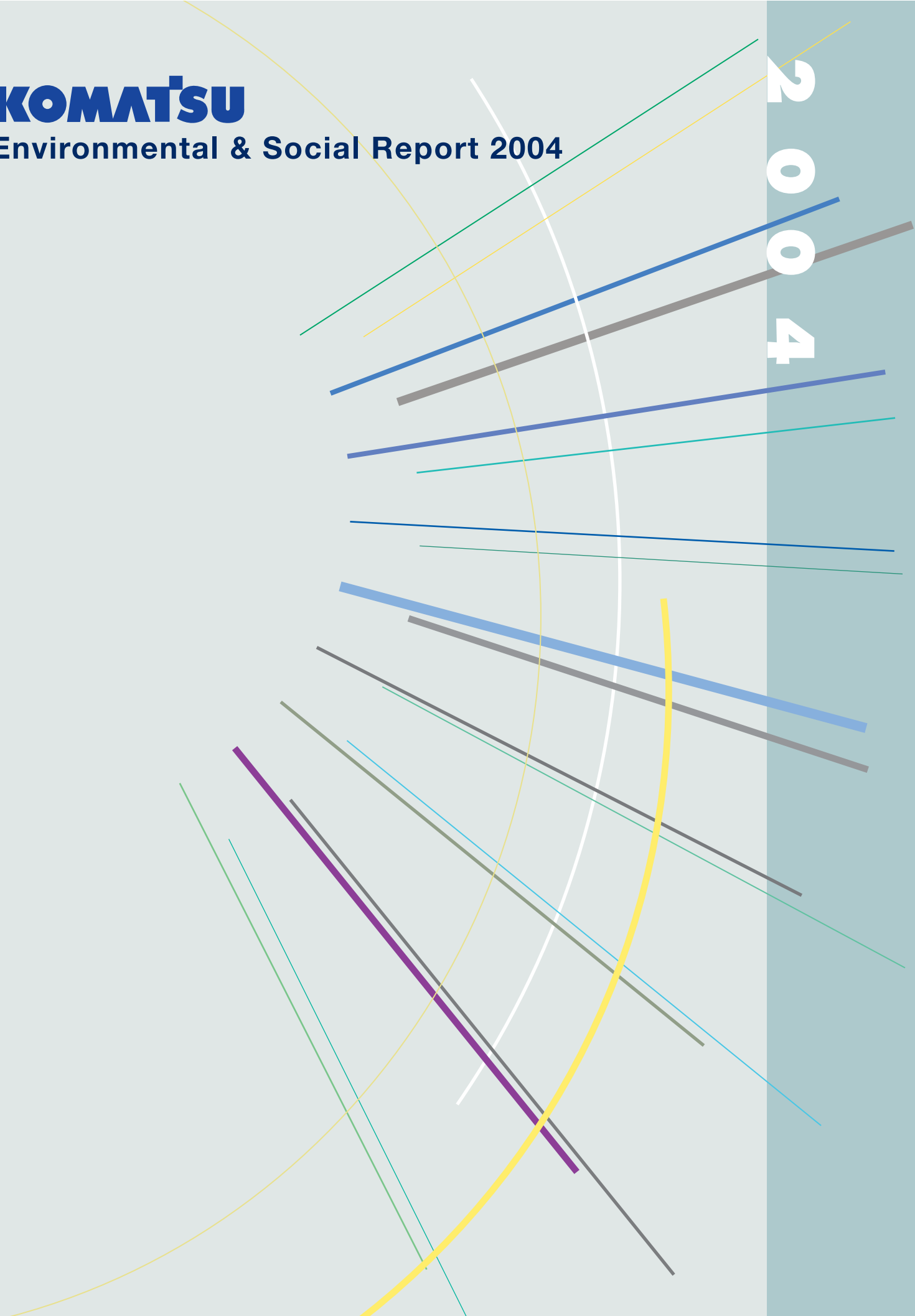


**KOMATSU**

**Environmental & Social Report 2004**

**2004**



## Company Profile

Company name:	Komatsu Ltd.	
Established:	May 13, 1921	
Head Office:	2-3-6, Akasaka, Minato-ku, Tokyo 107-8414, Japan	
Representative:	President and Chief Executive Officer Masahiro Sakane	
Capital:	¥70,120 million (US\$674 million*) (as of March 31, 2004)	
Net sales (for the fiscal year ended March 31, 2004):	Consolidated	¥1,196,418 million (US\$11,504 million*)
	Non-consolidated	¥418,686 million (US\$4,026 million*)
Date of settlement:	March 31	
	*U.S. dollar amounts are converted at the rate of ¥104 = US\$1.00, the prevailing rate announced by the Federal Reserve Bank of New York on March 31, 2004. Amounts less than 1 million have been omitted.	
Main lines of business (Komatsu Group):	Manufacture and sale of construction and mining equipment, industrial machinery & vehicles and electronics products. Komatsu also engages in other business areas such as housing, transportation and logistics equipment.	
Number of employees:	Consolidated	31,635 (as of March 31, 2004)
	Non-consolidated	5,520 (as of March 31, 2004)
Komatsu Group profile:	Number of companies (consolidated subsidiaries) 141 (as of March 31, 2004)	
Main changes in Group organization	<ul style="list-style-type: none"><li>•Part of Komatsu's Electronics Division underwent an organizational change to become the Construction Equipment Electronics Division and part was spun off into a separate company.</li><li>•The company acquired Partek Forest AB, a Swedish manufacturer of forestry equipment, and renamed it Komatsu Forest AB.</li><li>•Through the integration of consolidated subsidiaries, the acquisition of companies, etc., the total number of companies in the Komatsu Group has increased from 125 to 141.</li></ul>	

•Further information can be found on the Komatsu homepage.

<http://www.komatsu.com/en/CompanyInfo/>

## Scope of This Report

- Komatsu's (parent company's) manufacturing facilities, specifically the following four plants:  
The Awazu Plant (including the Defense Systems Division, Industrial Machinery Division, and Komatsu Machinery Corporation); the Osaka Plant; the Oyama Plant (including Komatsu Cummins Engine Co., Ltd., Industrial Power Alliance Ltd., Komatsu Castex Ltd. [Oyama Plant], GIGAPHOTON, Inc., and Komatsu Remanufacturing Co., Ltd.); and the Mooka Plant.
- Komatsu Group's domestic manufacturing facilities, specifically the above four plants and the following ten business units:  
Construction Equipment Electronics Division (including Komatsu Electronics, Inc.); Komatsu Zenoah Co. (Kawagoe Plant, Koriyama Plant); Komatsu Electronic Metals Co., Ltd. (Hiratsuka Plant, Miyazaki Plant, Nagasaki Plant); Komatsu Forklift Co., Ltd.; Komatsu Engineering Corp. (Awazu Plant); Komatsu House Ltd.; and Komatsu Castex Ltd. (Himi Plant).
- Komatsu Group's overseas manufacturing facilities, specifically the following 18 business units:  
Komatsu America Corp. (Chattanooga Manufacturing Operation, Candiatic Manufacturing Operation, Peoria Manufacturing Operation, Newberry Manufacturing Operation); Komatsu do Brasil Ltda.; Komatsu Mexicana S.A. de C.V.; Komatsu UK Ltd.; Komatsu Hanomag GmbH; Komatsu Mining Germany GmbH; Komatsu Utility Europe S.p.A.; PT Komatsu Indonesia Tbk; Bangkok Komatsu Co., Ltd.; Komatsu (Changzhou) Construction Machinery Corporation; Komatsu (Changzhou) Foundry Corporation; Komatsu Shantui Construction Machinery Co., Ltd.; L&T-Komatsu Limited; Advanced Silicon Materials LLC; and Formosa Komatsu Silicon Corporation.
- Komatsu Group and overseas manufacturing facilities, specifically all 32 facilities listed above.

## Notes from the Editor

### Editorial Policy

Komatsu continues to undertake activities which demonstrate that fulfilling responsibilities to the greater society and making efforts to conserve the global environment rank among its top managerial priorities. It has published an *Environmental Report* annually, beginning in FY2000, reflecting its efforts to boost awareness of the various measures for the environment undertaken in its business activities.

With this FY2004 report, Komatsu has changed the title from its *Environmental Report* to its *Environmental & Social Report*. In the environmental activities section, Komatsu strived to make the entirety of the efforts it undertakes by means of its various business activities as easy to understand as possible. In the social activities section, Komatsu has endeavored to produce more complete coverage, with the new subsections of "Quality and Reliability" covering issues of interest to customers and "Personnel" addressing issues of interest to its employees.

### Period Covered

This report covers the data for the period from April 1, 2003 to March 31, 2004 as a general rule. However, a portion of the report also touches upon the period after April 1, 2004.

### Guidelines Used

"Environmental Report Guidelines 2003" (Ministry of the Environment of Japan); "The 2002 Sustainability Reporting Guidelines" (Global Reporting Initiative [GRI])

### Subsequent Reporting Schedule

- Japanese version: Expected July 2005
- English version: Expected August 2005

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Fundamental to Komatsu's managerial approach is the pursuit of "Quality and Reliability." Yet at Komatsu, quality and reliability are not limited to its products and services; they are reflected in the entirety of the Komatsu Group's organizations, businesses, employees, and corporate management. Among Komatsu's highest priorities are activities to protect the global environment in order to preserve our beautiful and naturally abundant earth for the next generation and activities that enable Komatsu to carry out its corporate social responsibilities, resulting in enhanced trust from society, first and foremost from its stakeholders.

Komatsu is now implementing its FY2003–FY2005 mid-range management plan, rooted in the key concepts of "implementation of management in speed" and "realization of a business structure for high profitability." Within this framework, Komatsu is committed to giving ample consideration to and indeed strengthening its activities in the areas of compliance, environment, and safety.

To protect the global environment, Komatsu offers innovative and high-quality solutions for the economic and environmental activities of customers using such products as construction and mining equipment. Komatsu has been implementing its "Spirit of Manufacturers" approach with Quality and Reliability firmly at the core. Komatsu is now putting its strength behind the development of construction and mining equipment, namely the GALEO series, which are truly unique and unrivaled products, with environment-friendly engines and reduced noise and vibration made possible by many years of technology development.

In its business activities—including manufacturing, distribution, and after-sales services—Komatsu emphasizes the energy-saving and zero emissions activities that it is pursuing at manufacturing sites. In addition, Komatsu is working to reduce further the environmental impact of its operations in cooperation with affiliated overseas business establishments, notably its manufacturing centers, as well as with Group companies and other affiliated companies involved in sales, lease, and procurement.

Komatsu is carrying out its corporate social responsibilities by enhancing its efforts to fortify corporate governance while strengthening its activities in the areas of product safety, compliance, safety and health, and human rights. In particular, with regard to compliance, Komatsu has set forth its Code of Worldwide Business Conduct and reinforces the understanding of all Group employees regarding compliance with best business practices.

Komatsu will continue to make efforts to enhance its activities to pursue the protection of the global environment and to perform its social responsibilities.

**Masahiro Sakane**  
President and CEO



## Publishing of Environmental & Social Report 2004



This marks the fifth year that Komatsu has published its environmental report with a view to deepening our stakeholders' understanding of the environmental conservation activities of the Komatsu Group. The name of this publication has been changed to the "Environmental and Social Report" to reflect its expanded coverage. The report includes not only environmental management structure, environmental accounting, environmental performance, and other environmental conservation activities being undertaken but also the social aspects of quality and reliability and personnel issues, among others.

The previous fiscal year saw the revision of the Komatsu Earth Environment Charter and the announcement of a concrete mid-range management plan. Since that time Komatsu has sought to make all employees in the Group aware of the contents of those new developments. Through these new objectives, Komatsu has achieved steady results with regard to energy conservation, zero emissions, and other environmental conservation activities implemented by individual business divisions. Furthermore, demands from society are particularly intense towards measures to mitigate emissions from diesel engines, and Komatsu is putting the combined efforts of the Komatsu Group into developing a higher level of technology that does more than simply fulfill regulations but goes on to enable the simultaneous realization of environmental and economic performance.

In the future, in addition to further enhancing the Komatsu Group's environmental conservation activities at the global level, Komatsu intends to fortify its observance of corporate social responsibility, including in the areas of compliance, product safety, and various systems dealing with personnel affairs.

Komatsu looks forward to the opportunity to hear your frank views on this report.

**Masahiro Yoneyama**  
Director  
Senior Executive Officer  
Supervising Environment & Safety and Compliance



# Aiming for Sustainability

In order to realize both a sustainable society and sustainable enterprise, Komatsu is promoting business activities that put Quality and Reliability first while continually responding to the expectations of its stakeholders.

## The Basic Stance of Management

Komatsu is committed to having Quality and Reliability as the very cornerstones of its management to maximize its corporate value.

Komatsu considers corporate value to be the sum total of the degree of trust placed in a company by all its stakeholders, namely its shareholders, customers, sales partners, suppliers, the host local community, and its employees. Within that, trust from society is of particular importance, and thus Komatsu puts compliance at the forefront and emphasizes its importance throughout the entire Komatsu Group.

Komatsu emphasizes quality and reliability in all of its activities. Komatsu's commitment to ensuring and improving the quality and reliability of its products and services is a given. However, its commitment extends well beyond that, reaching to its corporate governance and business practices, which constitute the basis for its economic activities, its treatment of human rights and individual character, labor issues, and safety and health issues of its employees, and its environmental activities and social activities, such as its communication-related social contributions.

## Basic Managerial Policy

The following five points have been set forth as managerial principles aimed at further enhancing quality and reliability in the Komatsu Group while serving as guidelines for each and every Komatsu Group employee in performing his or her duties.

## The Five Guidelines

1. Constantly provide environment-friendly, safe and innovative products and services from the viewpoint of our customers
2. Constantly promote self-initiated innovations in technology and management
3. Promote consolidated management from global perspective
4. Work for the community as a good corporate citizen
5. Provide employees with opportunities for challenge and creativity

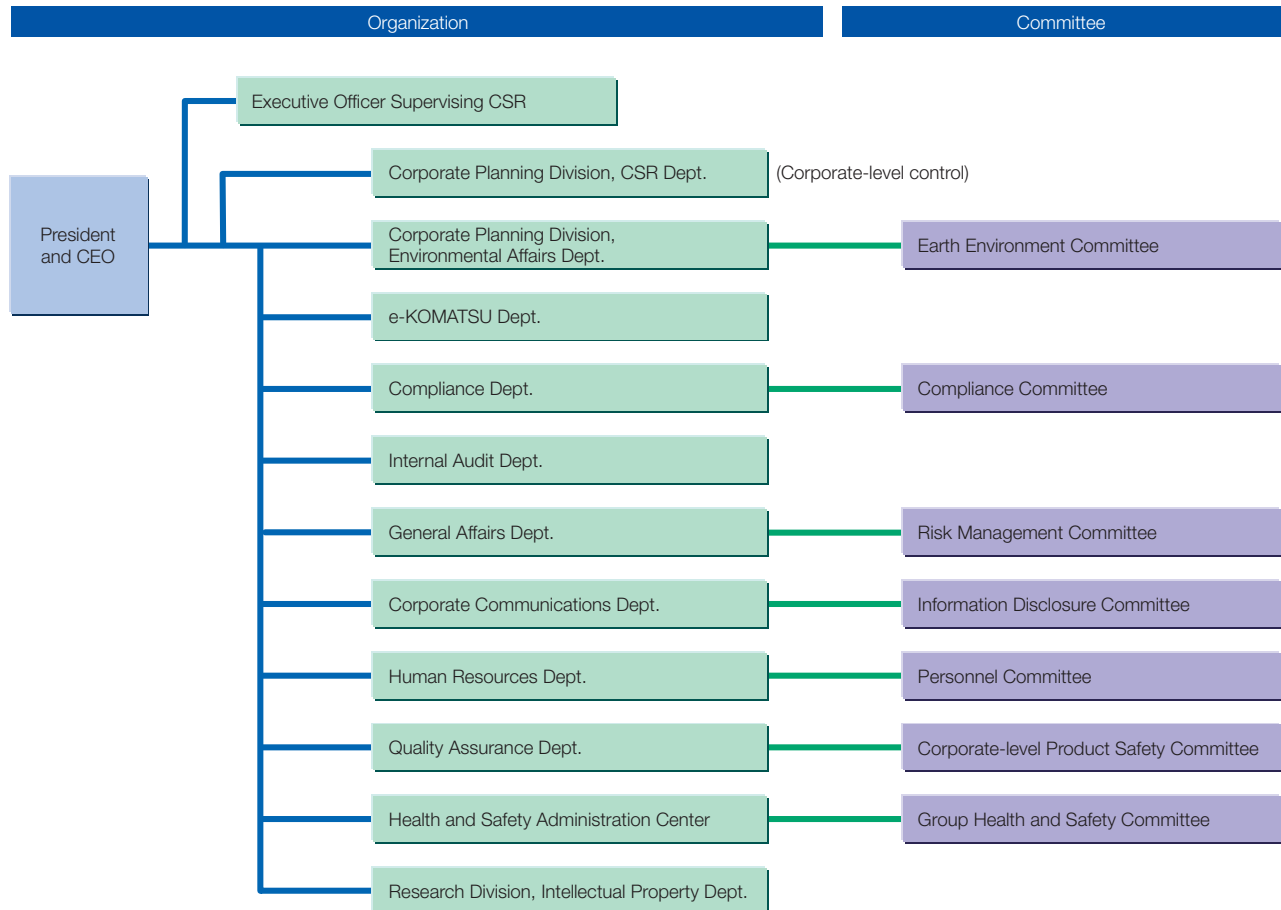
Through these activities, Komatsu is working towards becoming a sustainable enterprise, pursuing each individual undertaking through the ongoing, cyclical application of PDCA (Plan, Do, Check, Action), enabling it to match the expectations of its stakeholders.

## Establishment of the Corporate Social Responsibility (CSR) Department

In May of 2004, Komatsu established a Corporate Social Responsibility (CSR) Department, which has ultimate authority and responsibility for compliance and for the conducting of business administration which takes Komatsu's stakeholders fully into account. In doing so, it solidified trust in the company that extends globally and reaches throughout the entire Komatsu Group.

## Organization Related to Corporate Social Responsibility

(As of July 1, 2004)



# The Komatsu Group's Relationship with the Environment and with Society

Komatsu considers "What Komatsu Can Do and What It Must Do" for the global environment and for society and promotes activities of the entire Komatsu Group that will bring about the realization of its vision.

## Business Activities and Their Impact on the Environment

The Komatsu Group not only develops and supplies construction and mining equipment but also is involved in such fields as industrial machinery/vehicles and electronics. These business activities' primary areas of environmental impact are as follows.

- Consumption of energy, raw materials, and auxiliary materials during manufacturing
- Use of chemical substances in manufacturing processes and generation of substances of environmental concern
- Consumption of energy and auxiliary materials required for use of products and generation of substances of environmental concern as a result of consumption
- Generation of noise/vibration during use of products
- Generation of waste and substances of environmental concern at the disposal stage

The Komatsu Group, in recognition of the fact that its business activities affect a number of stakeholders, most notably the residents of the area surrounding its activity sites, is promoting activities that will reduce these environmental impacts.

## The Komatsu Approach

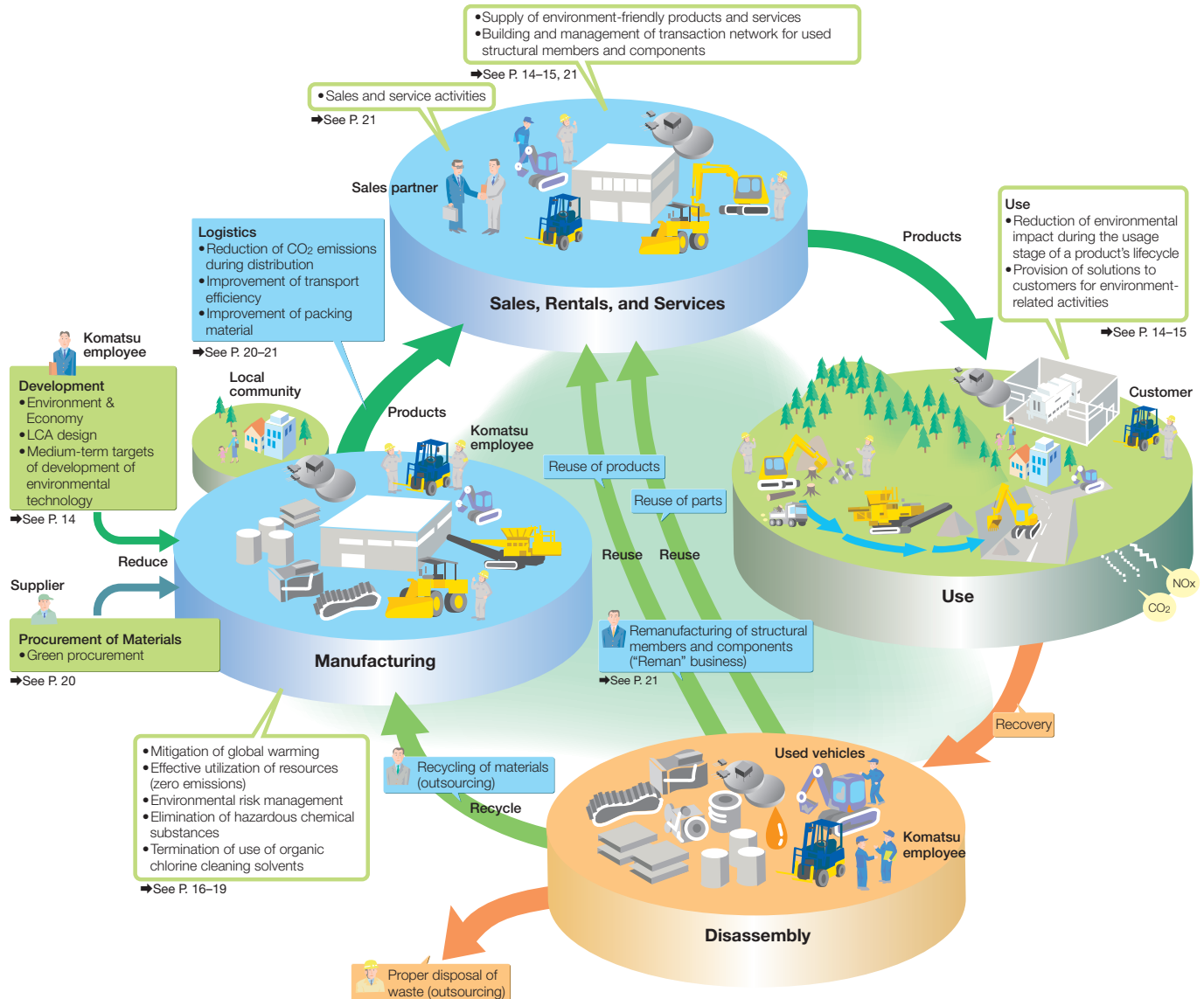
Komatsu established its Komatsu Earth Environment Charter in 1992. Then, with the philosophy of "What Komatsu Can Do and What It Must Do," Komatsu began pursuing the initiatives outlined in that Charter. Komatsu has focused its environmental activities chiefly in the construction equipment field, which accounts for 70% of the Company's sales. As its primary initiatives, in addition to introducing an environmental management system based on ISO14001, Komatsu supplies products with environment-friendly designs and has been boosting its environmental performance.

