland.

The Komatsu approach involves inputting the energy, chemical substance, waste and waste water analysis values for each plant as incoming and outgoing volume statistics for specific periods; then running calculations using application-specific methods. A standardized index referred to as environmental impact points (EIPs) is then used to assess the impact for individual categories, including global warming, ozone layer depletion and land impact, on the basis of designated coefficients. Komatsu's aim is to standardize a procedure capable of assessing environmental impact of production activities in units of individual manufacturing facilities through linking this EIP index to environmental accounting and using it to evaluate the environmental compliance of individual manufacturing facilities.

BUWAL SR297 is a set of abbreviations for the environment agency of Switzerland (BUWAL) and the series number (SR297) in the environmental documentation.

Comparisons of Utilization Efficiency Rates and Recent Trends for Environmental Impact



Environmental Impact Improvement Rate:

- * Effect of reduction of environmental impact in relation to cost (EIP/yen) for environmental conservation activities
- * Index that measures the degree to which environmental impact can be reduced for each monetary unit of ¥1 for environmental conservation activities.
- * Enables assessment of the effectiveness of environmental conservation activities.

Environmental Impact Utilization Efficiency:

- * Manufactured value in relation to degree of environmental impact (yen/EIP)
- * An index that measures the degree of monetary added value (manufactured value) in relation to the degree of environmental impact.
- * Enables assessment of the rate of utilization inefficiency of business activities that have direct impact on the environment.

Cost for Environmental Conservation Activities: Cost + Investment Amount - Depreciation Amount
 EIP: Abbreviation for Environmental Impact Point (value representing integrated index for measuring environmental impact)

Environmental Costs for Fiscal 2000

Upper: Komatsu and Komatsu Group manufacturing facilities in Japan
Lower: Komatsu Group including overseas manufacturing facilities, but excluding L&T-Komatsu Ltd.

| Category | Investments | | | Expense | | |
|--|-----------------------------|-----------------------------|---|--------------------------|--------------------------|--|
| | FY1999 | FY2000 | Contents | FY1999 | FY2000 | Contents |
| | Investments (¥ millions) | Investments (¥ millions) | | Expenses (¥ millions) | Expenses (¥ millions) | |
| 1) Cost of limiting environmental impact on business area | 1,314 | 1,015 | | 4,554 | 4,231 | |
| (1) Pollution prevention cost | 755 | 562 | * Installing pollution preventing facilities when moving plants. * Sand recycling equipment installed when rationalizing casting processes. | 2,515 | 2,093 | * Cost of maintaining air and water pollution prevention and noise and vibration prevention equipment. (Labor and depreciation costs) |
| (2) Global environmental conservation cost | 349 | 259 | * Investment for implementing energy conservation measures. (Energy conserving power supplies for heat treatment and installation of new air-conditioning systems.) | 621* ² | 383 | * Cost of maintaining cogeneration and other energy conservation equipment. (Labor and depreciation costs) |
| (3) Resource circulation cost | 209 | 194 | * Investment for reducing the volume of waste (Water purification equipment and equipment for recycling cutting waste particles.) | 1,418 | 1,755 | * Waste processing cost |
| 2) Cost of controlling both up and downstream environmental impact | 7 | 0 | | 281 | 286 | * Reducing environmental impact of packaging and material used when shipping components overseas. |
| 3) Cost of environmental conservation in management activities | 10 | 3 | | 422 | 573 | * Cost of maintaining environmental management systems. * Cost of providing environment-related education and training. |
| 4) Cost of environmental conservation in research and development activities | 94 | 45 | * Noise and vibration analysis equipment used for product development. | 6,416 | 7,754 | * Cost of research and development for reducing environmental impact of Komatsu products. * Cost of research and development for on-site recycling construction equipment. |
| 5) Cost of environmental conservation in social activities | 22 | 7 | * Investment for beautification of manufacturing facilities. | 303 | 458 | * Cost of creating green spaces and beautification of manufacturing facilities. * Cost of compiling and printing Environmental Report and other public relations materials. |
| 6) Other costs related to environmental conservation | 55 | 17 | | 103 | 30 | * Cost of conducting surveys and implementing measures to prevent soil and underground water pollution. |
| Total | 1,502 | 1,086 | | 12,079 | 13,333 | |
| | | 525 | | | 2,325 | |

*1: Indicates numbers representing investment and cost figures that have been rounded off to the nearest million yen.
*2: An improved calculation method was introduced in fiscal 2000. Note that figures for fiscal 1999 have been recalculated in line with the new method. (¥1,123 million to ¥621 million).

Environmental Costs for Fiscal 2000

Upper: Komatsu and Komatsu Group manufacturing facilities in Japan
Lower: Komatsu Group including overseas manufacturing facilities, but excluding L&T-Komatsu Ltd.

| Environmental impact reduction | | | Economic benefits | | | | |
|----------------------------------|-----------------------|---------------------------------------|-----------------------------|---|--|--|---|
| Environmentally burdensome items | Reduction (tons/year) | Rate of change over previous year (%) | Tangible benefits | | | Avoidance of environmental risks | Contribution to profits |
| | | | Type | Monetary* ² value (¥ millions) | Major activities | | |
| CO ₂ emissions | 800 | 0.2 | Energy conservation | 446 | Introduction of co-generation systems Maintenance of air-conditioner and recovery of waste heat | Neither accidents nor pollution that led to breach of law took place in Japan during fiscal 2000. No litigation costs were spared in Japan during fiscal 2000. | * Business income from mobile recycling equipment * Business income from increased added value due to reduced environmental impact from products * Profit from remanufacturing business |
| | | | Resource saving | 10 | Reuse of single-crystal silicon Recycling of machining waste particles | | |
| SO _x emissions | -1.4 | -3.7* ¹ | Reduction of waste, etc. | 462 | Promoting thoroughgoing waste separation and recycling measures. | | |
| | | | | 75 | | | |
| Water consumption | 606,667 | 5.1 | Profit on sale of valuables | 38 | Reuse of furnace slag for road bed material. Sale of silicon scrap. | | |
| | | | | 37 | | | |
| Waste generation | -6,942 | -12.1* ¹ | Others | 244 | | | |
| | | | | 46 | | | |
| | | | Total | 10 | | | |
| | | | | 8 | | | |
| | | | | 1,199 | | | |
| | | | | 176 | | | |

*1: The absolute values for SO_x emissions and waste discharge increase as production increases. However, the ratio of SO_x to unit of manufactured value is on the decline. The ratio of discarded waste is also declining as the recycling ratio increases. (Komatsu encourages all those affiliated with this field to participate in initiatives and programs designed to conserve energy and use resources more efficiently.)
*2: Note that figures are rounded off to the nearest million yen.

Effect on Community during the Product Utilization Stage

| Benefits from reducing environmental impact | Tangible benefits |
|---|---|
| * Reduction of environmental impact due to on-site recycling method * Reduction of environmental impact from products * Reduction of waste parts due to remanufacturing | * Reduction of expenses for processing waste construction materials * Conservation of operating and maintenance costs * Reduction of repair costs |