## Promotion of Environmental Management



"Environmentally conscious corporate management" is one of the priority initiatives of our medium-term business plan "Global K." This is our determination to commit ourselves to the betterment of the environment in every aspect of our business activities through conducting business with a focus on reducing the environmental impact of both our products and our production activities.

## Furthering "Environmental Management" under the Medium-Term Business Plan "Global K"

In 2003, Kawasaki established the 2010 Environmental Vision: "What Kawasaki Should Be in the Year 2010" as guidelines for seeking the improvement of environmental management. In pursuit of this vision, we undertake environmental activities under our Environmental Management Activities Plan, which is set with specific details every three years.

In order to realize our vision of What Kawasaki Should Be in the Year 2010, we began the 6th Environmental Management Activities Plan in FY2008. In this, we have included systems that allow follow-up with effective efforts to further promote environmental management based on the medium-term business plan "Global K." For example, we have incorporated policies related to reducing the amount of greenhouse gas emissions and reducing environmental risks into the business plan.

#### The 2010 Environmental Vision: "What Kawasaki Should Be in the Year 2010"

Environmental Philosophy	<ul> <li>Actions by all employees are taken with concern for the environment, not only at work, but also in their local communities and homes, in accord with our Environmental Philosophy, which declares our commitments to the realization of a sustainable society.</li> </ul>
Environmental Management	<ul> <li>Implementation of an Environmental Management System (EMS) and actions are taken based on this EMS by all employees.</li> <li>Incorporation of environmental considerations into the business management of each internal company</li> </ul>
Wanagement	enhances their environmental management levels.  •An environmental management information system is created.
Environmentally	Design for Environment (DfE) is used for all products to enhance their environmental efficiency.
Conscious Products	<ul> <li>Products are offered that help protect the environment, thus contributing to the environment, society and businesses.</li> </ul>
Environmentally	Administrative penalties and administrative measures are avoided, and voluntary control standards based on the needs of society are established to improve environmental control levels.
	Every production activity is free of irrationality and waste to enhance the efficient utilization of resources and energies.
Conscious Production	•Total greenhouse gas emissions in FY2010 are reduced by 6% relative to the FY1990 level.
	•Total waste production in FY2010 is reduced by 10% relative to the FY2000 level.
	Maintenance of zero emissions (recycling rate 100%) is realized in all works.
	•The use of hazardous chemical substances is reduced.
Environmental Communication	Kawasaki Environmental Reports that comply with the needs of society are published.      Communication with stakeholders is promoted.
Communication	•The entire corporation and all employees are committed to environmental improvement in local communities.

#### **Environmental Management System**



## Establishing Internal Systems for the Reduction of Greenhouse Gas Emissions

#### Strengthening Activities by Coordinating and Integrating Them with Our Business Plan

The First Commitment Period of the Kyoto Protocol started this year, increasing the opportunity to reduce greenhouse gas emissions worldwide and prevent global warming. At the G8 meeting of environmental ministers in May, the Toyako Summit in July and other international conferences held successively in Japan, creating a global framework after the Kyoto Protocol has been an important topic of discussion. Common recognition of the importance and urgency of preventing global warming is spreading worldwide.

In FY2008, Kawasaki began our three-year 6th Environmental Management Activities Plan. In this 6th plan, we place great emphasis on the reduction of greenhouse gas emissions, and we are also focusing on strengthening its promotion to increase the results of our activities through follow-up with our business plan. For example, we actively study the use of cogeneration and photovoltaic systems, energy saving lamps and other equipment with reduced environmental impacts when building new factories and renewing equipment.

At the same time, we are promoting the reduction of greenhouse gas emissions through our production activities, such as, conducting energy saving diagnoses of our plants, eliminating energy waste and improving energy efficiency in production processes. At our offices, we are turning off lights during lunch breaks and after ordinary working hours and putting other energy saving efforts into practice.