In 2003, Komatsu undertook a revision of its progress to date, newly setting forth the following as its corporate principles.

- Contributions to realization of sustainable society
- Simultaneous realization of environmental and economic performance
- Observance of corporate social responsibility

Expanding the scope of its activities to all its areas of business, Komatsu is undertaking these initiatives throughout the entire Komatsu Group and at the global level.

## ■ The Komatsu Group's Business Activities' Relationship with the Environment and with Society



# Komatsu Earth Environment Charter

Rooted in its vision for realizing a sustainable society laid forth in the Komatsu Earth Environment Charter revised in July 2003, the Komatsu Group seeks to promote activities that, from a more global viewpoint, reflect its awareness of its social responsibilities.

## Komatsu Earth Environment Charter (July 2003 revision)

### Corporate Principles

#### 1. Contributions to Realization of Sustainable Society

The Komatsu Group recognizes conservation of the earth's environment for a sustainable society as among the most important tasks for mankind in the 21<sup>st</sup> century.

The Komatsu Group endeavors to contribute to this task by actively integrating environmental conservation into all of its business activities. The Komatsu Group reaffirms its long-term commitment to this effort as an important management priority.

#### 2. Simultaneous Realization of Environmental and Economic Performance

The Komatsu Group is committed to improving both environmental performance and economic efficiency, as a group of companies working toward superior manufacturing for customer satisfaction. To this end, the Group constantly takes up the challenge of advancing technologies to develop creative products that improve both environmental performance throughout the product's life cycle and the product's economic performance at the same time.

#### 3. Observance of Corporate Social Responsibility

Each company of the Komatsu Group seeks to be a respected corporate citizen of the host local community in nations around the world. Each company strives to fulfill its corporate social responsibilities, including compliance with applicable laws and regulations on environmental conservation, as well as voluntary involvement and participation in community programs to address environmental concerns, and through dialogue and coordination with regulatory authorities, local leaders, and the public. Each of the individual Komatsu Group companies is responsible for fulfilling its independent legal obligations.

### Guidelines for Corporate Activity

#### 1. Framework for Global, Group-wide Environmental Management System

1) Production facilities of the Komatsu Group, already with ISO certifications, will work to maintain and improve their environmental management system, while other production facilities, yet to be certified, will strive to acquire ISO certifications as soon as possible.

The Komatsu Group will also work to introduce and improve an environmental management system in all business domains other than production, and to implement a program of continuous improvement in environmental performance and in-house environmental auditing.

2) The Komatsu Environmental Committee develops environmental action plans for the Komatsu Group. Each division or affiliated company of the Komatsu Group is responsible for establishing its own mid- to long-term targets based on Group-wide action plans and for developing and implementing specific action plans.

The Komatsu Environmental Committee also develops common guidelines for an environmental manual for the Komatsu Group, and based on them, each division and affiliated company is responsible for providing for its own rules and procedures in accordance with respective circumstances.

#### 2. Development of Products and Technology with Superior Environmental Quality and Economic Performance

1) The Komatsu Group seeks to develop and provide to customers superior products with world-leading environmental quality and economic performance. The Komatsu Group seeks to meet or surpass emission control performance and other environmental requirements applicable to its construction and mining equipment products. The Komatsu Group establishes common mid-range technology development goals for each business domain, and each development center is responsible for promoting the development of such technologies in a planned manner.

2) The Komatsu Group seeks to develop and provide superior environmental products and systems designed to offer customers optimal solutions in their environmental conservation efforts.

#### 3. Promotion of Zero Emissions

1) The Komatsu Group works to facilitate Zero Emissions manufacturing at all of its manufacturing facilities worldwide by extending such activities as piloted and achieved at its manufacturing facilities in Japan.

The Komatsu Group also works to facilitate Zero Emissions and other environmental activities of its suppliers. To this end, the Komatsu Group seeks to expand its Green Purchase program and also offers technological support when suppliers may need to acquire ISO certifications.

2) The Komatsu Group promotes reduction of environmental impacts of its sales and product support activities. The Komatsu Group offers support to its distributor and affiliated rental companies in Japan by setting up model cases, providing environment-related information, establishing environmental management guidelines and undertaking other activities. For distributors and affiliated rental companies overseas, the Group also strives to extend similar activities, as appropriate considering their respective conditions.

3) The Komatsu Group works to improve life cycle assessment of its products and build a circulation-based business system designed to reduce environmental impact throughout product's life cycle.

#### 4. Management of Environmental Risks and Observance of Corporate Social Responsibilities

1) Each division and affiliated company of the Komatsu Group is responsible for observing applicable environmental standards and regulations of the country or region where it is located as well as its own internal policies and standards, and working to improve its capability to anticipate and address environmental impacts.

2) The Komatsu Group promotes the consciousness of Group employees to the importance of environmental conservation and the responsibility of employees to fulfilling the Komatsu Group's commitment to this principle. To this end the Group also promotes education on environmental conservation for employees and special training for environmental management and auditing personnel.

3) The Komatsu Group promotes disclosure of information concerning its performance of environmental conservation activities. Each division and affiliated company of the Group promotes such disclosure as appropriate based on local circumstances.

# Environmental Action Plan and Results for FY2003

Komatsu has formulated an Environmental Action Plan (implementation policies) in each field for the practical implementation of the Komatsu Earth Environment Charter. Komatsu specifies its operational targets every fiscal year and keeps checking yearly developments, facilitating establishment of a strong base to implement the Action Plan.

## ■ Environmental Management

Implementation policies	Objectives for FY2003	Results (Asterisks indicate results for FY2003)	Mid- and long-term objectives	Further information
1. Implement Environmental Action Plan	Draw up and implement the Plan	*Conducted activities in keeping with the revised Komatsu Earth Environment Charter	Strengthening of sales- and service-related environmental activities Strengthening of overseas environmental activities	P. 10
2. Environmental education and training: Implement the Plan	Draw up and implement the Plan	*Conducted environmental e-Learning courses with over 7,000 participants *Held nine lectures for over 1,200 attendees	Continuation of activities and extension of activities to overseas facilities	P. 11
3. Environmental communication: Publish an environmental report	Formulate the communication plan and write the draft	*Published an enlarged version of the report in August 2004 with enhanced coverage of environmental and social aspects	Reinforce quality of content; release report earlier than in previous years	N/A
4. Environmental accounting: Manage operations using standard indices for assessing environmental impact	Establish control with a standard set of indices in Komatsu Group facilities	*Compared the development of Komatsu's four manufacturing facilities by applying standard indices for assessing environmental impact	Lateral expansion to Group manufacturing facilities	P. 12

## ■ Research and Development

Implementation policies	Objectives for FY2003	Results (Asterisks indicate results for FY2003)	Mid- and long-term objectives	Further information
1. Reduce the environmental impact of construction equipment				
• Develop lower-emitting diesel engines • Proactively meet exhaust emission regulations	Take measures prior to enforcement of regulations	Komatsu met the EPA Regulations in 2001 and the Europe and Japanese Tier 2 Emission Regulations in 2002	Develop new diesel engines to meet Tier 3 Emission Regulations to be put into effect in 2006	P. 14
• Meet noise regulations	Take measures prior to enforcement of regulations	Meeting EU Noise Regulations: Komatsu met the European Outdoor Noise Directive and the more stringent noise control directive that went into effect in 2002	Comply with Stage 2 EU directive, which will take effect in 2006	N/A
• Develop environment-friendly construction equipment (GALEO series)	Develop new models of hydraulic excavators and mini excavators	*Model PC400-7 Hydraulic Excavators cut fuel consumption by 10% *Increased productivity per fuel consumed by 20% and cut noise reaching the operator's ears cut by 6 dB *Model PC30MR-2 Mini Excavators meets Ministry of Land, Infrastructure and Transport's ultra-low noise type approval and the 2006 noise level standard for the EU	Meet Tier 3 Emission Regulations, which will take effect in 2006	P. 14
• Reduce the amount of hydraulic fluid used in mini excavators Development of an ERS (cyclone-type Environmental & Economic Reservoir System) system hydraulics tank, enabling downsizing	Adopt new mount for hydraulic excavators and wheel loaders	*Mounted on model PC30MR-2 Mini Excavators; reduced tank capacity 35%	Extend to other machine types	P. 15
• Meet mid-term objectives for development of environmental technology	Make progress via the GALEO series	*Reduction of CO <sub>2</sub> emissions: 5% for PC400-7 *Recyclability ratio: 80.9% for PC400-7; 99.0% for D155AX-5m/c	Reduction of CO <sub>2</sub> emissions: 5% by FY2005 (as compared with 1998) Recyclability ratio: Attain 97% or above by FY2005 (as compared with 1998)	P. 14
2. Provide customers with solutions for their environmental protection activities				
• Promote on-site recycling using mobile recycling equipment	Expand scope of application of recycling engineering and promote social recognition of recycling engineering	*Promotion of on-site recycling, by which natural stone and concrete produced during demolition of concrete structures are processed at construction sites by mobile recycling equipment	Expansion of range of machines in the mobile recycling equipment series; expansion of areas of applicability	P. 15

## ■ External Commendations on Environmental Conservation Activities

Date	Name and content of commendation
Oct. 2001	The Minister of Land, Infrastructure and Transport Award "Person Who Has Done Distinguished Service in City Afforestation": Komatsu Ltd. This award is given to those who keep forests, conservation forests, hedges, or tree-planted roof facilities in especially good condition, as well as those who have done distinguished service in promoting forest conservation areas or landscaping areas.
Oct. 2002	The Chairman of Organization for Landscape and Urban Greenery Technology Development Award (Category: Roof Afforestation): Komatsu Building SPACE "Inochi-no-Mori" Japan Industrial Design Promotion Organization "Good Design Award": GALEO Series wheel loader WA470 and minimal rear-swing radius hydraulic excavator PC78US
Nov. 2002	The Nikkei Earth Environment Technology Award: Water emulsified fuel compatible diesel engine
Feb. 2003	The Minister of Economy, Trade and Industry Award "Factory That Manages Energy Admirably" (Category: Electricity): Oyama Plant of Komatsu
Jun. 2003	Japan Industrial Design Promotion Organization "Good Design Award": LEO-NXT forklift truck series, Komatsu Forklift Co., Ltd. Japan Construction Mechanization Association's Chairman's Award: "Development for Construction Equipment of Remote System with Visual Perception Setting," unmanned construction technology as demonstrated in restoration work conducted after the Mt. Unzen-Fugen disaster
Oct. 2003	Japan Industrial Design Promotion Organization "Good Design Award": Mini excavator MR-2 series (PC30, 35, 40, 50MR-2)
Nov. 2003	"Sai no Kuni" Saitama Prefecture's Eco Up Declaration Office: Komatsu Zenoah Head Office and Kawagoe Plant
Jan. 2004	Certification by Kawagoe City Mayor's Office as an "eco-office": Komatsu Zenoah
May 2004	Pacific Flora 2004 Silver Medal: Biodama (Komatsu Zenoah)

## ■ Manufacturing

Implementation policies	Objectives for FY2003	Results (Asterisks indicate results for FY2003)	Mid- and long-term objectives	Further information
1. Environmental management system**: Encouraging Komatsu Group manufacturing facilities, including those overseas, to acquire ISO14001 certification by the end of FY2005	No plans for acquiring certification Undergo renewal review at seven facilities	*One overseas manufacturing facility acquired certification by March 2004 (acquired one year ahead of original schedule) *Seven facilities that acquired or renewed certification in FY2000 underwent renewal review; all seven successfully renewed certification	Acquire ISO14001 certification by the end of FY2005	P. 11
2. Reduction of greenhouse gas emissions: • Make a 25% improvement by FY2010 in energy consumption per unit of manufacturing value from the level of achievement in FY1990 at Komatsu manufacturing facilities	Improve 1.5% year on year	*A 3.9% improvement over the previous year. Improved 22.2% from the level of achievement in FY1990 at Komatsu manufacturing facilities	Achieve by FY2010	P. 16
3. Effective use of resources • Maintain or make further progress on attainment of zero emissions (Komatsu parent company to maintain its zero emissions; Group companies to attain by FY2005)	Increase number of facilities attaining zero emissions	*Komatsu Castex Ltd. Himi Plant achieved zero emissions *Komatsu Zenoah Co. Kawagoe Plant and Koriyama Plant achieved zero emissions	Achieve by FY2005	P. 17
• Achieve a 50% reduction by FY2004 in the unit waste volume from the level of achievement in FY1990 at Komatsu manufacturing facilities and Komatsu Castex Ltd. Himi Plant	Implement action plans at a model manufacturing facility Extend the activities to other manufacturing facilities	*Accomplished a 50% reduction in the unit waste volume from the FY1990 achievement level (attained target one year ahead of schedule)	Further reduce volume of waste materials	P. 17
• Achieve a 50% reduction by FY2005 in the unit waste volume from the level of achievement in FY1998 at Komatsu Group domestic manufacturing facilities		*Accomplished a 34% reduction in the unit waste volume from the FY1998 achievement level	Achieve by FY2005	P. 17
• Achieve a 30% reduction by FY2005 in unit waste processing costs from the level of achievement in FY2000 at Komatsu Group domestic manufacturing facilities		*Accomplished a 54% reduction in unit waste processing costs from the FY2000 achievement level	Further reduce waste processing costs	P. 17
• Achieve a reduction of greater than 5% by FY2005 in the volume of water consumed per unit of manufacturing value from the level of achievement in FY2002 at Komatsu Group domestic manufacturing facilities	Improve 1.5% year on year	*Accomplished a 5.5% reduction in the volume of water consumed per unit of manufacturing value from the FY2002 achievement level	Further reduce water consumption	P. 17
4. Environmental risk management • Implement voluntary reductions on the release of chemical substances Achieve a reduction of greater than 5% by FY2005 in the volume of substances released per unit of manufacturing value from the level of achievement in FY2002	Specify the supervisory responsibility of chemical substances; reduce volume of released chemical substances	* Introduced Chemical Substance Management System, including at all affiliated companies, in order to implement guidelines	Achieve by FY2005	P. 18
• Implement voluntary reductions on VOCs Achieve a reduction of greater than 50% by FY2006 in the volume of VOCs released per unit of manufacturing value from the level of achievement in FY2002		*Clarify the means by which VOCs are released; calculate per unit of manufacturing value in FY2002 (7.0 kg per one million yen)	Achieve by FY2006	P. 19
• Implement permanent measures required to renovate underground tanks in service for 20 or more years by FY2001 (140 tanks renovated out of 144 tanks at Komatsu Group domestic manufacturing facilities)	Renovate remaining four units.	Of the 144 underground tanks, 140 have already been renovated	Renovate remaining four units by FY2005	P. 18

\*\*Komatsu is responsible for setting overall direction for Komatsu Group companies regarding environmental management. Each subsidiary is responsible for the implementation of related policies and measures.

## ■ Procurement and Distribution

Implementation policies	Objectives for FY2003	Results (Asterisks indicate results for FY2003)	Mid- and long-term objectives	Further information
1. Green procurement • Establish environmental management systems at suppliers and improve systems by specifying matters that require environmental consideration	Grasp the suppliers' organizations for environmental management by means of Environmental Check Sheets.	*Environmental Check Sheet response rate was 68%	Implementation of environmental management system of ISO14001 or an equivalent at suppliers by FY 2008	P. 20
2. Environmental conservation in logistics • Reduce CO <sub>2</sub> emissions originating in logistics	Reduce CO <sub>2</sub> emissions by 1,800 t from the level of achievement in FY2002	*Reduced CO <sub>2</sub> emissions by 2,371 t	In FY2004, reduce CO <sub>2</sub> emissions by 2,800 t from the level of achievement in FY2002	P. 20
• Develop and commercialize Information Clearing House (ICH) system	Implement ICH system	*Attained a 66% truck loading ratio *Attained a 57% trailer loading ratio	In FY2006, attain a 80% truck loading ratio and a 65% trailer loading ratio	P. 20

## ■ Sales and Services

Implementation policies	Objectives for FY2003	Results (Asterisks indicate results for FY2003)	Mid- and long-term objectives	Further information
1. Implement environmental conservation at sales and rental offices • Undertake environmental conservation activities based on guidelines	Formulate plan for promoting environmental conservation activities in the sales and rental divisions	*Conducted preliminary surveys and prepared approach for formulation of guidelines	Extend environmental conservation activities to all sales and rental offices based on Environmental Guidelines	P. 21
2. Reduce the environmental impact of services • Promote support system of Reman business	Put developments into actual use	*Promoted its Reman business (remanufacturing used machine components) on a global basis Established Reman CSS-Net, a domestic transaction network for remanufactured components	Expansion and promotion of Reman business	P. 21
• Reduce the environmental impact of Reman business • Acquire ISO14001 certification at Reman Centers	Acquired ISO14001 certification at one Reman Center	Acquired ISO14001 certification at the Reman Center in Chile, for a total of three Centers acquiring certification out of seven Centers worldwide	Acquire ISO14001 certification in FY2004 at three of the remaining Centers; formulate plan for acquisition for one other Center in FY2004	P. 21

# Business Activities and Environmental Impact

In addition to measuring quantitatively the relationship between business activities and the environment and grasping environmental impact, Komatsu has formulated mid- and long-term objectives and is implementing measures that will reduce environmental impact.

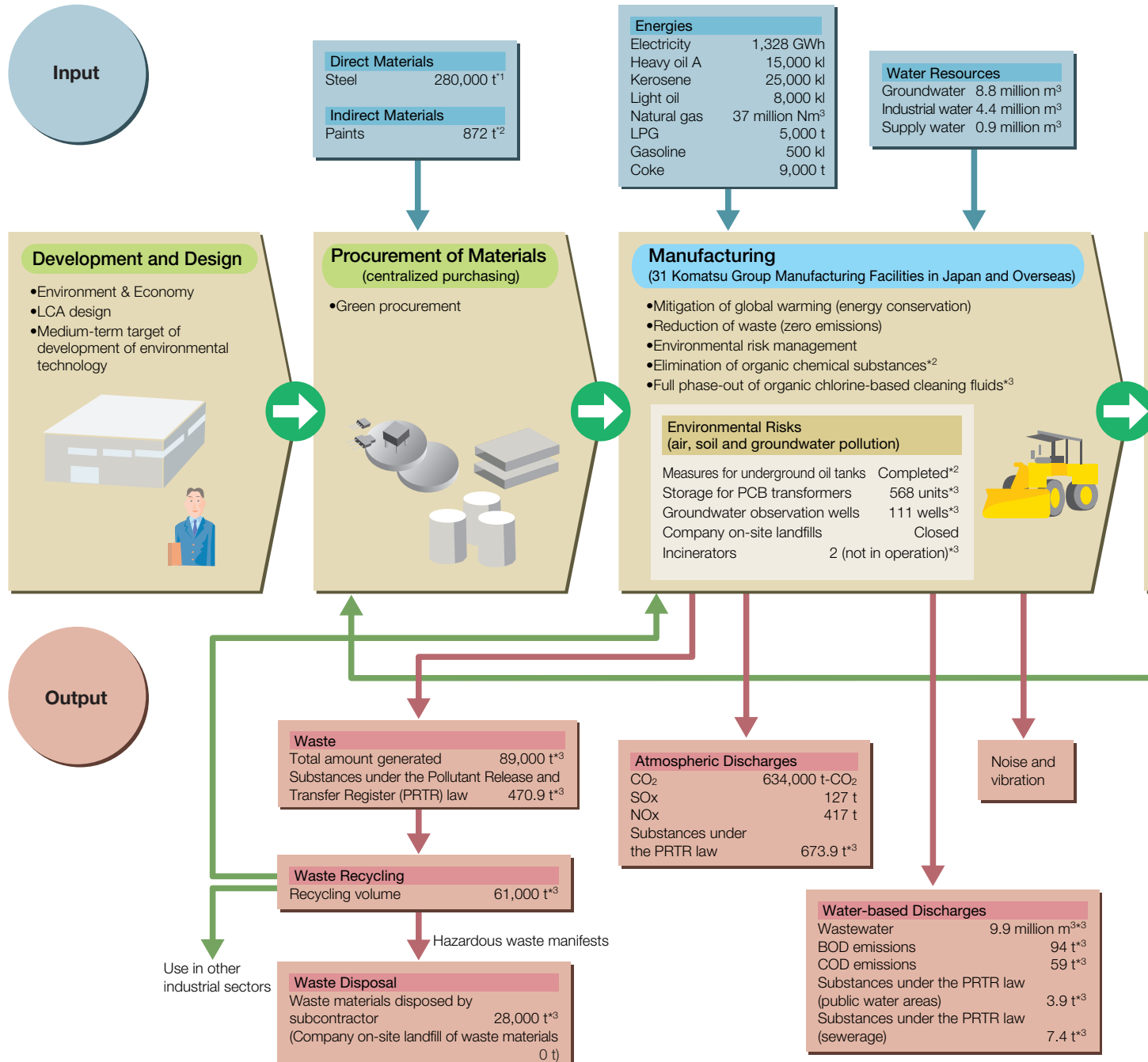
## The Relationship between Business Activities and the Environment

The Komatsu Group procures various parts and materials and, through the manufacturing process, utilizes natural resources, including raw materials, water, energy, and chemical substances, among others, to provide products to its customers. Such business activities

result in environmental impact at each stage in the process.

The Komatsu Group will continue to provide more highly value-added products and services while at the same time it grasps the environmental impact resulting from its business activities, formulates its mid- and long-term objectives, and implements measures which will reduce environmental impact.

## Environmental Impact Resulting from Business Activities of Komatsu Group Companies, including Overseas Facilities (FY2003)



CO<sub>2</sub> emissions:

Figures for power and heavy oil (see Energy section of Input column) are calculated using the "CO<sub>2</sub> coefficient" in each area (in Japan, specified in the Ministry of the Environment of Japan's 1999 calculation guidelines based on the Law Concerning the Promotion of the Measures to Cope with Global Warming).

SO<sub>x</sub> emissions:

Calculated by multiplying "S content by percentage" (based on element tables of suppliers) by the volumes of heavy oil, kerosene, light oil, and coke.

NO<sub>x</sub> emissions:

Calculated by multiplying the "nitrogen oxide emissions units" (obtained at each Komatsu facility) by the heavy oil, kerosene, light oil, natural gas, and LPG used.

Emissions and transfer of substances covered by the PRTR Law:

Calculated by the "content ratio of specific chemical substances" contained in indirect materials multiplied by the "discharge or transfer rate." This calculation is based on the PRTR Law, which was designed to mandate the disclosure of the volume of specific chemical substances released into the environment to promote the management of such substances.

■ Examples of Products Introduced to the Market in FY2003



Hydraulic excavator PC450-7



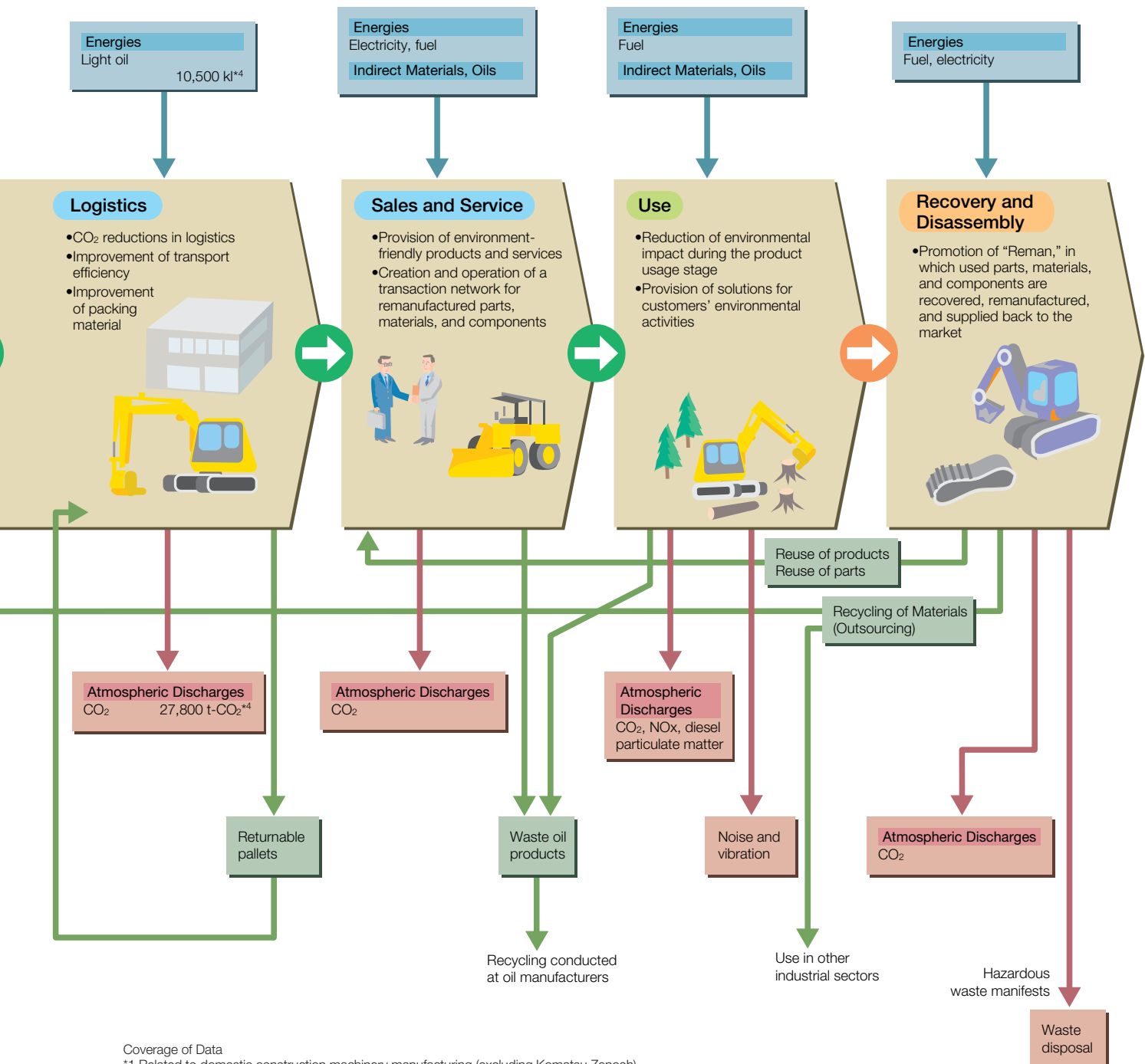
Bulldozer D475A-5



Mobile crusher BR380JG



Wheel loader WA320-5



Coverage of Data

\*1 Related to domestic construction machinery manufacturing (excluding Komatsu Zenoah)

\*2 Komatsu manufacturing facilities

\*3 Komatsu Group's domestic manufacturing facilities

\*4 Logistics from procurement to sales related to domestic construction machinery

# Environmental Management Structure

Komatsu has established an environmental management structure grounded in ISO14001 for its Group companies, including overseas manufacturing facilities. Also, as part of its efforts to fulfill its corporate social responsibilities, Komatsu conducts thorough environmental education for its employees.

## Overview of Environmental Management Structure

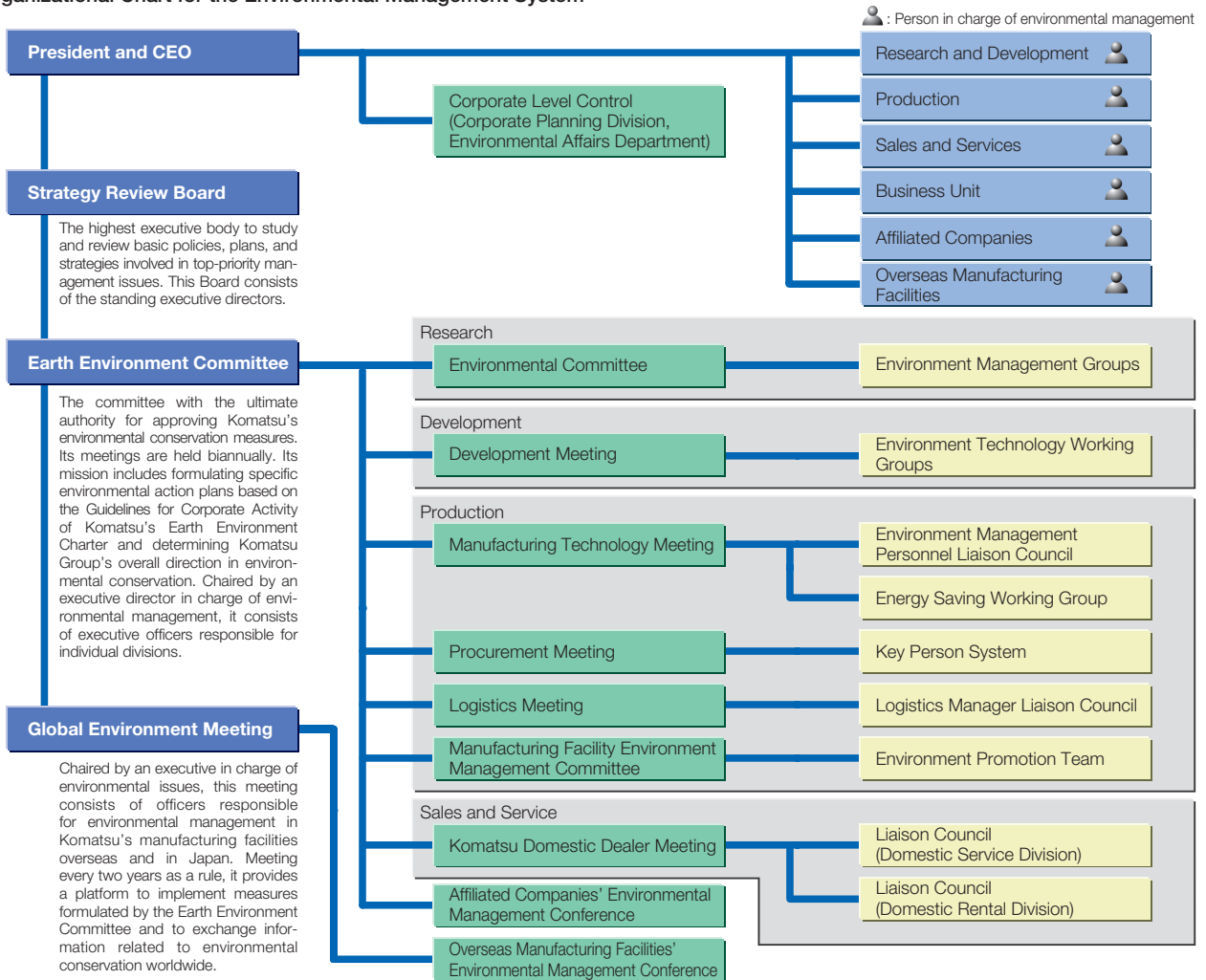
Komatsu Group recognizes that environmental issues are an integral part of its corporate mandate. As a cornerstone of this plan, it established the Earth Environment Committee in 1991 and created Komatsu's environmental management structure. Following this environmental initiative, it formulated the Komatsu Earth Environment Charter in 1992 and launched its environmental conservation activities.

The Strategy Review Board is responsible for matters related to corporate management while the Earth Environment Committee is in charge of examining individual policies. After the Earth Environment Committee formulates environmental policies, the executive officers of

the respective divisions and subsidiary companies are responsible for enhancing and applying these policies to meet their objectives in accordance with the functions of their own division or company. Further, an officer in charge of environmental conservation activities at each business unit implements these policies. When a policy includes important objectives, subcommittees of experts, so-called key persons, or working groups established in each division study them and work jointly with other divisions to develop solutions for environmental issues.

In July 2003, the Environmental Affairs Department was established within the Corporate Planning Division to coordinate Komatsu Group-wide environmental activities.

## Organizational Chart for the Environmental Management System



## Environmental Auditing

Since FY1997, the Komatsu Group has been encouraging its Group companies to acquire ISO14001 certification. ISO14001 obligates each establishment not only to a voluntary audit by an internal auditor but also to a semiannual examination review and a renewal review (every three years) by an outside ISO certification agency. Therefore, since FY1993, the Komatsu Group has gradually shifted the internal environmental audit of its domestic manufacturing facilities (the audit implemented by environmental experts of the Group made a round of the facilities every three years) to the audit system based on ISO14001. As a result, all the domestic manufacturing facilities secured ISO14001 certification by the end of FY2002. Therefore, they no longer require

the internal audit by environmental experts of the Group.

However, the reviews based on ISO14001 are focused on checking whether or not the environmental management system is functioning properly. Because of this, those reviews cannot always point out some environmental risk that the establishment under review is faced with. Therefore, from FY2004, the Komatsu Group has been implementing an internal audit by environmental experts of the Group with focus on environmental performance in order to improve the level of environmental management and reduce environmental risk.

Apart from the above internal audits, the Komatsu Internal Audit Department implements business audits, including a review of the environment of each individual Group company, about every four years.

## ISO14001

To strengthen its systematic commitment to environmental conservation and improve the quality of its environmental management, the Komatsu Group has made a Group-wide effort to acquire ISO14001 certification\*1, an international standard. In FY2003, one of Komatsu's overseas manufacturing facilities acquired ISO14001 certification a year ahead of schedule.

The seven manufacturing facilities that acquired or renewed ISO14001 certification in FY2000 were subjected to a renewal review in FY2003. In the future, Komatsu plans to compile its environmental manual into guidelines for the Komatsu Group companies, aiming towards acquiring ISO14001 integrated certification for all domestic facilities.

\*1 The facilities covered by this Report have all acquired ISO14001 certification. The number of facilities has been tabulated on a per-site basis.

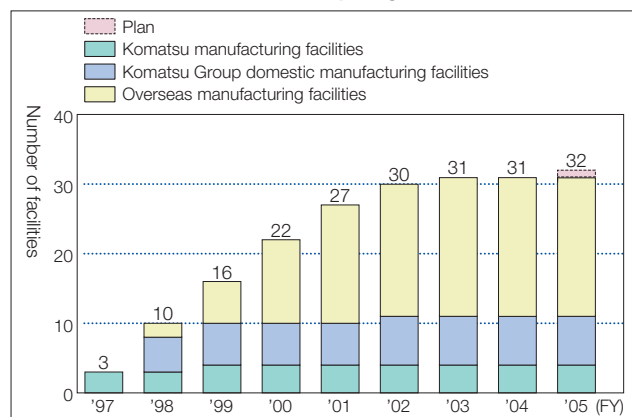
## Environmental Education and Training

The Komatsu Group's fundamental education system distributes the responsibility for education such that the parent company develops educational materials and provides educational services on commonly relevant academic issues for use by Komatsu Group companies, whereas instruction regarding more hands-on matters, including unique features and points particular to individual business units, are conducted by relevant divisions each business unit. However, such group education was oriented towards the needs of environmental specialists and persons working in fields for which knowledge of environmental issues is necessary for the conducting of manufacturing operations or other such operations.

In FY2003, based on the conviction that providing environmental education to employees is part of the company's responsibility to society, Komatsu provided environmental education and training to all of its 8,425 employees, including employees of domestic affiliated companies, using e-Learning. Basic education in environmental issues was conducted for one year starting in April 2003, and as of the end of FY2003 more than 85% of employees had completed the course. At the beginning of FY2004, the newly-hired employees were also given instruction via this curriculum, with all of these employees undertaking the e-Learning-based environmental education.

The number of persons who have some environment-related certificate has far exceeded the minimum requirement. However, from the viewpoint of risk management, employees are encouraged to obtain a suitable certificate.

## Current Status and Plan for Acquiring ISO14001 Certification



Environmental education conducted via e-Learning

## Number of Persons Having Environment-related Certificate

Certificate name	FY2001	FY2002	FY2003
Pollution control manager	277 (60)	266 (60)	250 (60)
Energy manager	46 (15)	48 (11)	40 (11)
Environmental management system auditors	20	19	8

(Figures in parentheses indicate the number of officers required.)

## Courses in Environmental Education (excluding general environmental courses)

Venue	Course name	Target	Participants (FY2001)	Participants (FY2002)	Participants (FY2003)
Head Office	Advanced environmental education	Environmental specialists (Komatsu and affiliates)	0	0	17
	Overview of the ISO14000 series	Administrators (Komatsu, affiliates, and suppliers)	45 (including 22 persons from 20 suppliers)	21	30
	Training of internal auditors	Environmental auditors (Komatsu, affiliates, and suppliers)	27 (including 14 persons from 13 suppliers)	18	25
	Designing construction equipment (introductory and intermediate)	Development officers	105	251	89
	Introductory lecture on ISO14001	Administrators (suppliers): These administrators will attend an Overview of the ISO14000 series instead of the Introductory lecture on ISO14001	N/A (integrated)	6 (from 5 companies)	0
	Commentary on environmental laws and regulations and environmental risk	Managers and environmental specialists (suppliers)	106 (from 77 companies)	6 (from 4 companies)	0
	Internal auditing for environmental management	Environmental auditors (suppliers): These specialists will attend the Training for internal auditors instead of the internal auditing for environmental management	N/A (integrated)	N/A (integrated)	0
Administrative departments of plants	Basic environmental education	General managers and employees	222	413	169
	Overview of the ISO14000 series	General managers and employees	84	25	72
	Training of internal auditors	Environmental auditors	125	98	86
	Training new employees	New recruits	368	220	511
	Regulatory education and personnel exchange	Employees in general	250	155	243

# Environmental Accounting

In order to bring about the greatest possible environmental performance at the lowest possible cost, Komatsu controls its environmental activities based on a standard set of indices. The company will be introducing this concept to Group domestic and overseas manufacturing facilities.

## Concept of Environmental Accounting

Komatsu began releasing environmental accounting data in FY1999 in order to conduct ongoing and effective environmental conservation activities and disclose to its customers, shareholders, and all other stakeholders the content, cost, and effects of those activities. The Company introduced its environmental accounting system to its overseas manufacturing facilities in FY2000.

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

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

## Costs and Environmental Effects of Environmental Conservation

Komatsu's domestic investment in environmental conservation increased 593 million yen from the previous year, bringing it back to FY2001 levels. This reflected an upturn in the market, with demand in China increasing and demand in North America, Komatsu's largest market, rebounding. In particular there was an increase in investment in measures to control environmental impact in manufacturing facilities, including improvements in pollution mitigation and prevention equipment, energy conservation-related measures, and waste reduction measures.

With respect to total domestic expenses, despite an increase in the total amount manufactured, manufacturing facilities' total costs increased only slightly. This was achieved by reducing the cost of maintenance and control through improvement of control efficiency and by reducing the cost of waste treatment by reducing the volume

of waste. On the other hand, there was an increase in expenditures for R&D for reducing the environmental impact and improving the fuel efficiency of products, especially engines, and R&D for reducing vehicle noise and vibration. As a result, R&D activities accounted for nearly 70% of the total cost of environmental conservation.

These costs reflect expenses involved in surveys related to soil and groundwater contamination conducted at land tracts released by the company for sale as well as remedial countermeasures.

Concerning the effects of environmental conservation, numerical data about the following items have been disclosed.

- (1) Environmental performance improvements that can be measured quantitatively
- (2) Net economic effects that contribute to earnings through cost reduction and avoidance and that can be directly measured in monetary terms

The effects of reducing the environmental impact of our products during use and the effects of external activities are still being estimated.

## Management based on Environmental Impact Point\* (EIP)

With the aim of obtaining maximum ecological effect (environmental performance) with minimum economic cost (financial performance), Komatsu integrated a standard set of indices for assessment of environmental impact attributable to manufacturing facilities. This has made it possible not only to express quantitatively (numerically) such qualitative terms as "environment-friendly plant" but also to show clearly the progress of targets and efforts.

In addition, as a rational environmental impact assessment index (JEPIX)\*1 well adapted to the actual conditions of environmental activities in Japan was developed, Komatsu decided to adopt this analytical technique in FY2002. In addition, in order to enable visualization and facilitate understanding of which process is generating what environmental impact, the analytical method known as the "material flow network" was adopted in FY2003.