We also continue to encourage employees to reduce the use of cooling and heating energy by wearing clothes that are appropriate to the season (so-called, Warmbiz, Coolbiz). Moreover, we are continuously educating employees to increase their awareness of the importance of their individual behavior for the prevention of global warming not only at work but also at home.

To manufacture Kawasaki products in our environmentally conscious plants, without energy waste or toxic emissions, is to surely contribute to the prevention of global warming also to achieve high levels of customer satisfaction, which is the essence of our business. We will continue to endeavor for the advancement of environmental management in both our production activities and in our products and technologies themselves, because the reduction of CO<sub>2</sub>

emissions is one of the most important issues for our management.



Yasuo Murata

Chief Environmental Officer Senior Manager of General Administration Department (executive officer)

#### **Environmental Charter**

(Established in 1999)

#### **Environmental Philosophy**

As a company in key industries related to land, sea and air, Kawasaki is deploying its business activities globally in pursuit of reducing environmental impact and creating a sustainable society. This makes us to commit ourselves to contribute to the sustainable development of society through our environmentally conscious business activities, technologies and products that preserve the global environment.

#### **Conduct Guidelines**

- 1. Recognizing that global environmental protection is a common and serious issue for humankind, Kawasaki will positively volunteer to engage itself in harmonizing with the environment globally. We shall regard this as one of the most important strategies when we deploy our business activities.
- 2. During its production stages, Kawasaki will endeavor to conserve resources, to save energy, to recycle resources and to reduce industrial waste and will promote the reduction of environmental impact.
- In the new product planning (i.e. research and development) and designing stages, Kawasaki will render careful attention throughout the procurement, production, distribution, utilization and material disposal stages in order to minimize the environmental impact.
- 4. In seeking solutions to global environmental issues, Kawasaki will do its best to develop and provide new technologies and new products that contribute to environmental protection, energy saving and resource conservation.
- 5. Notwithstanding its compliance with environmentally related institutional laws, regulations and agreements and voluntary action plans of each industry concerned, Kawasaki will voluntarily institute its own environmental control standards as an appropriate and necessary action in order to strive to improve environmental control levels.
- 6. Through environmental training and public awareness activities, Kawasaki will strive to enlighten all its employees on global environmental issues and will support individual views, lifestyles and will encourage their participation in the social activities and services.
- 7. Kawasaki will implement an environmental management system to promote environmental preservation and conservation, and hold regular conferences to review management systems and maintain continual improvement.

# Achievements and Appraisal of Environmental Management Activities

Toward Our Environmental Vision: "What Kawasaki Should Be in the Year 2010"



In 2003, Kawasaki established the 2010 Environmental Vision: "What Kawasaki Should Be in the Year 2010" as guidelines for pursuing the improvement of environmental management. As 2010 approaches, we have set the 6th Environmental Management Activities Plan (for FY 2008 to 2010), and we are working to strengthen and advance activities to achieve targets.

(Evaluation Criteria) A: Achieved; B: 70% or higher achievement rate; C: Less than 70% achievement rate