\*An integrated index of various environmental impacts

## ■ Environmental Costs (investments and expenses)

Top figure: Komatsu and Komatsu Group domestic manufacturing facilities  
Bottom figure: Komatsu Group manufacturing facilities overseas (excluding L&T-Komatsu Limited)

Category	Investment			Expense		
	FY2002		FY2003	FY2002		FY2003
	Investment* (millions of yen)	Investment* (millions of yen)	Contents	Expenses* (millions of yen)	Expenses* (millions of yen)	Contents
(1) Business area cost	850	1,448		3,134	3,192	
	165	345		1,168	804	
1. Pollution prevention cost	441	653	•Installation and renovation of pollution mitigation/prevention facilities (emission processing systems, conversion of effluent processing facilities, etc.)	1,563	1,470	•Cost of maintaining equipment for mitigation/prevention of air and water pollution and for noise and vibration prevention (labor and depreciation costs)
	146	280		650	468	
2. Global environmental conservation cost	308	355	•Investment for implementing energy conservation measures, which include cogeneration systems and installing new ventilation systems	321	440	•Cost of maintaining energy conservation facilities, such as cogeneration systems (labor and depreciation costs)
	11	42		29	27	
3. Resource circulation cost	102	441	•Investment for reducing the volume of waste materials (establishment of resource recovery centers, installation of equipment for sludge dehydration, etc.)	1,250	1,282	•Waste materials processing cost
	8	24		489	309	
(2) Upstream/downstream cost	0	1		287	309	•Reduction of the environmental impact of mass-production units and of materials to package components when shipping overseas
	32	14		100	139	
(3) Administration cost	1	10	•Investment in beautifying manufacturing facilities	668	653	•Cost of maintaining environment management systems
	2	0		170	159	•Cost of creating green spaces and beautifying manufacturing facilities
(4) R&D cost	98	83	•Investment in research facilities for reduction of environmental impact	9,132	9,837	•Cost of R&D activities to reduce the environmental impact of products
	23	0		650	720	•Cost of R&D activities to develop on-site recycling construction equipment
(5) Social activity cost	2	0		7	37	
	0	0		2	3	
(6) Environmental remediation cost	0	0		2	496	•Cost of conducting surveys and remedial countermeasures related to soil and groundwater contamination
	0	0		1	1	
Total	950	1,543		13,230	14,524	
	222	359		2,090	1,826	

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

As FY2003 represents the first year for this approach, it is still in its rudimentary stages. However, insofar as Komatsu is aiming at factories with zero emissions, it will continue to pursue reviews from a variety of perspectives.

\*1 The Environmental Policy Priorities Index for Japan, being developed at International Christian University as part of the 21st Century COE Program of the Ministry of Education, Culture, Sports, Science and Technology.

## Evaluation of Indices

Komatsu made an attempt to integrate 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 for each of its manufacturing facilities.

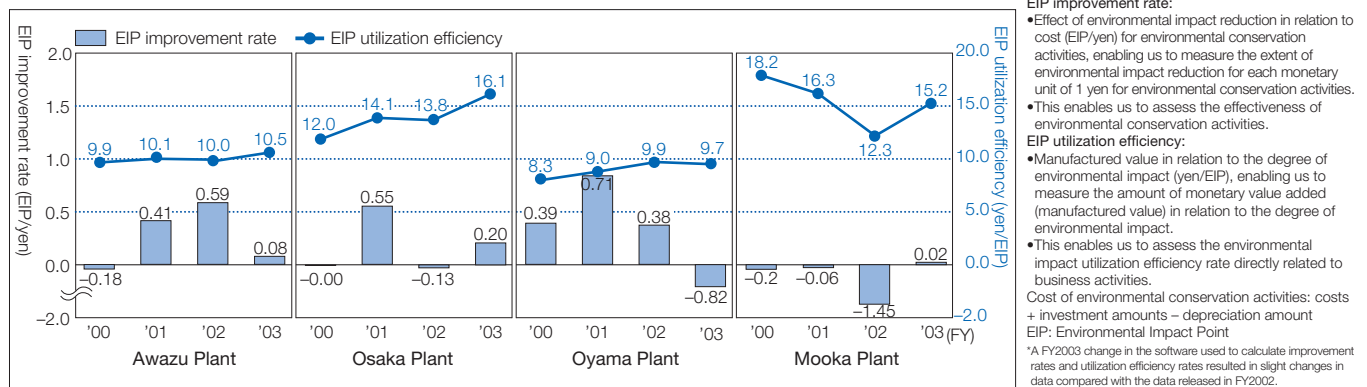
As a result, it was found that the Osaka Plant was most effective in reducing its environmental impact in FY2003. However, as a whole, such gains were countered by rising environmental impact resulting from increases in the volume of goods manufactured, and in particular

the Oyama Plant saw a rise in its environmental impact as a result of its increased fuel consumption during its development of new engines.

At the same time, the Osaka Plant obtained the equivalent value added (manufacturing amount) with the least integrated environmental impact for the second year in a row. From these facts, it follows that the Osaka Plant is the "most environment-friendly plant" when expressed in quantitative terms. In addition, as a result of vigorous energy conservation efforts, the utilization efficiency rate of the Mooka Plant improved dramatically.

Komatsu considers it important to continue evaluating the degree of conformance to environmental standards set based on time-serial data obtained by using the two indices of overall environmental impact improvement efficiency and overall environmental impact utilization efficiency. In addition, Komatsu has plans to introduce this concept to Komatsu Group domestic and overseas manufacturing facilities in order to practice ecological business administration on a consolidated basis.

## Comparison and Trend of EIP Improvement Rates/EIP Utilization Efficiency



**EIP improvement rate:**

- Effect of environmental impact reduction in relation to cost (EIP/yen) for environmental conservation activities, enabling us to measure the extent of environmental impact reduction for each monetary unit of 1 yen for environmental conservation activities.
- This enables us to assess the effectiveness of environmental conservation activities.

**EIP utilization efficiency:**

- Manufactured value in relation to the degree of environmental impact (yen/EIP), enabling us to measure the amount of monetary value added (manufactured value) in relation to the degree of environmental impact.
- This enables us 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

\*A FY2003 change in the software used to calculate improvement rates and utilization efficiency rates resulted in slight changes in data compared with the data released in FY2002.

## Environmental Effects

Top figure: Komatsu and Komatsu Group domestic manufacturing facilities  
Bottom figure: Komatsu Group manufacturing facilities overseas (excluding L&T-Komatsu Limited)

Environmental impact reduction effects			Economic benefits				
Items of environmental impact	Reduction volume (t/year)	Rate of year-on-year changes (%)	Tangible benefits			Avoidance benefits of environmental risks*2	Contribution to profits*2
			Type	Monetary value*1 (millions of yen)	Major activities		
CO <sub>2</sub> emissions	-24,927	+6.9	Energy conservation	407 13	•Introduction of cogeneration system	•There were no accidents or pollution in Japan during FY2003 that led to violations of the law. •No litigation costs were required in Japan during FY2003.	•Proceeds from mobile recycling equipment •Proceeds from value added due to reduced environmental impact of products (engines) •Proceeds from Reman business
	-51,546	+26.2	Resource conservation	459 471			
Water consumption	-731,181	+7.1	Waste materials reduction	49 15	•Promotion of recycling through thoroughgoing sorting		
	-56,901	+2.0	Gain on sale of valuables	303 176			
Waste materials generation	-3,446	+7.5	Other	10 0			
	-8,090	+25.3	Total	1,227 676			

\*1 Figures are rounded off to the nearest million yen.

\*2 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 FY2003 are as follows:

- Mobile recycling equipment business: 8.5 billion yen (Mobile recycling equipment and recycling plant sales)
- Engine business: 43.8 billion yen (While engine sales are derived from Komatsu's overall construction equipment business, the engine sales here are those of the Engines and Hydraulics Business Division, including both intra-company and other intra-Group sales and sales to companies that do not belong to Komatsu Group.)
- Reman business: 13.8 billion yen (Worldwide Reman business sales from April 2003 to March 2004)

## 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.

# People-friendly and Environment-friendly Products

Pursuing its environmental goals, Environment and Economy, Komatsu is developing products with low environmental impact. At the same time, Komatsu is committed to providing solutions for its customers' environmental conservation activities.

## Environment & Economy

Komatsu's Environment and Economy means that it provides satisfactory solutions for both environment and economic activities by superior manufacturing technologies. Developing environment-friendly products must be done at competitive cost. Otherwise, these products cannot establish a presence in the market and will not contribute to reducing environmental impact. Komatsu expanded the following environmental targets during FY2003 to achieve its goals in Environment and Economy.

- (1) Coexistence of heavy-duty applications and low fuel consumption through improved hydraulic systems
- (2) Improvements to operator comfort through designs for reduced noise and vibration
- (3) Reductions in waste consumables and replacement costs by extending intervals of supplying oil and grease or replacing filters
- (4) Reductions in recycling and repair costs for components by using remanufactured components

### Major achievements in FY2003

- 1 Expanded development of environment-friendly construction equipment (GALEO series)
- 2 Development of vehicles equipped with engines that satisfy the Tier 2 emissions standards for off-road diesel engines in Japan, the U.S., and Europe
- 3 Development of vehicles that satisfy noise and vibration standards in Japan, the U.S., and Europe ahead of dates mandated
- 4 Development of ERS (Environmental & Economic Reservoir System) system, enabling downsizing of hydraulic tank
- 5 Development of service-related techniques to reduce environmental impact
- 6 Promotion of on-site recycling method by mobile recycling equipment

## Reducing Environmental Impact of Products

### Life Cycle Assessment (LCA) Calculations

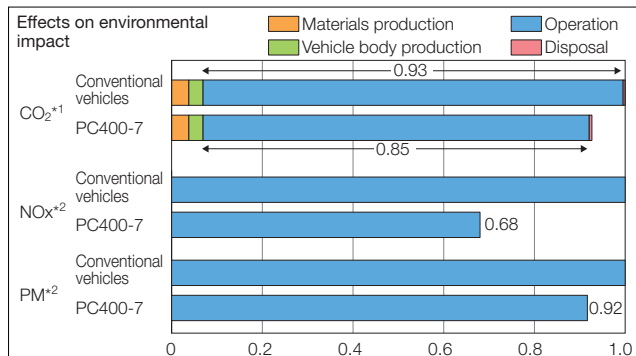
As general guidelines for reduction of the environmental impact of construction equipment, Komatsu set a four-item, medium-term target of development of environmental technology based on LCA (Life Cycle Assessment) in FY1999. In order to make the target fully understood and attained by the development division, Komatsu developed in FY2000 a computer program which facilitates assessing the level of compatibility with the environment of each new model of construction equipment. In FY2003, the individual development centers concerned started taking specific measures to attain the FY2005 target. Newly-developed products are beginning to show the results of their efforts.

### Medium-term Target of Development of Environmental Technology based on LCA (set in FY1999)

Category	FY2003 results*	FY2005 target*	FY2010 target*
1. CO <sub>2</sub> emissions	PC400-7 -5% D155AX-5m/c -7%	-5%	-10%
2. Recyclability ratio	PC400-7 80.9% D155AX-5m/c 99.0%	97% or more	99.5% or more
3. Substances of environmental concern	PC400-7 ±0% D155AX-5m/c ±0%	-50%	-75%
4. Life cycle cost	N/A	-20%	

\*As compared with FY1998

### Graphic Depiction of LCA Calculations and Environmental Impact



\*1 For CO<sub>2</sub>, the index is set such that the LCA index for conventional vehicles is 1.  
\*2 For NOx and PM, the index makes comparisons of emissions volumes and is such that the LCA index for conventional vehicles is 1.

### LCA Calculations for Hydraulic Excavator PC400-7

LCA was conducted on the newly-remodeled hydraulic excavator PC400-7. Equipped with an electronic control common rail engine and adopting a total control system for the engine and the hydraulics, the PC400-7 was found to emit 8% less CO<sub>2</sub>, 32% less NOx, and 8% less particulate matter (PM) than conventional vehicles.

### Hydraulic Excavator PC400/450-7

The PC400/450-7, which as one of Komatsu's unique and unrivaled products took Komatsu's long-standing "Spirit of Manufacturers" tradition up yet another notch, features:

- an electronic control common rail engine
- total control system for the engine and the hydraulics comprised of Komatsu-made components.

These features enable it to satisfy the Tier 2 emissions standards in Japan, the U.S., and Europe. Besides delivering both heavy-duty workload applicability and low fuel consumption, this hydraulic excavator is both environment-friendly and operator-friendly.

Compared with previous models, the PC400/450-7 boasts an 8% increase in workload volume capability, giving it the greatest capability in its class. It also features 10% less fuel consumption, increasing by 20% its productivity per fuel consumed. Furthermore, with respect to noise, the PC400/450-7 not only clears all low-noise standards set by the Ministry of Land, Infrastructure and Transport but also lowers the noise level for the operator by 6 dB, reducing operator fatigue.



Hydraulic excavator PC450-7

## Mini Excavator PC30MR-2

### Noise

For mini excavators, which are often operated in urban settings, noise reduction is of great importance.

The PC30MR-2 model, which debuted in July of 2003, has reduced noise through improved airflow made possible by situating the radiator and oil cooler side by side as well as through such features as a low-speed fan and a chamber around the engine to absorb noise. As a result of such innovations, this model qualifies for the Ministry of Land, Infrastructure and Transport's ultra-low noise type approval for Japan and already meets the 2006 noise level standard for the EU.



Mini excavator PC30MR-2

### Meeting Tier 2 Emission Regulations

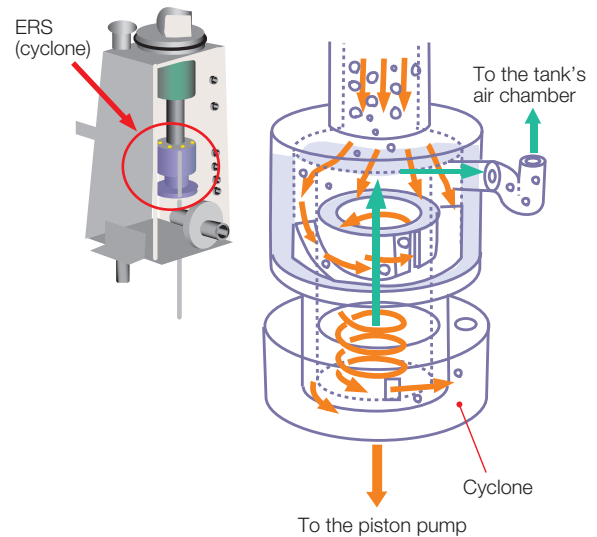
Through the latest engine models featuring redesigned high-pressure fuel injection and injection timing, the PC30MR-2 meets Tier 2 emission regulations for Japan, the U.S., and Europe.

### Reducing Environmental Impact

Use of the ERS (cyclone-type Environmental & Economic Reservoir System) system allowed for a 35% reduction in the holding capacity of the tank for hydraulic fluid. This made it possible to engineer a downsizing of the tank.

Also, there is an oil-retaining plate bearing around the bucket and high-strength brass plate bearing around the rest, thereby extending the greasing interval from every 100 hours to every 500 hours of use. In addition, environmental impact has been reduced through the employment of an aluminum oil cooler by which the use of solder (containing lead) can be eliminated.

### Development of ERS Tank for Mini Excavator PC30MR-2



## Offering Solutions for Customers' Environmental Activities

### Mobile Crusher BR380JG (New Model)

This machine crushes natural stones and concrete blocks produced as the result of demolition of a concrete structure at the site so that they can be reused as crushed stone. Equipped with a jaw crusher unique to Komatsu, the BR380JG features a fully automatic setting adjustment system which makes it easy to change the jaw discharge opening. In addition to a one-touch automatic setting adjustment for fine crushing, removing debris from the crusher has also become easier. These functions enable the BR380JG to produce high-quality product in larger volumes than before.



BR380JG

# Environmental Conservation in Manufacturing Operations

Undertaking efforts for energy conservation to mitigate global warming, Komatsu's energy usage for FY2003 was down by 22% compared to FY1990 levels. Moreover, from the perspective of the effective use of resources, in addition to the reduction of the volume of waste generated, Komatsu is pursuing zero emissions.

## Environmental Conservation in Manufacturing Operations

Komatsu's manufacturing operations generate environmental impact through the use of energy, water, and other natural resources. Based on this understanding, Komatsu is actively committed to implementing environmental conservation activities at its manufacturing facilities. In addition, Komatsu is expanding this way of thinking into Komatsu Group manufacturing activities around the globe, thus resulting in global and Group-wide environmental conservation activities.

### Targets for Environmental Conservation in Manufacturing

#### Three Major Targets

- Mitigation of global warming (energy conservation)
- Effective natural resources use
- Environmental risk management
  - Chemical substances control
  - Measures to renovate underground oil tanks permanently
  - Strict observance of laws and prevention of environmental pollution

#### Measures to Reduce the Environmental Impact Occurring Upstream and Downstream

- Green procurement
- Environmental conservation in logistics
- Environmental conservation in the sales and service divisions

## Mitigation of Global Warming (energy conservation)

### Basic Elements of Komatsu's Efforts

In order to mitigate global warming, Komatsu has worked out an index which converts electricity, fuel gas, fuel oil and any other type of energy consumed in its manufacturing operations into calorific value per manufacturing value. The company carries on its activities to save energy with a target of reducing energy consumption by 25% of the FY1990 figure by FY2010.

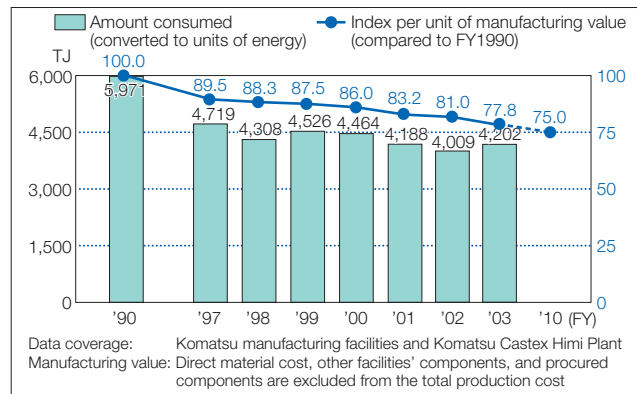
As a result, in FY2003, energy consumption was reduced by 22% of the FY1990 figure.

### Means of Improving Energy Conservation

As for energy conservation on the user side, the manufacturing divisions are at the core of efforts undertaken, as depicted in the chart on the right. With Working Group activities, lateral development among all business units is taking place. As for conservation on the supply side, the utility administrative divisions are the main focus of implementation, and significant effects have already been achieved, in particular by means of the efforts for improvements in energy conservation planned since FY2001 through ESCO\*1 (Energy Service Company) operations, which have drawn particular attention recently.

\*1 ESCOs provide comprehensive services with regard to energy conservation in factories or buildings, enabling a realization of energy conservation while maintaining the same performance as before, and they guarantee that energy conservation effects will result from the measures they recommend.

### Energy Consumption



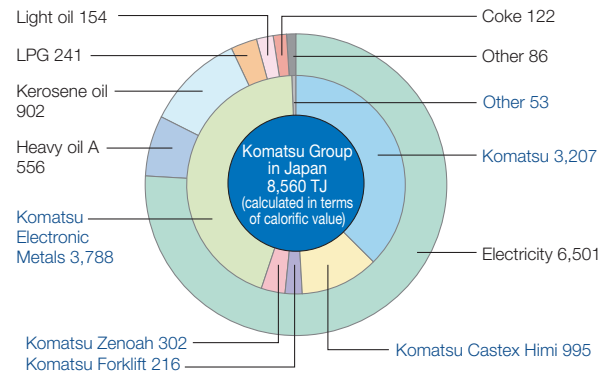
### Efforts Undertaken in Production

- Cutting stand-by electricity of manufacturing equipment
- Improving heat treatment method (micropulse-based heat treatment)
- Introducing inverter-controlled motor
- Sprinkling wastewater on plant roofs
- Introduction of high-efficiency lighting
- Distributing compressors

### Efforts which Incorporated ESCO Operations as the Main Activity

FY	Effort
FY2001	• Oyama Plant: Displacement air-conditioning equipment; gas turbine cogeneration
FY2002	• Awazu Plant: Absorption chiller cascade cooling, thermal recycling of cutting oil • Komatsu Zenoah Kawagoe Plant: Cogeneration • Komatsu Electronic Metals Nagasaki Plant: High-efficiency turbo freezer
FY2003	• Oyama Plant: Displacement air-conditioning equipment, high-efficiency lighting • Osaka Plant: Displacement air-conditioning equipment, high-efficiency lighting • Komatsu Zenoah Koriyama Plant: Cogeneration, displacement air-conditioning equipment

### Amount Consumed in FY2003 (converted to units of energy)



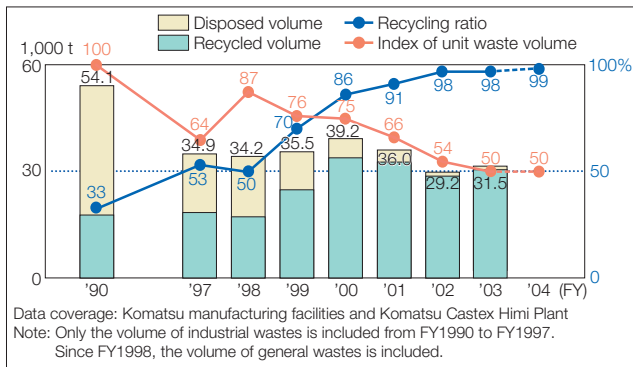
Data coverage: Komatsu Group domestic manufacturing facilities

## Effective Use of Resources

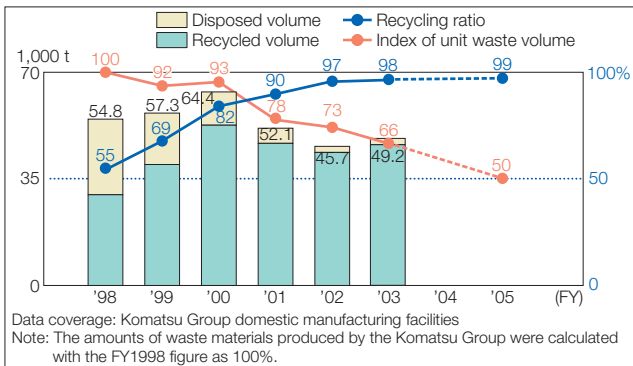
### Measures for Dealing with Waste

In tandem with reducing the volume of waste materials at manufacturing operations, Komatsu concentrates on zero emissions\*2 activities to recycle waste materials. As a result of Komatsu extending these activities to the Group's domestic manufacturing facilities, Group companies Komatsu Castex Himi Plant and Komatsu Zenoah Kawagoe and Koriyama Plants attained zero emissions in FY2003. All domestic manufacturing facilities plan to achieve zero emissions by FY2005.

#### Volume of Waste Generated by Komatsu (recycled and disposed)



#### Volume of Waste Generated by the Komatsu Group in Japan (recycled and disposed)



### Reduction of Volume of Waste Generated

Concerning the volume of waste, Komatsu has carried on an activity to reduce the waste volume to 50% of the FY1990 figure by FY2004. The combined results of Komatsu manufacturing facilities and Komatsu Castex Himi Plant show that by FY2003, the volume of waste could be reduced to 50% of the FY1990 figure, resulting in attainment of the goal one year earlier than planned.

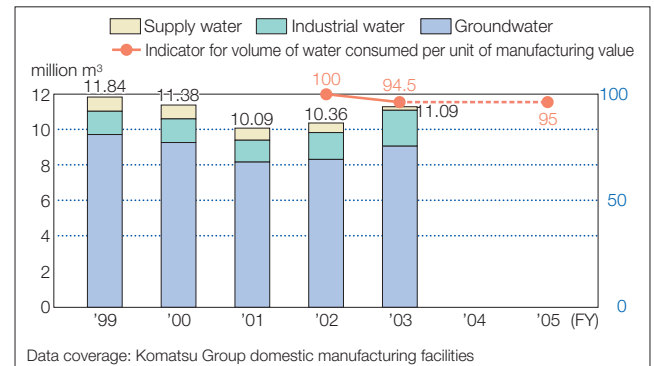
Furthermore, with regard to reducing waste processing costs, Komatsu Group domestic manufacturing facilities have established a target of reducing costs by 30% or more of the FY2000 figure by FY2005, and the company has already attained 54% reductions.

\*2 Komatsu defines "zero emissions" as a waste material recycling ratio of 99% or more.

### Conserving Water Resources

With regard to the conservation of water resources, since FY2003, Komatsu has been operating under the target of achieving by FY2005 a reduction of greater than 5% in the volume of water consumed per unit of manufacturing value from the level of achievement in FY2002. In FY2003, by practicing reuse during processing and by eliminating wasteful practices on a day-to-day basis, Komatsu was able to achieve 5.5% reductions compared with FY2002, enabling it to attain its target earlier than planned. With the introduction of equipment which recirculates cooling water, reuse during the processing stage will be carried out, enabling Komatsu to pursue water conservation even further.

#### Volume of Water Resources Used by the Komatsu Group in Japan



### Overview of Environmental and Social Activities to Date

1962	•Continuous support of the Flower and Green Institute of the Flower Association of Japan since its founding	1997	•Compliance Department established
1991	•Earth Environment Committee established	1998	•Komatsu's Code of Worldwide Business Conduct (1st edition) published; currently in its fifth revised edition
1992	•Komatsu Earth Environment Charter formulated •Environmental Action Plan formulated •Marking of plastic parts conducted •Environment-friendly product mobile crusher BR60 put on the market	1999	•All four Komatsu manufacturing facilities acquire ISO14001 certification
1995	•Transition to alternatives for chlorofluorocarbons in air conditioning in construction equipment completed •Biodegradable hydraulic fluid put into practical use •Specified chlorofluorocarbons and 1,1,1-trichloroethane completely phased out •Stated objective of acquiring ISO14001 certification at all Komatsu manufacturing facilities	2000	•Environmental Report first published; thereafter, published annually
1996	•Successful planting and raising of trees in tropical forest of Indonesia (2,500 trees)	2001	•Environment-friendly construction equipment GALEO series put on the market, satisfying Tier 2 emissions standards in Japan, the U.S., and Europe
		2002	•All seven domestic Komatsu Group manufacturing facilities acquire ISO14001 certification •All four Komatsu manufacturing facilities attain zero emissions
		2003	•Environmental Affairs Department established •Komatsu Earth Environment Charter revised
		2004	•Komatsu Group business units acquiring ISO14001 certification total 31 •Corporate Social Responsibility Department established

# Environmental Risk Management

In order to minimize the environmental risk that accompanies manufacturing activities, Komatsu is committed to acting in strict compliance with the legal framework stipulated by national and local authorities. In addition to thoroughly implementing pollution mitigation and prevention measures, Komatsu is making efforts to reduce the volume of chemical substances which it handles and uses.

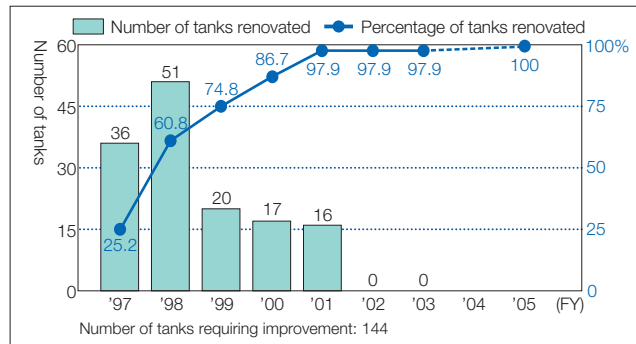
## Compliance and Pollution Mitigation and Prevention

Komatsu positively implements periodic reporting of results of environmental measurement and keeping of measurement data in strict compliance with the applicable laws and regulations of the national and local authorities. In FY2003, the Komatsu Group experienced no environmental infractions or accidents.

### Improvement of Underground Tanks

Concerning the existing underground tanks, the replacement with ground tanks, the doubling of tank walls, the consolidation of underground tanks, etc. were carried out according to a plan. Of the 144 underground tanks in service for 20 years or more, 140 have already been subjected to improvements. The improvement of the remaining four tanks is planned to be completed by FY2005 when the manufacturing sites using them will be abolished or integrated.

### Renovation of Underground Tanks in Operation More Than 20 years (Komatsu Group domestic manufacturing facilities)



## Soil and Groundwater Contamination

The Komatsu Earth Environment Committee has established guidelines for investigation of soil and groundwater contamination. Namely, Komatsu investigates the condition of soil/groundwater contamination at manufacturing facilities that are planned to be sold, closed, or demolished and, if necessary, takes suitable measures under the supervision of the local authority concerned. In FY2003, Komatsu conducted a soil contamination investigation of the site of the former Kawasaki Plant, which was to be sold. The investigation revealed that the site had been contaminated by volatile organic compounds such as tetrachloroethylene and by heavy metals such as lead. Komatsu filed notice with the city of Kawasaki and also conducted decontamination of the site, which was completed in April of 2004.



Example of decontamination operations for contaminated soil  
Rehabilitating soil contaminated with volatile organic compounds using a mobile soil stabilizer (BZ200 pictured)

## Chemical Substance Control

The enforcement of the Pollutant Release and Transfer Register (PRTR) Law\*1 obligates industrial plants to, on an annual basis, keep track of the amounts of Type 1 specified chemical substances released and transferred and file notice with the authorities. Although the reporting obligations changed in FY2003 to cover only those substances handled in quantities of 1 ton or more (a revision from 5 tons or greater until FY2002), Komatsu will continue to supervise the management of all relevant substances, even when quantities handled are less than 1 ton.

### State of Chemical Substance Control in FY2003

At Komatsu manufacturing facilities, the amount of consumption of paints in particular increased in keeping with the company's increases in the volume of goods manufactured. However, by switching to chemical substances that government authorities have identified as posing less risk to human health, Komatsu was able to reduce the amounts of discharge of xylene and toluene.

As for Group domestic manufacturing facilities, unfortunately, the various efforts to reduce the volume handled were insufficient to make up for the expanded need for paints resulting from the increases in the volume of goods manufactured. This resulted in overall increases in the amount of xylene and toluene released. The Komatsu Group will continue to undertake efforts to reduce the amount of environmental impact through improvements toward the control of such substances.

### Komatsu's Guidelines for the Control of Chemical Substances

In order to develop products that take the environment fully into account and reduce environmental risk, Komatsu is implementing comprehensive control of chemical substances by means of the *Komatsu Guidelines for the Control of Chemical Substances*.

Based on the established criteria for risk assessment, Komatsu has classified chemical substances subject to supervision into the three ranked categories of

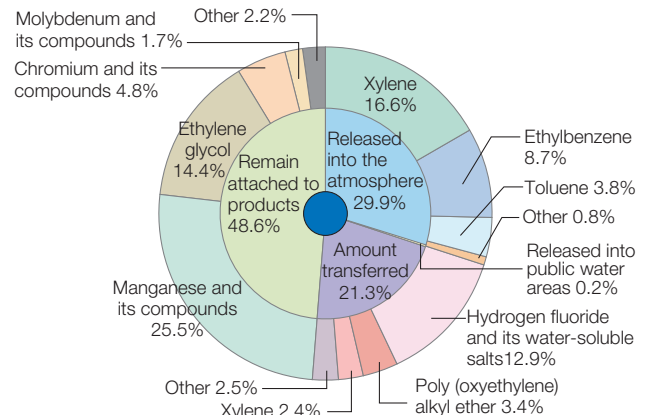
- prohibited substances: 714 types
- substances to be reduced: 1,239 types
- substances to be controlled properly: 1,444 types

and is controlling the amounts of release and transfer of each individual chemical substance.

In FY2003, in order to implement these guidelines, Komatsu introduced a Chemical Substance Management System, including to its affiliated companies, enabling it to improve its ability to supervise use of these substances through the use of this management system.

Making use of this system, in FY2004 Komatsu will endeavor to prevent contamination of the environment through environmental impact assessments conducted in advance. It will furthermore work to reduce the amount of chemical substances handled and released.

### Breakdown of the Amount of PRTR-related Substances Released and Transferred



Data coverage: Substances handled in quantities of 1 ton or more at Komatsu Group domestic manufacturing facilities

### Reductions in Release of VOCs\*2

With regard to the VOCs found in paints, which account for over 90% of the volume of chemical substances released by Komatsu, significant reductions were achieved by changing the system for painting from a base coat/top coat dual-coat method to a system using single-coat paints that deliver the same performance through only one application.

However, insofar as regulations concerning the release of VOCs are expected to become law, further revisions have been deemed necessary. Komatsu has established a challenging target of achieving by FY2006 a 50% reduction in VOC releases per unit of manufactur-

ing value vis-à-vis a FY2002 baseline (7.0 kg per one million yen of manufacturing value) and is now undertaking efforts to attain that target.

Forthcoming improvements will include conversion to high-solid type paints (to reduce the amount of VOCs contained therein), increasing coating efficiency, introduction of emissions control equipment, and conversion to water-based paints.

\*1 Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management

\*2 Volatile Organic Compounds (primarily paint solvents)

### Names of Class I Designated Chemical Substances and the Volumes Released and Transferred (handled volume of 1 ton or more; handled volume of 0.5 tons or more of Specified Class I Designated Chemical Substances)

(tons)

Komatsu manufacturing facilities (four facilities)									
Number under the PRTR Law	Name	Volume handled	Volume released				Volume transferred		Volume contained in products
			Air	Water	Soil	Buried	Sewerage	Disposed	
63	Xylene	436.3	173.1	0	0	0	0	51.2	0
43	Ethylene glycol	270.6	0.1	0	0	0	0	11.7	258.8
40	Ethylbenzene	140.9	130.5	0	0	0	0	9.5	0
311	Manganese and its compounds	54.8	0.8	0.0	0	0	0	2.0	52.0
227	Toluene	36.1	25.6	0	0	0	0	3.6	0
224	1,3,5-trimethylbenzene	7.8	7.2	0	0	0	0	0.1	0.5
132	1,1-dichloro-1-fluoroethane (HCFC-141b)	6.0	0.6	0	0	0	0	5.4	0
266	Phenol	4.6	4.6	0	0	0	0	0	0
16	2-aminoethanol	4.1	0.1	0.4	0	0	0	3.6	0.0
231	Nickel	1.5	0	0	0	0	0	0.1	1.3
68	Chromium and chromium (III) compounds	1.2	0	0	0	0	0	0.1	1.1
100	Cobalt and its compounds	1.1	0	0	0	0	0	0.1	1.0
346	Molybdenum and its compounds	1.1	0	0	0	0	0	0.1	1.0
9	bis (2-ethylhexyl) adipate	1.0	0	0	0	0	0	0	1.0

Komatsu Group manufacturing facilities (ten facilities)									
Number under the PRTR Law	Name	Volume handled	Volume released				Volume transferred		Volume contained in products
			Air	Water	Soil	Buried	Sewerage	Disposed	
283	Hydrogen fluoride and its water-soluble salts	690.3	0.4	3.2	0	0	7.2	284.0	0
311	Manganese and its compounds	523.3	0.1	0	0	0	0	2.7	520.1
63	Xylene	208.9	200.7	0	0	0	0	2.7	5.5
68	Chromium and chromium (III) compounds	107.6	0	0	0	0	0	1.2	106.6
307	Poly (oxyethylene) alkyl ether (alkyl C=12-15)*3	76.2	0.1	0.3	0	0	0.2	75.6	0
227	Toluene	70.6	58.9	0	0	0	0	3.5	8.1
40	Ethylbenzene	67.6	65.6	0	0	0	0	0.7	1.3
43	Ethylene glycol	66.3	0.0	0	0	0	0	1.8	64.5
346	Molybdenum and its compounds	38.0	0	0	0	0	0	0.0	37.9
231	Nickel	15.7	0	0	0	0	0	0	15.7
198	1,3,5,7-tetraazatricyclo (3.3.1.1 <sup>3,7</sup> ) decane; hexamethylenetetramine	12.1	0	0	0	0	0	0	0
69	Chromium (VI) compounds	10.4	0.0	0	0	0	0	2.8	7.4
266	Phenol	6.9	0	0	0	0	0	0	0
224	1,3,5-trimethylbenzene	4.7	4.7	0	0	0	0	0.0	0
25	Antimony and its compounds	3.7	0	0	0	0	0	2.4	1.3
100	Cobalt and its compounds	3.4	0	0	0	0	0	0.1	3.3
230	Lead and its compounds	3.1	0	0	0	0	0	3.0	0.1
132	1,1-dichloro-1-fluoroethane (HCFC-141b)	2.7	0.4	0	0	0	0	0	2.3
232	Nickel compounds	2.5	0	0	0	0	0	1.7	0.8
243	Barium and its water-soluble compounds	1.8	0	0	0	0	0	0	0
16	2-aminoethanol	1.1	0	0	0	0	0	1.1	0
299	Benzene	1.0	0.4	0	0	0	0	0	0.6

\*3 Limited to substances whose alkyl group has carbon number 12 to 15 and any mixtures of those substances.

# Activities for Reducing Environmental Impact from Upstream and Downstream Operations

Besides extending its activities to promote green procurement, Komatsu continues to implement improvements in transport and packaging. Within the sales and service divisions, Komatsu is working to formulate guidelines for environmental conservation activities for sales and rental offices.

## Green Procurement

### Evaluating Degree of Environmental Friendliness through Environmental Check Sheets

Continuing the activities conducted in FY2002, in this fiscal year an environmental check sheet was again created and distributed to Komatsu's partner companies. The recipient base of the check sheets this year was expanded from 132 members of the Komatsu "Midori-kai" group that promotes environmental friendliness to partner companies with which Komatsu does at least one million yen of business per month. Each such partner company was asked to conduct a self-assessment of its environmental management systems and its effects on the environment and then submit the results of the assessment to Komatsu. The rate of return for these check sheets was 68% and 111 of the 331 recipient companies were ISO14001 certified.

### Environmental Education for Partner Companies

The Komatsu Group asks its partner companies to establish and improve systems that enable certain compliance with environmental-related regulations. In FY2003, Komatsu conducted environmental education in order to encourage a shift in awareness of its partner companies.

### Tour of Company with Excellent Environmental Management

On March 5, 2004, 48 people from 41 partner companies participated in a familiarization tour of IBM Japan's Yamato laboratory. Participants observed the makeup of IBM's corporation-wide environmental management system as well as the implementation status of the facilities' internal environmental conservation efforts.

## Environmental Conservation in Logistics

Komatsu's efforts towards environmental conservation in logistics involve clarifying the CO<sub>2</sub> emissions volume base and establishing reduction targets in the areas of procurement, transport of shipments, manufacturing and in-house logistics, and packaging.

### Efforts to Improve Transport

#### Transport Logistics during Procurement

During delivery to Komatsu from suppliers, Komatsu is promoting procurement based on 3PL (third-party logistics)\*<sup>1</sup> activities by means of enhanced transport efficiency generated by either:

- "milk-run" deliveries (pickup of items via circuit-type routes) or
- "hub and spoke" deliveries (arterial deliveries between points).

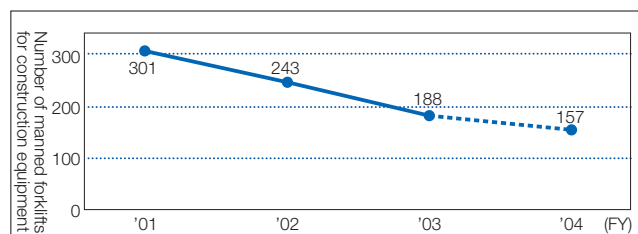
In addition to the Osaka Plant, which has already put such a system into operation, the Awazu Plant introduced such operations at 45 companies in the Hokuriku area in FY2003. This resulted in coverage from this system of 59% at the Osaka Plant and 30% at the Awazu Plant. In FY2004, Komatsu plans to expand this to suppliers not yet part of the system as well as introduce it to the Mooka and Oyama Plants.

#### Plant Manufacturing Logistics

Komatsu is minimizing in-house deliveries by forklifts by having materials delivered directly to production lines and by enhancing transport efficiency between process stages via in-house "milk run" delivery routes. Komatsu has reduced the number of forklifts in use by about 60 each year for FY2002 and FY2003, and it is planning further reductions for FY2004.

\*1 The deliveries from each supplier are collected and given enhanced efficiency by a third party logistics company.

### Change in Number of Forklifts Used for In-house Deliveries (for manufacturing of construction equipment)

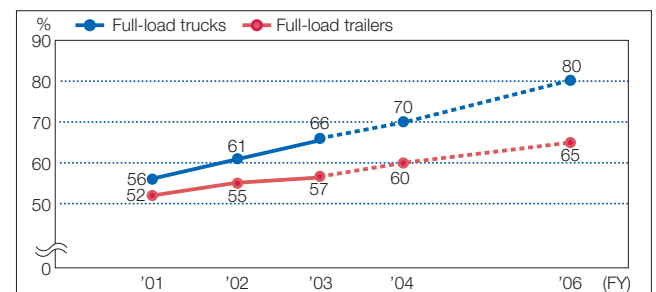


### Transport of Products

It used to be that the number of round trips by trucks and trailers carrying heavy cargo in only one direction was high and utilizing transport vehicles in both directions of a round trip was difficult. The Komatsu Group introduced the Information Clearing House (ICH) system in FY2001 and began matching routes to and from destinations, enabling it to boost the full-load round-trip efficiency of vehicles and thereby realize energy conservation.

For FY2003 Komatsu set its sights on achieving the highest standard possible for full-load round-trip efficiency, developing a mechanism by which the degree of full-load round-trip efficiency for each region could be understood. For FY2004, these figures will be checked monthly at each plant and emphasis will be placed on finding collaborative shipping partners in regions which lack cargo for return trips. Komatsu is working to create a system in which both Komatsu and its shipping partners can utilize return trips.

### Change in Full-load Trucks\* and Trailers (for transport of construction equipment)



\*Full-load ratio = number of loaded runs/number of runs

### Efforts towards Packaging Improvements

Komatsu has stopped the discarding of wooden packaging materials after use and is now implementing resource conservation through the use of bare shipping (shipping without the use of packaging materials) and steel pallets, which can be returned and reused. As for complete knock-down\*2 (CKD) shipping, the introduction of steel pallets is almost complete, and the return of pallets is now being implemented at eight of 16 major local overseas companies.

In FY2004, Komatsu is planning to use bare shipping for machine and equipment attachments, insofar as they currently are lagging in their degree of implementation, with a utilization rate of steel pallets of only 50%. For items that cannot be shipped without packaging, in

addition to promoting the use of steel pallets and returnable pallets, Komatsu is examining the development of replenishment of the resources involved.

\*2 Parts for manufacturing geared toward local overseas companies

### CO<sub>2</sub> Emissions Reductions

As a result of the improvements in transport and packaging, CO<sub>2</sub> emissions were reduced by 2,371 t in FY2003 compared to FY2002, in contrast to the target of reductions of 1,800 t. For FY2004, Komatsu is conducting activities to enable it to reduce its CO<sub>2</sub> emissions by 2,800 t compared with the base year of FY2002.