7, 0	on and advance activities to achieve targets.		
5th Environmental Management Activities Plan (FY 2006 to 2007)	Achievements of the 5th Environmental Management Activities Plan (FY 2006 to 2007)	Evaluation	6th Environmental Management Activities Plan (FY 2008 to 2010) Priority Initiatives in FY2008
Environmental Philosophy Raising the level of env	ironmental awareness of employees in the Kawasaki Group		Environmental Management Promotion of environmental management to increase the social trust of the Kawasaki Group
a. Promoting the construction of an environmental education system through the use of IT     b. Continuation of activities to provide information to educate employees in environmental issues	a. Created environmental E-learning system and put it to use throughout Kawasaki     b. "Message from the President," "Environmental News" and other internal publications were issued to promote environmental education.	A	1. Follow-up incorporated in business plan  1) Efforts to reduce greenhouse gas emissions  a. Total quantity reduction target: 6% reduction compared to FY1990 total  b. Establish evaluation by basic unit per net sales  1) Efforts for CO <sub>2</sub> emissions reduction  a. Implement thorough independent reduction effort in every division through energy saving diagnosis  b. Set targets based on basic unit per net sales
Environmental Management Promotion of environ Kawasaki Group	mental management to increase the social trust of the		2) Reduce latent risks through environment-related equipment plan a. Determine latent risk measures and budgeting plan b. Determine plan for renewal of specific environmental equipment  2) Rank equipment with high degrees of danger using risk review evaluations a. Subject: wastewater treatment equipment
a. Promoting the development of EMS among our subsidiaries around the globe     b. Promoting risk review activities to reassess environmental risks     – "Understanding of environmental risk" and EMS review	a. Continued enlarging extent of EMS development; completed for 46 of 59 companies in Japan and 6 of 13 companies abroad     b. Determined latent risks at every plant and incorporated measures in business plan	В	that is aging  c. Determine measures and budgeting plan for the reduction of hazardous chemicals emissions  d. Determine PCB disposal plan  b. Equipment that has already undergone risk review and equipment that is pending at divisions  c. Establish equipment investment plan for the reduction of the quantity of hazardous chemicals handled
based on that viewpoint  c. Establish an environmental risk management system  — Implementation of appropriate and quick response on the part of the entire Group based on legal compliance  d. Development of an environmental management information system for the entire Kawasaki Group	c. Reconfirmed suitable treatment of waste, for example, and arranged systems for compliance with laws and regulations     d. Investigated objectives related to expanding the extent of environmental management data collection and improving timeliness	В	2. Environmental risk management  1) Conduct environmental conservation activities and risk management based on EMS  a. Complete development of EMS at subsidiaries in Japan and abroad b. Investigate improving the precision of environmental data and expanding the extent of collection  1) Develop EMS in the Kawasaki Heavy Industries Group a. Achievement rate: Japan (87%), abroad (53%) b. Promote use of environmental data collection management system in environmental management
	the sustainable development of society through technologies conducive to environmental impact alleviation		2) Risk management through review of risks in production and environmental equipment environmental equipment  - Rank the degree of danger in target equipment through latent risk evaluations (Reflect in environment-related equipment plan)  2) Identify latent risks in production and environmental equipment based on environmental risk reviews  a. Atmospheric pollution prevention-related equipment b. Coating-related equipment
Reduction of environmental impact throughout the product lifecycle	a. Evaluated environmental performance (CO <sub>2</sub> emissions reduction effect, etc.) for main products	A	3) Establish environmental risk management systems  - Thorough compliance with laws and regulations, suitable and rapid response for reporting and consultation  3) Build smooth management systems after the occurrence or environmental problems
b. Increase in providing green products	b. Started green procurement in our Rolling Stock Company (implemented in 4 divisions)     b. Put battery-driven low-floor light rail vehicle SWIMO, high-efficiency gas engine power generation systems and	A	4) Thorough compliance with environmental laws, regulations and agreements, etc.  4) Review the environmental management rules as well as the EMS regulations of every division