## Environmental Activities in the Sales and Service Divisions

### Environmental Conservation in the Sales and Rental Stores

The sales and service divisions are engaged in the following efforts as environmental conservation activities for sales and rental stores:

- appropriate disposal of wastes generated as a result of services and repairs conducted by sales and rental stores
- effective use of resources and energy
- conservation of the global environment.

It has also initiated a mechanism for an independent environmental management system which generates ways to strengthen activities in an ongoing manner, using the Plan, Do, Check, Action approach. In FY2003, in addition to undertaking surveys in advance and preparatory work, Komatsu also conducted environmental education through e-Learning for employees of sales and rental stores.

Based on these results, in FY2004 Komatsu plans to formulate environmental guidelines for sales and rental stores, conduct operations on a trial basis, and spread those operations to each company.

## Service Operations Reducing Environmental Impact

### Promoting the Reman Business

The Reman business consists of remaking used machine components into components of the same quality as newly-manufactured ones by various processes and supplying them to the market. The Komatsu Group is promoting the Reman business at Reman Centers installed at seven of its operation bases around the world. "Reman," an abbreviated version of the word "remanufacturing," offers the customers the following benefits.

- The same quality and performance as those of new components are guaranteed
- The cost of a "remanned" component is lower than that of a new one
- A proper level of inventory of "remanned" components permits reducing the idle time of construction equipment
- The recycling and reuse of components helps save resources and reduce waste

### Providing Reman-related Information

Within Japan, information on remanufactured components is made available via "Reman CSS-Net." Abroad, Komatsu has set up "Reman-Net," networking Reman Centers around the world. Komatsu is thus promoting its Reman operations at the global level and facilitating the active use of reused and recycled items.

### Acquisition of ISO14001 Certification by Reman Centers

The seven Reman Centers around the world have been pursuing ISO14001 certification in order to promote environmental conservation. Three of the Centers have already acquired certification and the remaining four are aiming at acquiring it within FY2004 or FY2005.



- Information distribution and information sharing regarding used parts/components
- Information distribution and information sharing regarding Reman-related technology
- Searching for or buying/selling used parts/components

# Environmental Activities of Affiliated Companies

Komatsu Zenoah, based on its independently-formulated environmental policy, has all of its employees participating in environmental conservation activities. Komatsu Forklift has developed a clean engine and put on the market forklift trucks using this engine.

## Environmental Conservation Activities at Komatsu Zenoah

### Company Overview

Komatsu Zenoah was founded in 1910 under a managerial policy that cites "placing the customer first and reacting with speed and high adaptability" as among its highest priorities. With a wide range of business areas, including outdoor power equipment, mini construction equipment, hydraulic equipment, aircraft engine overhaul, and industrial machinery, the company puts quality and reliability above all else and continuously uses its high degree of engineering skill to provide products with special points of appeal.

<http://www.zenoah.net/>

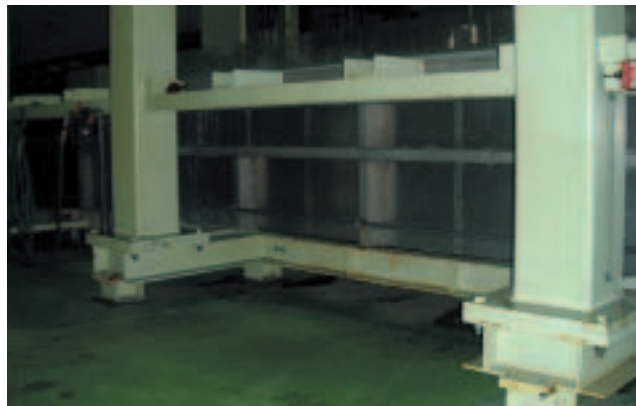
### Efforts to Promote Environmental Conservation Activities

#### Enactment of its Environmental Policy

Komatsu Zenoah is undertaking environmental conservation efforts throughout the entire company, formulating an environmental policy as well as establishing environmental objectives and targets for the whole company.

#### ■ Environmental Policy (fundamental philosophy)

Komatsu Zenoah encourages every and each employee to realize the importance of environmental conservation and will promote business operations which aim at the realization of a sustainable society through environmental conservation and resource conservation, both of which having their foundation in the careful use of resources in order to enable the current generation to pass the irreplaceable global environment on to the succeeding generations. It also engages in sound communication with the host local community and promotes activities which can be expanded to the families of employees and to the local host community.



Metal plating equipment set off the ground to allow early detection of leakage



Wastewater treatment facilities

### Compliance and Pollution Mitigation and Prevention

Komatsu Zenoah recognizes that among its business activities the environmental impact of metal plating equipment is large. For that reason, in addition to installing pollution mitigation and prevention equipment, the company gives particular attention to supervising daily operations.

#### Mitigation of Global Warming (energy conservation)

As measures to help mitigate global warming, the company has introduced a cogeneration system\*1 and has implemented a policy of small reforms to be undertaken by the entirety of its workforce in the manufacturing division and other indirectly related divisions. The company is undertaking various energy conservation activities in keeping with its target of attaining a 25% reduction in energy consumption by FY2005 versus the FY2000 base year.

#### Effective Use of Resources

Komatsu Zenoah attained in FY2003 its goal of zero emissions\*2, which has been a major plank among the company's environmental conservation activities.

#### Reduction of Environmental Impact of Products

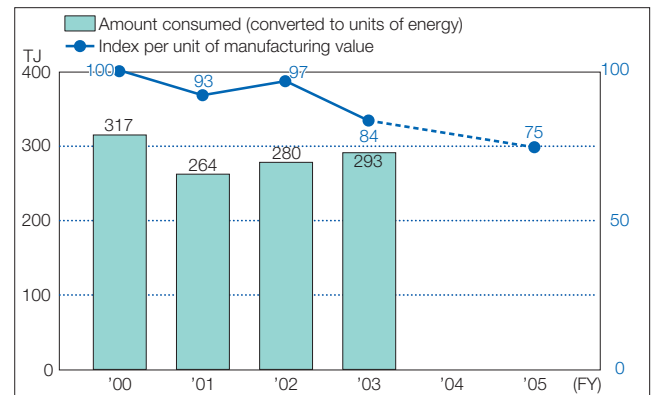
##### 1. Strato-charged engine

By means of a revolutionary stratified scavenging method, this newly-developed strato-charged engine improves fuel consumption by 30% and meets the level established in United States' CARB Tier 2 regulations (THC + NOx 37g/HPH in 2005), which had been difficult for two-cycle engines to attain. The company began mass-producing these engines in FY2003.

\*1 Introduced at the Kawagoe Plant in June 2003; introduction to the Koriyama Plant scheduled for October 2004.

\*2 Achieved at the Kawagoe Plant in September 2003; achieved at the Koriyama Plant in March 2004.

#### ■ Energy Consumption



Cogeneration system (Kawagoe Plant)

## 2. Plants for ultra-fine grinding of plant matter, and Biodama

Komatsu Zenoah, while providing a system that enables plant matter to be ground into sizes from coarse to ultra-fine, has also produced an end-stage product called "Biodama," which was introduced to the market in FY2004. At Pacific Flora 2004, Biodama was awarded a silver medal.

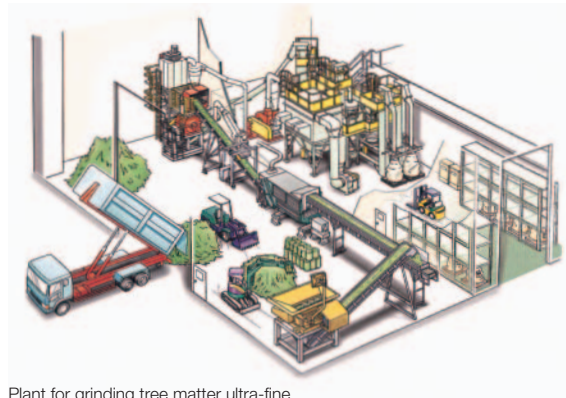
### Living in Harmony with the Host Local Community

Komatsu Zenoah opens for public viewing its environment-related information on its homepage, and the company has been recognized as an Eco Up Declaration Office by Saitama Prefecture and as an "eco-office" by the city of Kawagoe. The company conducts the following as additional activities that enhance the company's harmonious interaction with the host local community and foster a good relationship with the local residents.

- Pledged to the local governing bodies that it would make its source of groundwater available to local residents as drinking water in case of emergency
- Opens up its site to the community during cherry blossom-viewing season
- Opens up its gymnasium and tennis courts to the community



Cherry trees at the Kawagoe Plant. Blooming earlier than other trees in the area, the plant is well-known as a place to enjoy cherry blossom viewing early in the season



Plant for grinding tree matter ultra-fine



Biodama in use

## Komatsu Forklift: First in the World to Clear Emissions Regulations for Diesel Special Vehicles

### LEO-NXT Series of Forklift Trucks

The LEO-NXT series was the first in the world to receive approval as having cleared the emissions regulations that went into effect in October of 2003 for diesel special vehicles.

### Development of a Clean Engine with Low Carbon Monoxide (CO) Emissions

Komatsu Forklift, in order to improve emissions from its vehicles, has been continuously implementing revisions to its engines. Incorporating the world's first semi-open deck construction, which optimizes the shape of the engine combustion chamber, excess combustion capacity is eliminated. Furthermore, it was designed taking into account various possible operating scenarios, and, for example, is able to deal with low-quality fuel having a control device (a servo-timer) that stabilizes fuel injection timing.

In this way the 4D94E engine was developed, emitting less than half of the CO emissions permitted under regulations (5g/kW-hr), and is now mounted on the LEO-NXT series.

### Other Environmental Measures

The LEO-NXT series, in addition to its clean engine, boasts an environmentally-friendly design, including the following:

- reducing fuel consumption during idling time in operations through the use of independent tandem-style pumps for the hydraulic networks controlling the steering system and the work operations system
- facilitating recycling by cutting a groove in the internal counterweight
- introducing CNG fuel-powered vehicles.

### Future Developments

Since April 2004, Komatsu Forklift has been gradually introducing to the market vehicles that meet emissions regulations not just in the 1-ton and 2-ton classes but in other classes as well. In the future, the regulatory hurdles to clear will be set even higher, yet Komatsu Forklift looks forward to developing better and better technology to meet the never-ending challenge of meeting new emissions regulations.

<http://www.lift.co.jp/eng/distrib/index.htm>



LEO-NXT series

# Quality and Reliability: Gaining the Trust of Komatsu's Customers

Komatsu consistently looks at issues from the perspective of the customer, and, in order to provide safe and creative products and services, it has formulated its “Principles Governing Quality Assurance” and “Standards for Product Safety” and is committed to compliance with them.

## Quality and Reliability: Gaining the Trust of Komatsu's Customers

At the core of Komatsu's managerial approach lies its pursuit of Quality and Reliability. These qualities require the company to place as its highest priority the principle of always providing products, services, and systems that are safe and creative and that take up issues from the perspective of the customer. This bears relevance to the entirety of the Komatsu Group's organization, businesses, and employees and affects how the company interacts with its customers.

### Starting with an Understanding of the Customer

The starting point for customer satisfaction and quality assurance activities that leave the customer genuinely satisfied is understanding the customer's evaluations and the way in which the customer will use the equipment. The means of increasing customer satisfaction even further surely lies in listening earnestly to the opinions, requests, and evaluations given by the customer and responding sincerely, and then utilizing those opinions, requests, and evaluations in the process for improving the business.

Komatsu relays opinions, requests, and evaluations from customers to the product planning, production, purchasing, sales, and service divisions and departments, and uses them in improving business operations, including in product development and in improving product quality.

## Regarding Quality Assurance

### Approach to Quality Assurance

Komatsu puts the customer first, and as such, it promotes actions based on the following definition and principles of action.

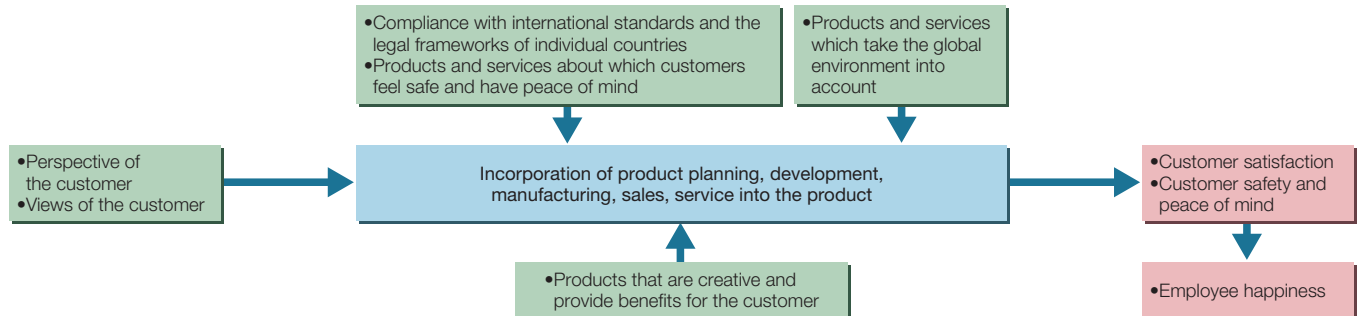
#### ■ Definition of Quality Assurance

The company will provide products and services regarding which the customer is able to purchase feeling peace of mind and satisfaction, be safe and have peace of mind when using, and furthermore be able to use for many years to come. In setting forth and complying with these Principles Governing Quality Assurance, and in implementing them faithfully, including the implications behind the Principles as stated, the effective utilization of product quality management methods become a task for every employee, for which they take responsibility and which they realize of their own accord. Furthermore, in order to promote effective and ongoing improvements in quality assurance management, the company is implementing a policy under which ISO9001 series certification is to be acquired Group-wide.

#### ■ Principles Governing Quality Assurance

(1) Being at all times receptive to the views of the customer, considering issues from the perspective of the customer, and responding appropriately to the customer, thereby earning the customer's satisfaction, are fundamental to the work of every employee and constitute the responsibility of every employee. (Philosophy of putting customers first)

#### ■ Framework for Quality Assurance



- (2) Complying with international standards and the legal frameworks particular to individual countries as a matter of course, and providing products and services which, looking at issues from the perspective of the customer, have incorporated proper regard for safety and peace of mind and that do not easily malfunction, are fundamental to the work of every employee and constitute the responsibility of every employee.
- (3) Providing at all times products and services which incorporate proper regard for global environmental conservation is fundamental to the work of every employee and constitute the responsibility of every employee.
- (4) Providing at all times products and services that are creative and provide benefits to the customer is fundamental to the work of every employee and constitute the responsibility of every employee.
- (5) Making at all times the customer have senses of safety, peace of mind, and satisfaction and being able to use the product for many years to come are a source of happiness for every employee.

### Definition of “Product Quality”

Komatsu defines “product quality” not as “the quality of a product as it has been manufactured” but rather as “the quality of the entirety of the product package being sold to a customer.” It is thus best understood as product quality under a broad definition of the word, containing various components as a result.

Products have “quality” only upon realizing a certain degree of convergence with the requirements held by the customer. Product quality is made up of, first, the product, which is itself comprised of the quality of the product as a manufactured item, the cost, the volume, the delivery schedule, the sales, and the related services. Secondly, product quality is related to what the product results in, namely, the means in which people who come into contact with the product do their jobs and the relevant systems that are in place. Komatsu believes that structural factors must be of high quality for the product to be of high quality.

### Ascertaining Extent of Customer Satisfaction

In order for quality assurance activities to ascertain whether customers are truly satisfied, Komatsu undertakes on a regular basis an evaluation process by which it can ascertain the extent to which customers are satisfied. Komatsu is confident that listening carefully to the opinions, requests, and evaluations given by its customers and responding earnestly to them will lead to improvements in quality assurance activities in the future.

#### ■ Method for Ascertaining the Extent to Which Customers Are Satisfied

- (1) After the sale of new products or improved models of vehicles, sales and service representatives visit the customers directly and interview them regarding the vehicle
- (2) Komatsu collects input from the customer or the sales agent on survey items it sets forth
- (3) Sales and service representatives of Komatsu's sales agents, in the course of their day-to-day interactions with customers, listen to points brought up by the customers during visits and contact Komatsu regarding those points, treating them as business information

## Promotion of Product Safety to Ensure Customer Safety and Peace of Mind

The safety and the peace of mind of the customer are always firmly at the forefront when considering product quality. Komatsu, having set forth its Standards for Product Safety, considers the provision of products and services which customers can use safely and with peace of mind as a matter of the utmost priority within its quality assurance activities. All of Komatsu's employees, through the provision of products that can be used safely and with peace of mind for many years to come, aim at attaining customer satisfaction.

### Standards for Product Safety

- (1) The provision of products and services that comply with international standards and the legal frameworks particular to individual countries is fundamental to the work of every employee and constitutes the responsibility of every employee. (Compliance)
- (2) The provision of products and services which at all times are safe and provide peace of mind and do no harm to the customer is fundamental to the work of every employee and constitutes the responsibility of every employee. (Safety via prevention)
- (3) The provision of products and services that minimize any injury that might come to a customer who has an accident is fundamental to the work of every employee and constitutes the responsibility of every employee. (Security regarding accidents)
- (4) The ongoing provision of advance safety warnings after receiving information from the customer and, in the case of a defect arising in a product or service, the efforts to undertake prompt response measures and information provision, are fundamental to the work of every employee and constitute the responsibility of every employee. (Transparency)
- (5) In order to create a corporate climate in which product safety is emphasized, the standardization of the safety management system and safety techniques as well as ongoing efforts to improve them are at all times fundamental to the work of every employee and constitute the responsibility of every employee. (Improvement of organizational climate)

### Information System for Product Safety and Services

Although Komatsu is redoubling its efforts to ensure product safety, in order to keep constant oversight over the possibility that trouble might arise with regard to product safety, in addition to the product safety and quality information system covering all areas of quality for con-

struction equipment, Komatsu has established an accident information system and continues to conduct activities which enable it to respond promptly to incidents. Furthermore, the relevant departments, including members of top management, are kept informed regularly about the state of accidents and response measures.

At the same time, in order to respond to all problems concerning product safety, Komatsu employs a system to call an urgent response measures meeting through which it will make decisions regarding how best to respond to the situation, including contacting customers with information and updates, contacting the competent governing authorities, conducting recalls of the product involved, and so on.

### Provision of Product Safety Information to the Customer

Komatsu endeavors to provide product safety information to its customers in a reliable way using the methods delineated below.

#### Methods for Provision of Product Safety Information to the Customer

- (1) Direct indication on the product itself or in the user's manual
- (2) Direct explanations to customers by Komatsu sales and service employees and sales and service employees of sales agencies
- (3) Telephone consultations with the service division of each plant and the customer service representatives in quality assurance divisions

### System for Dealing with Recalls, etc.

In the event that a defect occurs in any Komatsu product and it is determined that a recall or other corrective action is necessary, Komatsu will undertake appropriate measures. In such a case, measures will be undertaken in keeping with delineated procedure.

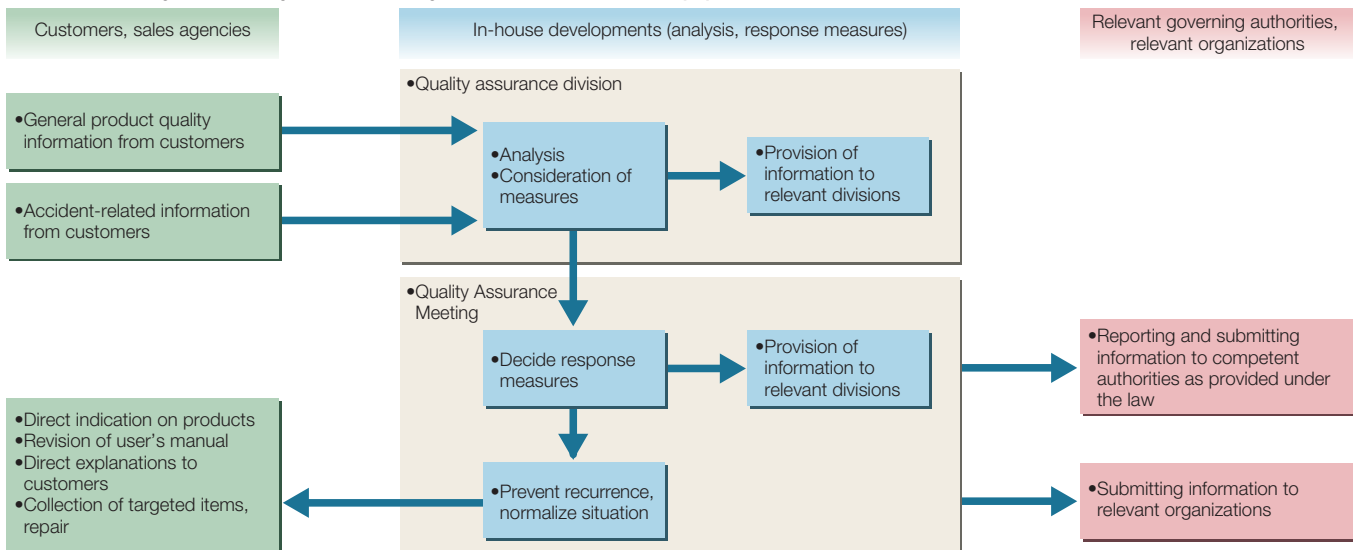
#### Procedure Governing Recalls

- (1) File notice with competent authorities as provided under the law
- (2) Inform customers by appropriate means
- (3) Take appropriate corrective measures, including, for example, repair, replacement, or refund

### Ninth-ranked in First "Survey of Product Quality Management"

Through Komatsu's promotion of activities based on its managerial principles of Quality and Reliability, the company was ranked ninth in the Nihon Keizai Shimbun newspaper's first "Survey of Product Quality Management," with the results publicly announced in July 2004.