	other new products into use		Environmentally Conscious Products Contribute to the sustainable development of society through technologies and products conducive to environmental impact alleviation
	th laws, regulations, and agreements related to the environment / nvironmental impact alleviation in production activities		1) Evaluate reduction of environmental impacts (CO <sub>2</sub> , SOx, NOx, etc.) in product lifecycles  1) Investigate evaluation methods for the reduction of environmental impacts in the lifecycles of main products and report them in our Report - Environmental and Social Responsibility.
<ul><li>a. No administrative penalty, measure, etc.</li><li>b. A reassessment of voluntary control standards complying with revisions and records of related laws, regulations, and</li></ul>	a. Implemented thorough guidance to prevent recurrence in response to administrative measures and warnings that occurred b. Promoted thorough compliance with laws and regulations,	СВ	2) Expand provision of green products  - Determine design and procurement guidelines to improve green procurement level in products composition  2) Announce green products and simultaneously improve green procurement level in similar products
agreements  c. Further examination of problems for measuring and reducing the amounts of resources and energy input in	including the setting of compliance standard values  c. Investigated status of energy use at every plant, and included energy saving measures in business plan	В	Environmentally Conscious Production Efforts to reduce environmental impacts with production activities that consider the production efficiency
production processes  d. Reduction in total greenhouse gas emissions toward the FY2010 goal  e. Reduction in total waste emissions toward the FY2010 goal  f. Continued effort to achieve zero emissions and expansion of this activity throughout the entire Group  g. Implementation of hazardous chemical substances	d. Greenhouse gas emissions increased by 0.3% compared to FY2006 due to increased business scale (2.9% decrease per basic unit per net sales)  e. Total waste emissions increased by 4.2% compared to FY2006 due to increased business scale (0.8% increase per basic unit per net sales)  f. OCC (required rate)	С	1) Efforts to reduce waste  a. Reduce total amount of emissions by 10% compared to FY2002 using basic unit per net sales  b. Establish basic unit per net sales evaluations c. Maintain zero emissions  1) Efforts to reduce waste  a. Investigate developing a scheme to reduce the total amount o waste emissions  b. Set targets based on basic unit per net sales
reduction program  Reduction of the total emitted amount of VOCs toward the FY2010 goal  Reduction of the handled amount of hazardous chemical substances toward the 2010 goal	f. 96% recycling rate     g. 5.9% reduction in major VOC (toluene, xylene, ethyl benzene) emissions compared to FY2006     g. 1.1% decrease in the amount of harmful heavy metals handled compared to FY2006	B C C	2) Reduce quantity of hazardous chemicals handled toward FY2010 target a. VOC (toluene, xylene, ethyl benzene) b. Dichloromethane c. Heavy metals (hexavalent chromium, lead, cadmium)  2) Execute and follow up reduction plans in every division a. VOC (toluene, xylene, ethyl benzene) c. Heavy metals (hexavalent chromium, lead)
Drafting of a plan for the disposal of waste containing PCBs	33.1parod to 1 12000		Environmental Communication
Environmental Communication Improvement of social corporate social resp	al credibility toward sustainable growth under the viewpoint of onsibility (CSR)		1) Internal environmental education and awareness-raising efforts     - Improve the environmental consciousness for Kawasaki Group employees as a whole through E-learning  1) Complete implementation of education for Kawasaki and three main subsidiaries*
a. Improvement of information disclosure     b. Promotion of communication with stakeholders     c. Positive cooperation in environmental activities with	a. Made contents of The Kawasaki Report - Environmental and Social Responsibility more thorough and promoted information disclosure	А	2) Disclose information to stakeholders  - Make corporate stance showing the contribution to the global environment available in a report  2) Disclose information through publication of our Report - Environmental and Social Responsibility to improve social trust
national and local governments			3) Actively cooperate in community environmental activities  3) Promote community activities

<sup>\*</sup>Three main subsidiaries: Kawasaki Shipbuilding Corporation, Kawasaki Precision Machinery Ltd. and Kawasaki Plant Systems, Ltd.

## **Environmental Management Activities**



Kawasaki makes the implementation of thorough environmental management system (EMS) the foundation of our environmental management activities. In addition, we are working to develop EMS and continuously improve it in our businesses. Moreover, we are actively conducting environmental risk management to prevent environmental trouble as well as undertaking education and awareness-raising activities to increase employee consciousness.

#### **Further Development of EMS**

All the production bases of Kawasaki Heavy Industries and our three main subsidiaries<sup>1</sup> in Japan have acquired ISO14001 certification. Now, we are promoting the development of EMS at our subsidiaries in Japan and abroad.

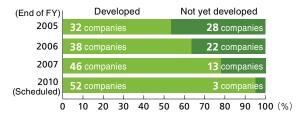
#### ISO 14001 Certification Acquisition

	Int	ternal Company	Date acquired	Registration
Kawasaki Heavy Industries		Rolling Stock Division	2002	LRQA
	Rolling Stock Company	Construction Machinery Division	2000	JICQA
	Company	Industrial Facilities and Tunneling Equipment Division	1999	JICQA
leav	Aerospace C	ompany	2002	BSK
Kawasaki F	Gas Turbine & Machinery Company	Gas Turbine Division	2000	LRQA
		Machinery Division	2000	NK
	Consumer Pi Machinery C		2000	DNV
_ v	Kawasaki Shipbuilding Corporation	Kobe Works	2002	NK
Three main subsidiaries		Sakaide Works	2000	DNV
	Kawasaki Pro Machinery Lt		1998	DNV
	Kawasaki Pla	ant Systems, Ltd.	2001	NK

■ LRQA: Lloyd's Register Quality Assurance, JICQA: JIC Quality Assurance, NK: Nippon Kaiji Kyokai (ClassNK), BSK: Bouei Choutatsu Kiban Seibi Kyoukai (Defense Procurement Framework Establishment Association of Japan), DNV: Det Norske Veritas

By the end of FY2007, 46 of our 59 subsidiaries in Japan had completed the development of EMS.

#### Status of EMS Development at Japanese Subsidiaries<sup>2</sup>



Of the 13 overseas companies where we are seeking to develop EMS, one more company, Kawasaki Precision Machinery (Suzhou) Ltd., completed EMS development in FY2007. For the remaining seven companies that do not yet have an EMS, based on local laws and regulations, we will clarify objectives according to business conditions and scale and set timeframes and otherwise implement incremental efforts for EMS development.

#### **Environmental Risk Management**

#### **Environmental Risk Review**

We undertook environmental risk reviews for wastewater treatment facilities and drainage channels, for example. At each plant, we evaluated risks and investigated measures from every perspective including manufacturing, occupational safety and environmental conservation. We also shared this information throughout our companies and summarized points for improvement. In addition to incorporating measures into our business plan based on evaluation results, we also expanded the scope of risk reviews to promote the reduction of environmental risks.

## Strict Compliance with Environment-Related Standards

We defined a "compliance standard value" as the strictest value among the values set by legal standards, regulations, and agreements. In addition to conducting thorough compliance based on our compliance standard values, we also set even more strict "internal management standard values," and have developed management systems to take preventative measures before exceeding compliance standard values.

#### **Compliance with Laws & Regulations**

#### Violations and Accidents during the Past 5 Years

FY	2003	2004	2005	2006	2007
Judicial/Administrative Penalties	0	0	1	0	0
Administrative Measures	0	0	1	1	0
Administrative Warnings	0	0	0	5	4

- Judicial/Administrative Penalties: Punishment by judicial or administrative authorities
- Administrative Measures: Receiving instructions for improvements etc. in written form
- improvements, etc. in written form
   Administrative Warnings: Receiving verbal directives concerning business practices

#### **Administrative Warnings:**

- Exceeded regulated value for the total quantity of COD emitted into the public water (two incidences at the Banshu Works)
- During waterway cleaning accumulated sludge was washed into the sea (Akashi Works)
- Oil that leaked from a pipe flowed through a rainwater drainage gutter into a canal (Hyogo Works)

<sup>&</sup>lt;sup>1</sup> Three main subsidiaries: Kawasaki Shipbuilding Corporation, Kawasaki Precision Machinery Ltd. and Kawasaki Plant Systems, Ltd.

<sup>&</sup>lt;sup>2</sup> Excluding three main subsidiaries

#### **Conducting Environmental Education** for All Employees by E-Learning

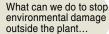
In January 2008, we began to provide environmental E-learning that can be distributed to every employee directly through the corporate intranet. In addition to explaining our organized activities, we are also emphasizing contents that encourage all our employees to understand the importance of putting behavior that is considerate of the environment into practice in their work.