### Product Safety and Quality Information System for Construction Equipment



# Compliance, Personnel, Safety and Health

The company set forth Komatsu's Code of Worldwide Business Conduct and, through the fulfilling of the Code by managerial and general employees alike, Komatsu strives to ensure thorough compliance. Komatsu is also committed to creating a workplace in which employees can work safely and with peace of mind in the context of a personnel system that develops their potential and gives them motivation to work hard.

## Following Best Business Practices (Compliance)

The companies that make up the Komatsu Group have joined hands to promote activities that ensure compliance with best business practices.

### Management Policy

Komatsu's management policy is based on the pursuit of Quality and Reliability. The Quality and Reliability that Komatsu seeks does not stop at the provision of products and services but instead extends to the organization of the Komatsu Group around the world as well as to its businesses, its employees, and to everything connected with management of the organization.

As the Komatsu Group seeks to increase its Quality and Reliability, what are particularly crucial are first, activities that seek to build a strong company and that increase corporate value by improving Komatsu's record of achievements in business activities, and second, activities that reaffirm Komatsu's standing as a good company that follows best business practices and that fulfills its responsibilities as a corporate citizen.

### Compliance Organization

In order to enhance compliance throughout the entire Komatsu Group, Komatsu has established a Compliance Committee to promote compliance with best business practices by discussing and resolving relevant issues. The committee is chaired by the President and CEO of Komatsu and has among its members Directors, Executive

Officers, and labor union representatives, demonstrating clearly the position that efforts should be conducted through the joint efforts of both management and labor.

In addition, the Executive Officer Supervising Compliance and the Compliance Department can be found at the Komatsu Head Office, thereby creating a system that will continuously strengthen and promote compliance towards the rules under which the Komatsu Group operates.

### Enforcement of Code of Business Conduct

Komatsu has established the Komatsu's Code of Worldwide Business Conduct (enacted in January 1998 with the latest revision being made in February 2003) to outline the rules to be followed by all employees, including those responsible for management of the Komatsu Group. The entire Code of Business Conduct is displayed on the Komatsu homepage.

<http://www.komatsu.com/en/CompanyInfo/profile/conduct/index.html>

All executives of Komatsu Group companies, in addition to all Komatsu management, have submitted written pledges that they will themselves comply with all applicable regulations and with Komatsu's Code of Worldwide Business Conduct and furthermore that they will enforce compliance thoroughly. In this way, Komatsu is fostering a compliance-focused mindset.

## Personnel

### Enhancing the Quality and Reliability of Employees

For a business, people, goods, and money are valuable assets. In particular, "people"—the employees of Komatsu Group companies—are an irreplaceable resource.

Komatsu's management principles are Quality and Reliability. Komatsu recognizes the role of the personnel system in raising the quality and the reliability of the company's human resources and endeavors to create a system by which it can provide a workplace with opportunities for both creative and challenging endeavors.

### Basic Policy of Global Human Resources

The Komatsu Group sets the following common policy for all Group companies.

- (1) The uniqueness, character and privacy of individual employees shall be respected.
- (2) Employees shall be fairly appraised and treated. They will not be discriminated against for reason of national origin, race, religion, age, sex, or disability. Should any form of violation be discovered, such as sexual harassment or any other unlawful employment practices, it will be investigated and rectified immediately.

(3) In developing personnel policies, accordance with the understanding of employees must be ensured. Human resource policies and procedures shall be disclosed to the employees as appropriately and fully as possible.

(4) While fully respecting international conventions or treaties on the rights of children, we will set and maintain competitive pay and working conditions for each region.

(Taken from Chapter 5 of *Komatsu's Code of Worldwide Business Conduct*)

### Issues for the Future

The following three topics are those that Komatsu should take up in the future.

- Promotion of measures and policies that will enhance employees' desire to take on greater challenges
- Means of promoting greater mental and physical health among employees
- Equal opportunity in hiring and employment

## Safety and Health

Operating on the principle of "safety above all," in order for all Group employees to be able to work in a healthy and safe environment, the Group promotes

- implementation of preventative measures for work-related accidents and damage to health, as stipulated in safety and health regulations;

- voluntary safety and health activities.

In doing so, the Group is making efforts to decrease tangibly workplace risk while creating a comfortable working atmosphere.

# Communication and Contributions to Society

In order for the people of the host local community to understand and support Komatsu's environmental activities, at business units throughout Japan, the company conducts activities to enhance communication. In addition, the company is actively making social contributions, such as through support for community environmental conservation activities and support of the activities of the Flower and Green Institute of the Flower Association of Japan.

## Communication Activities at the Awazu Plant

### "Open House" Day

On May 18, 2003, the Awazu Plant held an open house, inviting customers, residents of the host local community, suppliers, and family members of employees, all of whom the plant enjoys a relationship with on a regular basis. In addition to the activities that were held for fun, Komatsu's "Spirit of Manufacturers" was the focus, with demonstrations of 3D CAD\*-based designing, tours of the assembly sites and demonstrations of processing operations, explanations of the functions of an engine's transmission using a split model, demonstrations of construction machinery, and more making up the core of the day's activities. About 15,000 people participated in this event.

\*Three-Dimension Computer Aided Design



"Open House" Day, held May 18, 2003 at the Awazu Plant



Site of the plant's open house, with customers, local residents, suppliers, and family members of employees all enjoying the day

## Kids' Tour of Working Vehicles

The Komatsu Techo-Center in Izu City, Shizuoka Prefecture holds a "Kids' Tour of Working Vehicles" every year during the spring and summer holidays to demonstrate construction machinery to local children and their parents and let the children enjoy the experience of test-driving construction machinery. This year marks the tenth anniversary of the event, which was held over four days in August 2003 and five days in March 2004 and was attended by almost 1,000 children and parents on each occasion.



Opportunity to ride a HD605 dump truck  
HD605: Payload 63,000 kg, flywheel horsepower 533 kW (725 PS)

<http://www.komatsu.com/ce/techno/>

## Promotion of Zero Emissions Activities at the Oyama Industrial Park

Komatsu has attained zero emissions at all of its domestic manufacturing facilities. However, hoping to utilize the results of its activities to contribute to society, the Oyama Plant shared all of its know-how about zero-emissions publicly. Moreover, in cooperation with 16 companies which are members of the Oyama Industrial Park, the Oyama Plant is currently endeavoring to change the Park into the first Industrial Park to attain zero emissions.

The 16 member companies are collectively undertaking the following activities:

- securing personnel to separate waste by type
- establishing collectively-administered sites
- researching means of turning special types of waste into resources.

By this approach, they are effectively implementing efforts which cannot be shouldered by one company alone. In addition, the 16 member companies observe and oversee each other, resulting in the prevention of the intervention of unlawful operators, illegal dumping, or unlawful disposal. Through zero emissions, the 16 member companies hope to share their message that the Oyama Industrial Park has taken a positive first step towards creating a recycling-based society.

## Cherry Tree-related Efforts Conducted by the Flower and Green Institute of the Flower Association of Japan

As one of its contributions to society, Komatsu has, in cooperation with its sales agencies throughout the world, been supporting the Flower and Green Institute of the Flower Association of Japan ever since its founding in 1962. The cherry trees which have been planted in various locations as a result of these activities have helped create a beautiful and rich natural environment.

### National Cherry Tree Symposium

Every year, the Flower and Green Institute of the Flower Association of Japan holds the National Cherry Tree Symposium to foster cherry tree-related research, improvements in cultivation techniques, and research regarding cultural aspects of cherry trees, inviting from all around Japan cherry tree researchers as well as local government representatives of areas having well-known cherry blossom viewing sites.

The April 2004 National Cherry Symposium took up activities entitled "Rehabilitation of the Yamatakajindai-zakura Cherry Trees." Specifically, the Yamatakajindai-zakura cherry trees in the village of Mukawa, Yamanashi Prefecture are some 1,800 years old and were in 1922 the first item in Japan to be designated as a national natural treasure. However, in recent years they have suffered a notable turn for the worse. The Flower and Green Institute of the Flower Association of Japan was commissioned to conduct restoration work on the trees, and the trees' soil environment was improved primarily by exchanging their usual soil for more nutrient-rich soil. As a result, the danger stage has passed, and the trees are now on their way to recovery.



Yamatakajindai-zakura cherry trees in full bloom

# Environmental Data by Manufacturing Facility

Overview	Manufacturing facility	Awazu Plant (established in 1921)	Osaka Plant (established in 1952)	Oyama Plant (established in 1962)
	Location	Komatsu, Ishikawa Prefecture	Hirakata, Osaka Prefecture	Oyama, Tochigi Prefecture
	Main products	Small and midsize bulldozers; small hydraulic excavators; mini, small, and midsize wheel loaders; large presses; tunnel machinery; armored vehicles, etc.	Large bulldozers, midsize and large hydraulic excavators, mobile recycling machinery (crushers, soil stabilizers, tub grinders, etc.)	Engines for construction/industrial machinery, diesel generators, hydraulic equipment, excimer lasers, etc.
	Site/building area (1,000 m <sup>2</sup> )	779/290	554/157	594/193
	Number of employees	3,328	2,201	1,800
Date of ISO14001 certification acquisition	September 1997	July 1997	May 1997	

\*The number of employees includes those working for Komatsu affiliates on the premises.

\*Established year means as Komatsu Group.

Compliance Conditions to Major Regulations	Air										
	Item	Unit	Facility	Regulated value	Actual value	Facility	Regulated value	Actual value	Facility	Regulated value	Actual value
	Nitrogen oxides (NOx)	ppm	Boiler	180	70	Boiler	150	38	Diesel engine	950	560
			Heating furnace	180	59	Metal furnace	180	41	Gas turbine	70	25
		ppm	Diesel engine	950	770	Diesel engine	500	40	Boiler	250	120
						Gas engine	300	71			
	Sulfur oxides (SOx)	—	K-value regulation	17.5	1.17	Regulation of total emissions (Nm <sup>3</sup> )	10.4	3.968	K-value regulation	7.0	0.48
	Soot and dust	g/m <sup>3</sup> N	Boiler	0.3	0.002	Boiler	0.03	0.001	Diesel engine	0.1	0.041
			Heating furnace	0.2	0.024	Metal furnace	0.1	0.001			
		g/m <sup>3</sup> N	Diesel engine	0.1	0.027	Diesel engine	0.08	0.017			
					Gas engine	0.04	0.004				
	g/m <sup>3</sup> N										

\*Regulated values are in accordance with the Air Pollution Control Law and local regulations.

Compliance Conditions to Major Regulations	Wastewater												
	Regulated value according to the Water Pollution Control Law	Unit	Regulated value	Actual value			Regulated value	Actual value			Regulated value	Actual value	
Item			Maximum	Minimum	Average		Maximum	Minimum	Average		Maximum	Minimum	Average
pH	5.8-8.6	5.8-8.6	7.6	6.1	6.7	5.8-8.6	7.6	7.1	7.4	5.8-8.6	7.4	6.9	7.1
BOD	160 mg/l	80	25	0.6	5.2	65	4.9	0.8	1.9	25	15.5	3.0	8.1
COD	160 mg/l	80	34.0	1	6.4	65	5.7	2.1	3.7	25	15.1	5.9	10.6
Suspended substances (SS)	200 mg/l	120	11.0	ND	4.0	110	10.6	1.6	3.9	50	23.0	1.6	7.6
Mineral oils	5 mg/l	5	1.9	ND	0.5	3	0.4	ND	0.2	5	1.1	ND	0.6
Copper	3 mg/l	3	ND	ND	ND	3	ND	ND	ND	3	ND	ND	ND
Zinc	5 mg/l	5	0.15	ND	0.07	5	0.04	0.03	0.04	5	0.08	ND	0.06
Nitrogen	120 mg/l	120	35	1.4	9.5	120	12.7	3.7	8.2	20	5.5	2.0	4.0
Phosphorus	16 mg/l	16	2.7	0.01	0.7	16	1.17	0.44	0.76	2	0.43	0.19	0.27
Cadmium	0.1 mg/l	0.1	ND	ND	ND	0.01	ND	ND	ND	0.1	ND	ND	ND
Lead	0.1 mg/l	0.1	ND	ND	ND	0.05	ND	ND	ND	0.1	ND	ND	ND
Chromium (VI)	0.5 mg/l	0.5	ND	ND	ND	0.05	ND	ND	ND	0.1	ND	ND	ND
Trichloroethylene	0.3 mg/l	0.3	ND	ND	ND	0.03	0.002	ND	0.002	0.3	ND	ND	ND
Tetrachloroethylene	0.1 mg/l	0.1	ND	ND	ND	0.01	0.003	0.002	0.0023	0.1	ND	ND	ND
Dichloromethane	0.2 mg/l	0.2	ND	ND	ND	0.02	ND	ND	ND	0.2	—	—	—
1,1,1-trichloroethane	3 mg/l	3	0.003	ND	0.001	1	0.003	0.002	0.003	3	ND	ND	ND

\*Regulated values are in accordance with the Water Pollution Control Law and ordinances by local governments. \*ND indicates a value below the lower limit of detection.

\*ND is considered to be the lower limit of detection when calculating the average. \*Other items are confirmed to be below the regulated value.

Major Performance	Environmental impact											
	Item	Actual value			Item	Actual value			Item	Actual value		
	Total CO <sub>2</sub> emissions	45,914 t-CO <sub>2</sub>			Total CO <sub>2</sub> emissions	31,545 t-CO <sub>2</sub>			Total CO <sub>2</sub> emissions	72,110 t-CO <sub>2</sub>		
	NOx total amount	64,928 kg			NOx total amount	4,182 kg			NOx total amount	113,933 kg		
	SOx total amount	3,324 kg			SOx total amount	1,119 kg			SOx total amount	1,053 kg		
	Total emissions of waste	3,534 t			Total emissions of waste	1,709 t			Total emissions of waste	5,446 t		
	Amount recycled	3,527 t			Amount recycled	1,709 t			Amount recycled	5,446 t		
	Recycling ratio	100 %			Recycling ratio	100 %			Recycling ratio	100 %		
	BOD emissions	22,586 kg			BOD emissions	511 kg			BOD emissions	4,724 kg		
	COD emissions	27,629 kg			COD emissions	973 kg			COD emissions	6,168 kg		
Wastewater	4,322,715 m <sup>3</sup> /year			Wastewater	263,076 m <sup>3</sup> /year			Wastewater	581,400 m <sup>3</sup> /year			
Energy consumption												
Item	Actual consumption	Converted to calorie equivalents (GJ)		Item	Actual consumption	Converted to calorie equivalents (GJ)		Item	Actual consumption	Converted to calorie equivalents (GJ)		
Electricity	70,297 MWh	720,539		Electricity	59,029 MWh	605,047		Electricity	44,761 MWh	458,800		
Heavy oil A	4,487 kl	174,685		Heavy oil A	55 kl	2,141		Heavy oil A	404 kl	15,712		
Kerosene	143 kl	5,319		Kerosene	1,466 kl	54,617		Kerosene	17,168 kl	639,611		
Light oil	81 kl	3,115		Light oil	0 kl	0		Light oil	3,561 kl	137,141		
LPG, et al		103,927		LPG, et al		99,118		LPG, et al		13,668		
Total		1,007,585		Total		760,924		Total		1,264,932		

\*Data for the Awazu Plant include data for Komatsu Engineering (Awazu)

Mooka Plant (established in 1971)	Construction Equipment Electronics Division (established in 1966)	Research Division (established in 1985)	Komatsu Zenoah Co. Kawagoe Plant (established in 1965)
Mooka, Tochigi Prefecture	Hiratsuka, Kanagawa Prefecture	Hiratsuka, Kanagawa Prefecture	Kawagoe, Saitama Prefecture
Large wheel loaders, rough-terrain cranes, dump trucks, motor graders, road-related equipment, etc.	Control equipment for construction equipment, thermoelectric modules, temperature control equipment, etc.	R&D on business fields of the Komatsu Group	Mini construction equipment, small outdoor power equipment (trimmers/brush cutters, chipper shredders, etc.), overhauling of aircraft engines, etc.
320/66	40/2	224/23	107/44
964	357	286	637
April 2000	March 2000	—	July 2002

Facility	Regulated value	Actual value	Facility	Regulated value	Actual value	Facility	Regulated value	Actual value	Facility	Regulated value	Actual value
Boiler	180	62	N/A	—	—	Service generator	180	170	Cogeneration engine	950	860
Diesel engine	950	760				Cold/hot water generator	134	34	Hot water boiler	180	75
K-value regulation	8.0	1.6				K-value regulation	11.5	0.78	K-value regulation	9.0	0.04
Boiler	0.3	0.006	N/A	—	—	Service generator	0.13	0.008	Cogeneration engine	0.1	0.1
Diesel engine	0.1	0.055				Cold/hot water generator	0.26	0.002	Hot water boiler	0.3	0.002

Regulated value	Actual value			Regulated value	Actual value			Regulated value	Actual value			Regulated value	Actual value		
	Maximum	Minimum	Average		Maximum	Minimum	Average		Maximum	Minimum	Average		Maximum	Minimum	Average
5.8–8.6	7.7	7.1	7.4	5.0–9.0	8.3	6.0	7.4	5.8–8.6	8.8*	6.8	7.5	5.0–9.0	8	6.2	7.2
25	17.0	ND	7.2	600	230	21	63	10	7	ND	3	600	180	0.9	45
25	24.0	6.1	16.0	—	—	—	—	25	17	3	6.5	—	—	—	—
50	6.8	ND	5.2	600	97	7	33	65	52	ND	11.8	600	47	ND	11.8
5	ND	ND	ND	5	ND	ND	—	5	ND	ND	ND	5	4	ND	2.2
3	ND	ND	ND	3	ND	ND	—	1	0.05	ND	0.05	3	ND	ND	ND
5	0.3	ND	0.1	5	ND	ND	—	1	0.12	ND	0.05	5	ND	ND	ND
120	56.0	4.1	28.2	—	—	—	—	—	—	—	—	240	19	0.1	8.2
16	6.7	0.3	3.0	32	1.1	1.1	—	—	—	—	—	32	0.7	ND	0.3
0.1	ND	ND	ND	0.1	ND	ND	—	0.1	ND	ND	ND	0.1	ND	ND	ND
0.1	ND	ND	ND	0.1	ND	ND	—	0.1	ND	ND	ND	0.1	ND	ND	ND
0.1	ND	ND	ND	0.5	ND	ND	—	0.5	ND	ND	ND	0.5	ND	ND	ND
0.3	ND	ND	ND	0.3	ND	ND	—	0.3	ND	ND	ND	0.3	ND	ND	ND
0.1	ND	ND	ND	0.1	ND	ND	—	0.1	ND	ND	ND	0.1	ND	ND	ND
0.2	ND	ND	ND	0.2	ND	ND	—	0.2	ND	ND	ND	0.2	ND	ND	ND
3	ND	ND	ND	3	ND	ND	—	3	ND	ND	ND	3	ND	ND	ND

\*The control value for pH was exceeded because of a temporary alkalization in the regulating reservoir resulting from photosynthesis of algae.

Item	Actual value	Item	Actual value	Item	Actual value	Item	Actual value
Total CO <sub>2</sub> emissions	10,972 t-CO <sub>2</sub>	Total CO <sub>2</sub> emissions	970 t-CO <sub>2</sub>	Total CO <sub>2</sub> emissions	2,418 t-CO <sub>2</sub>	Total CO <sub>2</sub> emissions	6,104 t-CO <sub>2</sub>
NOx total amount	181,187 kg	NOx total amount	0 kg	NOx total amount	2,685 kg	NOx total amount	19,023 kg
SOx total amount	5,939 kg	SOx total amount	0 kg	SOx total amount	270 kg	SOx total amount	389 kg
Total emissions of waste	1,366 t	Total emissions of waste	131 t	Total emissions of waste	256 t	Total emissions of waste	1,103 t
Amount recycled	1,366 t	Amount recycled	131 t	Amount recycled	235 t	Amount recycled	1,101 t
Recycling ratio	100 %	Recycling ratio	100 %	Recycling ratio	92 %	Recycling ratio	100 %
BOD emissions	192 kg	BOD emissions	1,147 kg	BOD emissions	15 kg	BOD emissions	2,447 kg
COD emissions	431 kg	COD emissions	— kg	COD emissions	32 kg	COD emissions	81 kg
Wastewater	26,886 m <sup>3</sup> /year	Wastewater	22,168 m <sup>3</sup> /year	Wastewater	4,892 m <sup>3</sup> /year	Wastewater	54,013 m <sup>3</sup> /year

Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)
Electricity	4,338 MWh	44,460	Electricity	2,438 MWh	24,994	Electricity	3,524 MWh	36,122	Electricity	5,966 MWh	61,152
Heavy oil A	3,118 kℓ	121,365	Heavy oil A	0 kℓ	0	Heavy oil A	312 kℓ	12,146	Heavy oil A	1,025 kℓ	39,907
Kerosene	34 kℓ	1,276	Kerosene	0 kℓ	0	Kerosene	56 kℓ	2,091	Kerosene	1 kℓ	34
Light oil	130 kℓ	5,016	Light oil	0 kℓ	0	Light oil	4 kℓ	171	Light oil	105 kℓ	4,061
LPG, et al		7,625	LPG, et al		707	LPG, et al		1,142	LPG, et al		12,558
Total		179,741	Total		25,701	Total		51,672	Total		117,712

## Environmental Data by Manufacturing Facility

Overview	Manufacturing facility	Komatsu Zenoah Co. Koriyama Plant (established in 1995)	Komatsu Electronic Metals Co., Ltd. Hiratsuka Technical Center (established in 1961)	Komatsu Electronic Metals Co., Ltd. Nagasaki Plant (established in 1985)
	Location	Koriyama, Fukushima Prefecture	Hiratsuka, Kanagawa Prefecture	Omura, Nagasaki Prefecture
	Main products	Hydraulic cylinders, swivel joints, gear pumps	R&D on wafers	Mirror-polished wafers, epitaxial wafers
	Site/building area (1,000 m <sup>2</sup> )	296/23	27/9	144/41
	Number of employees	251	113	1,219
	Date of ISO14001 certification acquisition	July 2002	November 1998	April 1998

\*The number of employees includes those working for Komatsu affiliates on the premises.