Environmentally Conscious Behavior by Each Employee in Their Work and for the Company

What can I do to reduce environmental impacts when this product is used and disposed of...



How do we make energy consumption by the production line more efficient and reduce input resources.







Making the most of the advantages of E-learning, we are implementing it for all employees, from the chairman, the president and other managers to temporary workers. Course participants respond to questionnaires, and their responses are used to improve later steps.

As of June 2008, about 7,700 employees, 65% of the total, had been offered E-learning and 94% of those had taken a course. During FY2008, we plan to have every employee at Kawasaki Heavy Industries and our three main subsidiaries complete a course.

With environmental E-learning as a starting point, we continue seeking to increase the consciousness of every employee and striving to fulfill the Kawasaki Group Mission Statement goal of contributing to the environment through business activities and the creation of products that are friendly to the environment.



#### **Encouraging Further Awareness**

During Environment Month every June, a "Message from the President" about the environment is sent to all employees. In FY2008, it was about the importance of preventing global warming and called for further cooperation in greenhouse gas reduction efforts. Moreover, to give all employees direct opportunities to think about the environment, we ask them to make Environment Month Slogans. We also undertake continuous efforts through encouraging further awareness, including the Environmental News, which introduces environmental activities and improvement examples from every plant, and "Eco Mind," a part of our in-house magazine Kawasaki, which educates about environmental consideration in the local community and at home.







"Message from the President" about environmental management

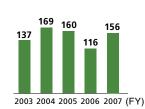
Environmental News (released 4 times a year)

Serialized column "Eco Mind" in the in-house magazine Kawasaki

#### **Cultivation of Qualified Managers**

Since 1997, we have continuously held ISO 14001 internal environmental auditing training for all of Kawasaki. In FY2007, 156 auditors were certified, including staff at our subsidiaries, bringing the total since 1997 to 1,800 or more. Moreover, we are also making efforts to cultivate the qualified managers that are required by environment-related laws and regulations.

#### Number of Newly Registered ISO 14001 Auditors (including subsidiaries)



#### Number of Qualified **Pollution Control** Managers

Air	81
Water	85
Noise, Vibration	56
Others	17
Total	239

#### Number of Qualified **Energy Manager**

60	

### **Environmental Accounting**

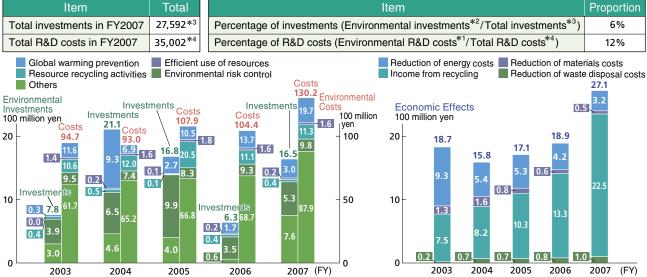


Environmental accounting for FY2007 is shown below. The graphs show yearly changes in environmental investments, environmental costs, and economic effects. We grasp the cost-effectiveness of environmental management so as to provide feedback to plan and review of measures for the next year.

#### **Environmental Accounting Calculations for FY2007**

These figures were compiled in accordance to the Environmental Accounting Guideline released by the Ministry of the Environment. Coverage: Kawasaki Heavy Industries, Ltd., and our three main subsidiaries.

Period: April 1, 2007 to March 31, 2008 Millions of Yen Environmental Preservation Effects Environmental Environmental Economic Item Reduction as compared with previous FY Investments **Effects** Energy consumption Reduction  $6,745 \text{ TJ}^2$ Reduction of . ★95 TJ energy costs 300 1.968 Global warming prevention Greenhouse gas emissions 312,567 t-CO2 317 Reduction ★465 t-CO2 Materials input 604.224 t Reduction of 38,464 t Reduction materials costs Efficient use of resources 18 156 7,336,000 m<sup>3</sup> Water consumption Reduction 334,000 m<sup>3</sup> Income from recycling Resource Waste emissions 75,148 t 922 Resource 24 recycling activities Reduction **★**3.020 t **Business** 2,251 Reduction of waste recycling area costs Waste disposal Amount of waste recycled 72,228 t activities disposal costs 99 19 204 Recycling ratio costs 96 % SOx emissions 14 t Reduction 5 t 181 t NOx emissions Environmental risk control 529 979 Reduction 48 t COD emissions 13 t Reduction 2 t 889 4,229 2,713 Subtotal Comparisons w/ previous FY 157% 118% 138% 3,939 O Upstream/downstream costs 172 Management activity costs 0 461 475 4,188\* R&D costs Social activity costs 12 142 101 58 Environmental damage compensation costs 1.649 \*2 13,017 2,713 Total Comparisons w/ previous FY 263% 126% 138%



Three main subsidiaries: Kawasaki Shipbuilding Corporation, Kawasaki Precision Machinery Ltd. and Kawasaki Plant Systems, Ltd.

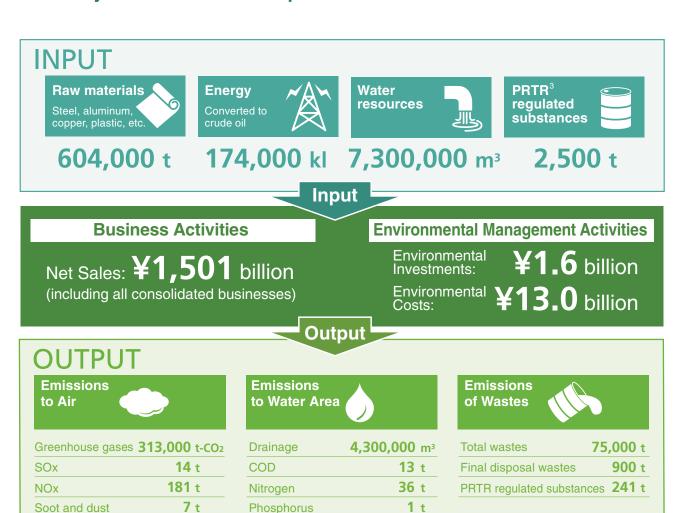
<sup>2</sup> IJ: terajoules (10<sup>12</sup> J)

#### Material Balance of Business Activities



We produce various products used on land, at sea and in the air. Raw materials, energy and water are input to those business activities, from which a variety of substances are emitted to the air or waters. We are trying to reduce environmental impact by those business activities by monitoring input and output.

#### **Summary of Environmental Impact in FY2007**



## TOPICS Ranked 14th for Return on Carbon (ROC) among the 100 Manufacturing Businesses with the Highest Consolidated Net Sales

In the material balance of our business activities, we seek to create the maximum profit with the least amount of CO<sub>2</sub> emissions. A management index called return on carbon (ROC) focuses on this goal. Considering the possibility that the

PRTR regulated substances 4 t

amount of  $CO_2$  emissions could be calculated as a cost in the future, we believe that ROC is not merely an environmental index, but rather that it will eventually become an important management index related to earnings. When the Boston Consulting Group calculated the FY2006 ROC for the 100 manufacturing businesses with the highest consolidated net sales and ranked them, our ROC was 208, earning us the 14th highest ranking and high praise.

Return on carbon (ROC) calculation

Operating income in Japan

(millions of yen)

Amount of CO<sub>2</sub> emissions
(thousands of tons)

From Nikkei Business (July 7, 2008 edition)

PRTR regulated substances 1,500 t

<sup>&</sup>lt;sup>3</sup> PRTR: Pollutant Release and Transfer Register