\*Established year means as Komatsu Group.

Compliance Conditions to Major Regulations	Air										
	Item	Unit	Facility	Regulated value	Actual value	Facility	Regulated value	Actual value	Facility	Regulated value	Actual value
	Nitrogen oxides (NOx)	ppm	N/A	—	—	N/A	—	—	Boiler	260	120
		ppm									
		ppm									
	Sulfur oxides (SOx)	—							K-value regulation	17.5	0.02
	Soot and dust	g/m <sup>3</sup> N	Tempering (electric) furnace	0.2	0.003	N/A	—	—	Boiler	0.3	0.01
		g/m <sup>3</sup> N	Baking (electric) furnace	0.2	0.003						
		g/m <sup>3</sup> N									
g/m <sup>3</sup> N											
g/m <sup>3</sup> N											

\*Regulated values are in accordance with the Air Pollution Control Law and local regulations.

Compliance Conditions to Major Regulations	Wastewater													
	Item	Regulated value according to the Water Pollution Control Law Unit	Regulated value	Actual value			Regulated value	Actual value			Regulated value	Actual value		
				Maximum	Minimum	Average		Maximum	Minimum	Average		Maximum	Minimum	Average
	pH	5.8-8.6	5.8-8.6	7.2	6.3	6.8	5.7-8.7	7.8	6.7	7.3	5.9-8.5	7.3	6.9	7.2
	BOD	160 mg/l	40	29	ND	11.9	300	3.5	1.4	2.2	200	52.0	19.4	33.4
	COD	160 mg/l	40	19	6.5	12.9	160	6.5	1.4	4.3	180	23.4	5.3	9.7
	Suspended substances (SS)	200 mg/l	70	16	ND	6.8	300	76	4	21.6	200	76	7	19
	Mineral oils	5 mg/l	1	1	ND	0.6	5	0.8	ND	0.5	3	0.9	ND	0.6
	Copper	3 mg/l	2	0.2	0.2	—	3	ND	ND	ND	1	ND	ND	ND
	Zinc	5 mg/l	4	0.2	0.2	—	3	0.28	0.05	0.13	0.5	0.03	0.02	0.025
	Nitrogen	120 mg/l	120	24	24	—	125	3.4	2.7	3.1	216	187	61	114
	Phosphorus	16 mg/l	16	2.4	2.4	—	32	0.6	0.49	0.6	3.2	0.1	0.03	0.05
	Cadmium	0.1 mg/l	0.1	ND	ND	—	0.1	ND	ND	ND	0.01	ND	ND	ND
	Lead	0.1 mg/l	0.1	ND	ND	—	0.1	0.007	ND	0.006	0.01	ND	ND	ND
	Chromium (VI)	0.5 mg/l	0.2	ND	ND	ND	0.5	ND	ND	ND	0.05	ND	ND	ND
Trichloroethylene	0.3 mg/l	0.3	ND	ND	—	0.3	ND	ND	ND	0.03	0.001	ND	0.001	
Tetrachloroethylene	0.1 mg/l	0.1	ND	ND	—	0.1	ND	ND	ND	0.01	ND	ND	ND	
Dichloromethane	0.2 mg/l	0.2	ND	ND	—	0.2	ND	ND	ND	0.02	ND	ND	ND	
1,1,1-trichloroethane	3 mg/l	3	ND	ND	—	3	ND	ND	ND	0.03	ND	ND	ND	

\*Regulated values are in accordance with the Water Pollution Control Law and ordinances by local governments. \*ND indicates a value below the lower limit of detection.

\*ND is considered to be the lower limit of detection when calculating the average. \*Other items are confirmed to be below the regulated value.

Major Performance	Environmental impact					
	Item	Actual value	Item	Actual value	Item	Actual value
	Total CO <sub>2</sub> emissions	7,272 t-CO <sub>2</sub>	Total CO <sub>2</sub> emissions	2,900 t-CO <sub>2</sub>	Total CO <sub>2</sub> emissions	103,485 t-CO <sub>2</sub>
	NOx total amount	0 kg	NOx total amount	0 kg	NOx total amount	4,424 kg
	SOx total amount	0 kg	SOx total amount	0 kg	SOx total amount	145 kg
	Total emissions of waste	1,082 t	Total emissions of waste	66 t	Total emissions of waste	5,321 t
	Amount recycled	941 t	Amount recycled	65 t	Amount recycled	5,312 t
	Recycling ratio	87 %	Recycling ratio	99 %	Recycling ratio	100 %
	BOD emissions	224 kg	BOD emissions	102 kg	BOD emissions	56,097 kg
	COD emissions	189 kg	COD emissions	202 kg	COD emissions	16,280 kg
Wastewater	13,808 m <sup>3</sup> /year	Wastewater	47,233 m <sup>3</sup> /year	Wastewater	1,678,308 m <sup>3</sup> /year	
Energy consumption						
Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)	
Electricity	16,360 MWh	167,694	Electricity	7,552 MWh	77,408	
Heavy oil A	0 kℓ	0	Heavy oil A	0 kℓ	0	
Kerosene	0 kℓ	0	Kerosene	0 kℓ	0	
Light oil	0 kℓ	0	Light oil	0 kℓ	0	
LPG, et al	16,532	167,694	LPG, et al	0	0	
Total		184,226	Total		77,408	
					2,670,612	

\*The conversion factor for calorie employs the FY1999 guidelines for calculation designed by the Ministry of the Environment based on the Law Concerning the Promotion of Measures to Cope with Global Warming.

Komatsu Electronic Metals Co., Ltd. Miyazaki Plant (established in 1973)	Komatsu Forklift Co., Ltd. Tochigi Plant (established in 1968)	Komatsu Castex Ltd. Himi Plant (established in 1952)	Komatsu House Ltd. (established in 1971)
Miyazaki-gun, Miyazaki Prefecture	Oyama, Tochigi Prefecture	Himi, Toyama Prefecture	Shinshiro, Aichi Prefecture
Mirror-polished wafers, wafers for discrete products	Forklift trucks, automated guided vehicles, automated warehouses, and refrigerated warehouses, etc.	Iron castings, steel castings, molds for casting, etc.	Prefabricated structures for businesses
55/14	217/48	403/63	31/10
714	821	600	84
December 1998	February 1998	January 2000	March 2002

\*Komatsu Castex Ltd. is the successor company of the former Komatsu Castex Ltd. established in 1952.

Facility	Regulated value	Actual value	Facility	Regulated value	Actual value	Facility	Regulated value	Actual value	Facility	Regulated value	Actual value
Boiler	180	78	Small boilers*	(260.0)	77	Annealing furnace	200	72	Boiler	250	82
						Annealing furnace (small)	180	32			
						Calciners	220	13			
K-value regulation	17.5	0.55	K-value regulation	7.0	0.13	K-value regulation	17.5	5 or less	K-value regulation	9.0	0.27
						Fuel sulfur (%)	0.96	0.4 or less			
Boiler	0.3	0.014	Small boilers*	(0.5)	0.005	Annealing furnace	0.25	0.01 or less	Boiler	0.3	0.003
						Annealing furnace (small)	0.2	0.01 or less			
						Calciners	0.15	0.01 or less			
						Arch furnace	0.1	0.01 or less			
						Cupola furnace	0.2	0.01 or less			

\*Regulated values of NOx, soot and dust are in accordance with self-regulatory measures, because these boilers are small.

Regulated value	Actual value			Regulated value	Actual value			Regulated value	Actual value			Regulated value	Actual value		
	Maximum	Minimum	Average		Maximum	Minimum	Average		Maximum	Minimum	Average		Maximum	Minimum	Average
5.8-8.6	7.4	6.9	7.2	5.8-8.6	7.7	6.9	7.2	5.8-8.6	7.5	7.2	7.3	5.8-8.6	7.5	6.6	7.0
25	3.3	0.7	2.0	30	18.2	0.8	6.7	20	3.2	1.1	2.2	25	20	3	10.0
160	4.1	1.3	2.2	30	15.2	0.5	4.9	120	4.1	2.8	3	160	73	4.6	16.4
30	2	ND	1.1	50	5	ND	5.4	100	37	4	16.0	120	8	ND	1.8
5	ND	ND	ND	5	ND	ND	ND	5	ND	ND	ND	5	1	ND	1.0
3	0.01	ND	0.01	3	ND	ND	ND	1	ND	ND	ND	—	—	—	—
5	ND	ND	ND	5	0.06	ND	0.11	1	ND	ND	ND	—	—	—	—
120	6	3.1	4.3	20	7.2	1.4	3.0	60	15	1.9	8.5	120	64	6.1	30.9
—	—	—	—	2	0.5	0.3	0.3	8	0.05	ND	0.05	16	15	0.1	2.4
0.1	ND	ND	ND	0.1	ND	ND	ND	0.1	ND	ND	ND	—	—	—	—
0.1	ND	ND	ND	0.1	ND	ND	ND	0.1	ND	ND	ND	—	—	—	—
0.2	ND	ND	ND	0.5	ND	ND	ND	0.5	ND	ND	ND	—	—	—	—
0.3	ND	ND	ND	0.3	ND	ND	ND	0.3	—	—	—	—	—	—	—
0.1	ND	ND	ND	0.1	ND	ND	ND	0.1	—	—	—	—	—	—	—
0.2	ND	ND	ND	0.2	ND	ND	ND	0.2	—	—	—	—	—	—	—
3	ND	ND	ND	3	ND	ND	ND	3	—	—	—	—	—	—	—

Item	Actual value	Item	Actual value	Item	Actual value	Item	Actual value
Total CO <sub>2</sub> emissions	42,446 t-CO <sub>2</sub>	Total CO <sub>2</sub> emissions	10,620 t-CO <sub>2</sub>	Total CO <sub>2</sub> emissions	50,224 t-CO <sub>2</sub>	Total CO <sub>2</sub> emissions	1,079 t-CO <sub>2</sub>
NOx total amount	6,516 kg	NOx total amount	7,027 kg	NOx total amount	6,828 kg	NOx total amount	1,016 kg
SOx total amount	2,048 kg	SOx total amount	5,343 kg	SOx total amount	16,675 kg	SOx total amount	836 kg
Total emissions of waste	7,241 t	Total emissions of waste	2,231 t	Total emissions of waste	19,555 t	Total emissions of waste	408 t
Amount recycled	7,230 t	Amount recycled	2,231 t	Amount recycled	18,948 t	Amount recycled	310 t
Recycling ratio	100 %	Recycling ratio	100 %	Recycling ratio	97 %	Recycling ratio	76 %
BOD emissions	4,803 kg	BOD emissions	466 kg	BOD emissions	699 kg	BOD emissions	79 kg
COD emissions	5,357 kg	COD emissions	340 kg	COD emissions	1,072 kg	COD emissions	131 kg
Wastewater	2,462,941 m <sup>3</sup> /year	Wastewater	70,073 m <sup>3</sup> /year	Wastewater	317,630 m <sup>3</sup> /year	Wastewater	7,946 m <sup>3</sup> /year

Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)
Electricity	90,541 MWh	928,045	Electricity	12,737 MWh	130,549	Electricity	69,814 MWh	715,594	Electricity	887 MWh	9,092
Heavy oil A	1,668 kℓ	64,916	Heavy oil A	1,544 kℓ	60,108	Heavy oil A	1,876 kℓ	73,033	Heavy oil A	96 kℓ	3,737
Kerosene	1,258 kℓ	46,849	Kerosene	12 kℓ	447	Kerosene	1,094 kℓ	40,758	Kerosene	3 kℓ	112
Light oil	0 kℓ	0	Light oil	117 kℓ	4,516	Light oil	0 kℓ	0	Light oil	14 kℓ	539
LPG, et al	0	0	LPG, et al		20,244	LPG, et al		165,856	LPG, et al		7,269
Total		1,039,810	Total		215,864	Total		995,240	Total		20,749

# Environmental Data by Overseas Manufacturing Facility

## Europe

Overview	Manufacturing facilities	KUK	KOHAG	KMG	KUE
		Komatsu UK Ltd.	Komatsu Hanomag GmbH	Komatsu Mining Germany GmbH	Komatsu Utility Europe S.p.A.
	Location	Birtley, United Kingdom	Hannover, Germany	Dusseldorf, Germany	Este (PD), Italy
	Main products	Hydraulic excavators	Wheel loaders, compactors	Ultra-large hydraulic excavators	Utility equipment (small construction equipment)
	Number of employees people	645	527	396	676
	Date of ISO14001 certification acquisition	December 1998	September 2000	July 2002	November 2001
Energy consumption	Electricity MWh	9,970	7,333	4,969	4,655
	Heavy oil and light oil kl	304	—	4	—
	Natural gas thousand m <sup>3</sup>	1,465	897	1,215	821
	LPG, et al t	—	—	—	—
	Total energy consumption GJ	151,476	103,723	90,755	61,457
Environmental Impact	CO <sub>2</sub> t-CO <sub>2</sub>	7,193	5,942	5,131	4,156
	Water consumption t	11,105	8,828	9,608	8,058
	Total emissions of waste t	1,900	540	2,297	1,984

### Notes

1. All data, except the number of employees, were derived from performances of all manufacturing facilities during FY2003. The number of employees was based on the companies' data as of March 31, 2004.
2. Conversion to CO<sub>2</sub> and total energy consumption were based on statistical data of each region, country, and that of IEA for 2000.
3. Total emissions of waste are expressed as a composite of the amount recycled and the amount disposed.

## The Americas

Overview	Manufacturing facilities	KAC				KMX	KDB	ASIMI-B
		Komatsu America Corp.				Komatsu Mexicana S.A. de C.V.	Komatsu do Brasil Ltda.	Advanced Silicon Materials LLC Bute Plant
		Chattanooga Manufacturing Operation	Candiac Manufacturing Operation	Peoria Manufacturing Operation	Newberry Manufacturing Operation			
	Location	Tennessee, U.S.A.	Quebec, Canada	Illinois, U.S.A.	South Carolina, U.S.A.	Sahagun, Mexico	Sao Paulo, Brazil CEP	Montana, U.S.A.
	Main products	Hydraulic excavators, motor graders	Wheel loaders	Large wheel loaders, large dump trucks	Utility equipment (small construction equipment)	Attachments for construction and mining equipment	Hydraulic excavators, bulldozers	Polycrystalline silicon and silane
	Number of employees people	291	254	435	108	254	536	260
	Date of ISO14001 certification acquisition	April 1998	October 1999	March 2002	March 2004	September 2001	January 2002	December 2000
Energy consumption	Electricity MWh	9,519	7,372	15,676	2,714	2,946	19,036	467,377
	Heavy oil and light oil kl	361	—	60	—	28	460	10
	Natural gas thousand m <sup>3</sup>	1,167	1,152	2,921	14,230	—	—	10,842
	LPG, et al t	LPG 22.18	—	LPG 19	—	LPG 24.19	LPG 75	LPG 2.7
	Total energy consumption GJ	153,838	69,819	253,311	622,388	30,302	112,419	2,379,019
Environmental Impact	CO <sub>2</sub> t-CO <sub>2</sub>	8,396	2,361	20,183	30,898	1,633	2,278	46,769
	Water consumption t	10,748	6,121	51,897	420	4,482	22,000	1,155,597
	Total emissions of waste t	1,752	1,237	1,813	108	8.3	4,089	1,756

## Asia

Overview	Manufacturing facilities	KI	BKC	LTK	KSC	KCCM	KCF	FKS
		PT Komatsu Indonesia Tbk	Bangkok Komatsu Co., Ltd.	L&T-Komatsu Limited	Komatsu Shantui Construction Machinery Co., Ltd.	Komatsu (Changzhou) Construction Machinery Corp.	Komatsu (Changzhou) Foundry Corporation	Formosa Komatsu Silicon Corporation Mailiao Plant
	Location	Jakarta, Indonesia	Chonburi, Thailand	Bangalore, India	Shandong, People's Republic of China	Jiangsu, People's Republic of China	Jiangsu, People's Republic of China	Yunlin, Taiwan R.O.C.
	Main products	Hydraulic excavators, bulldozers, wheel loaders	Hydraulic excavators	Hydraulic excavators	Hydraulic excavators	Wheel loaders, hydraulic excavators, motor graders	Iron castings and foundry molds for construction and mining equipment	Silicon wafers
	Number of employees people	782	396	685	436	199	241	486
	Date of ISO14001 certification acquisition	June 2000	September 2001	June 1999	December 2000	September 2000	December 1999	March 2001
Energy consumption	Electricity MWh	20,384	2,677	6,320	11,210	1,639	19,885	80,144
	Heavy oil and light oil kl	309	75	259	967	423	695	1,150.9
	Natural gas thousand m <sup>3</sup>	—	—	—	27	—	—	—
	LPG, et al t	LPG 214	LPG 12	LPG 68	Coal 365	LPG 62	Coal, LPG 5,937	—
	Total energy consumption GJ	217,740	32,215	82,246	141,946	33,141	431,452	795,800
Environmental Impact	CO <sub>2</sub> t-CO <sub>2</sub>	12,509	2,215	5,125	11,069	2,416	34,206	46,094
	Water consumption t	95,249	15,792	54,885	133,000	32,936	134,274	1,178,389
	Total emissions of waste t	986	393	787	466.1	338	15,559	3,998

## Regarding the Independent Review

Komatsu views the independent review process as crucial for ensuring the integrity and objectivity of its *Environmental & Social Report*. For that reason, Komatsu has received an independent review from Tohatsu Environmental Research Institute Ltd., a member of the

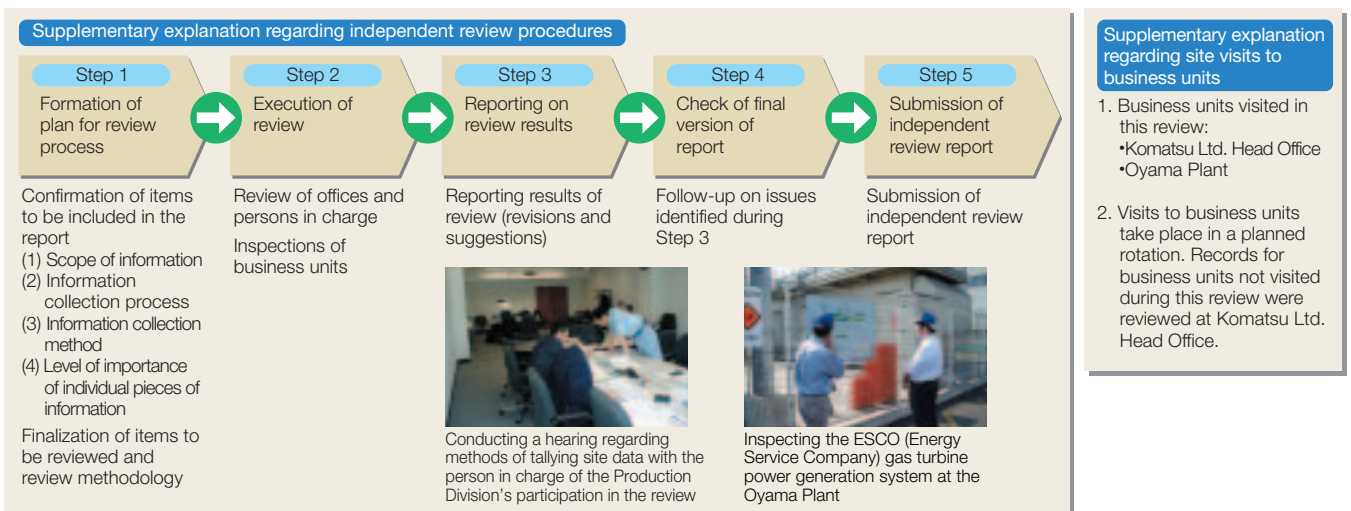
Deloitte Touche Tohmatsu Group. The results are as represented below with regard to the information appearing in the *Environmental & Social Report 2004*.

<http://www.teri.tohmatsu.co.jp/English/index.html>



## Supplementary Explanation Regarding the Conducting of Independent Review Procedures

As a supplementary explanation, the following provides an overview of the review procedures conducted during an independent review.



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Komatsu Earth Environment Committee  
(Environmental Affairs Department)

•Further information on Komatsu's environmental activities can be found  
on the Komatsu homepage.

<http://www.komatsu.com/en/CompanyInfo/ecology/index.html>

•Komatsu welcomes your comments.

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