# HITACHI Inspire the Next

# ENVIRONMENTAL SUSTAINABILITY REPORT 2002



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Cover Front cover: Winning entries in the environmental advertisement contest sponsored by the Hitachi Group

Rear cover: Our Determination as a Global Citizen

## Editorial policy of this report

The Environmental Sustainability Report centers on the results and environmental activities of the Hitachi Group, and informs our readers of plans we intend to carry out in the future.

This report contains the following:

The Hitachi Group's newly adopted Environmental Vision

Explanations on employee relations and social contribution activities as part of Hitachi's social role in creating a sustainable society

Concise coverage of Hitachi's main activities and results. The environmental considerations of individual products and other detailed data are published on our Web site.

The addition of actual result data, which until now, have been published in a separate booklet. Starting with this report, they will be included in the main report to allow for easier reading.

For further details, refer to the hitachi

green web homepage at:

http://greenweb.hitachi.co.jp/en/

(See page 36 of this report for a copy of the data list published on the hitachi green web homepage. The homepage also contains information about the latest news releases from Hitachi.)

#### Report period

Centered on fiscal 2001 (1 April 2001 to 31 March 2002)

#### Scope of report

 $323\,$  firms of the Hitachi Group (Hitachi, Ltd. and its 322 related companies, subsidiaries and affiliates)

We conducted a survey on the environmental impacts of consolidated group firms and reported on those firms that account for 85% of the Hitachi Group's overall environmental impact.

#### Reference indicators

- "Sustainability Reporting Guidelines" (Global Reporting Initiative)
- "Environmental Report Guidelines, Fiscal Year 2000 Version" (Ministry for the Environment) "Environmental Performance Indicators for Business, Fiscal Year 2000 Version" (Ministry for the Environment)
- "Environmental Reporting Guidelines, Fiscal Year 2001 Version"
- (Ministry of Economy, Trade and Industry)

The next Environmental Sustainability Report is scheduled for release in May 2003.

## Highlights 2001

#### Establishment of a new Environmental Vision

Based on scenario planning with a target date of ten years into the future (the year 2010), the Hitachi Group established a new Environmental Vision. The vision states the future direction we will take towards creating a sustainable society, based on our Sustainability Compass.

#### Communication with stakeholders

We believe that through collaboration with our stakeholders we can realize the creation of a sustainable society. Based on this, we held an environmental advertisement contest and set up town meetings with stakeholders.

The cover of the Environmental Sustainability Report 2002 is based on six of the winning entries collected from members of the general public in the categories of Award for Excellence, Eco Products Exhibition Visitors' Award, and the Original Idea Award, in response to our Environmental Advertisement contest.

"My entry illustrates the ease with which both Hitachi's conventional and latest models of washing machines can be disassembled as an expression of Hitachi's stance on environmental issues. Without realizing it, when people purchase Hitachi's products they are participating in environmental preservation activities. My entry features the catch phrase 'It looks so innocent – Hitachi,' and refers to the manufacturer's obligation to think more about recycling without being forced to do so." (Comments from the Award for Excellence winner)



Award for Excellence winning entry Yoshitaka Suzuki

 Sustainability:
 Aiming for sustainable development through the balancing of environmental protection, economic development, and social responsibility.

 Stakeholders:
 All parties with an interest in the organization.

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# **Our Future, Your Future**

The Future Direction of Hitachi and Society

## Towards "Green Frontiers" (regionally independent sustainable societies) in 2010

## A diverse and fulfilling lifestyle with emphasis on individuality

As a result of the spread in broadband communications, there is a trend towards the establishment of "small office home office" (SOHO) systems, and an increase in the number of people working from home. This shift away from conventional workplaces means that the way people spend their time is diversifying to suit the pace of individual lifestyles. Society is becoming increasingly networkbased as information technology sweeps its way into our homes, linking us to the outside world through a variety of networks.

As businesses that deal in intellectual and high technologies, and advanced services fight to survive by demanding greater quality from their employees, the disparity in wages is widening. However, in contrast, the disparity between regions has diminished.



### Regional independence and its multi-facetted appeal

In addition to streamlining local governments, expanding civil markets, and increasing regional demand, regional areas are taking positive steps towards establishing new industries. They are doing this by actively decentralizing and reorganizing power structures in the hopes of attracting new corporations. New industries are beginning to emerge in a variety of regions as many areas regulate the activities of these businesses while helping them to grow.

The allure of regional living is growing due to the establishment of regionally independent societies, causing people to move away from large cities and into regional ones.



#### **High Sustainability Brand Value** High regional independence Low regional independence **Green Frontiers Power City** A network society A regionally centered around Independent Sustainable large cities Society Dark Life My World A stressful society A superficial society that reinforces rules based on environmental and regulations countermeasures

Low Sustainability Brand Value

Sustainability Brand Value: Corporations that proactively promote environmental management activities and implement sustainability strategies are widely supported by markets and consumers. While attracting talented people, corporations with high sustainability brand value are supported by stakeholders in general, and the transition in business models from the sales of goods to the provision of services is accelerated.

# Signs of a new industrial structure

Products and services developed with consideration for environmental issues are highly regarded in the market place, and an increased amount of capital is being invested into environmental ventures. While the focus of business is slowly shifting away from the production of goods and moving towards the provision of services, the manufacturing industry is producing unique products with new technology such as high-tech, nano technology, IT, and envi-ronmental technologies. New service industries are also

emerging in response to an aging society. Many corporations are reducing the scope of their operations and decentralizing as they expand into other regions. Also, the speed with which business can be carried out between regions is increasing as corporations equip themselves with information technology and other modern tools.



## An end to further environmental destruction by 2010

Environmental awareness is growing both domestically (in Japan) and overseas. Corporations, administrative bodies, and citizens are working together to take a proactive stance against global environmental issues, and we are slowly beginning to see results.

The environmental burden caused by waste and exhaust gases is becoming less centralized and reduced in scale due to an alleviation in the number of people choosing to live in large cities.

Corporations are further strengthening their efforts in tackling environmental issues. Environmental preservation activities are also proceeding smoothly as a result of their cooperation with stakeholders on a variety of levels, and continued maintenance of corporate environmental databases.



## Envisaging the future of society

As the very structure of society changes in order to produce a sustainable recycle-oriented society, we may wonder what kind of corporations will be left in the year 2010 and what society would be like. The above scenarios are outlines of four possible future societies and were developed using the scenario planning method. Members from a variety of departments from the Hitachi Group held a series of group discussions to review ideas about what Hitachi can do to

realize the most appropriate of our scenarios – the "Green Frontier Society". The results of these discussions were presented in "Environmental Vision (Sustainability Compass)" as the future direction of the Hitachi Group.



Scenario planning

## Message from the President - The Hitachi Group as a Global Citizen

The expansion of economic activities that far exceed the restorative capabilities of the natural environment has become an important topic, and problems such as global warming, atmospheric pollution, and waste disposal, all of which are global environmental issues, are in the focus.

As a result, a recycle-oriented society has become indispensable, and there is currently a great movement towards this. That is to say, we need to develop a social structure that not only supports environmental preservation activities, but that also promotes sustainable development.

In terms of production activities, manufacturers are pursuing "resource productivity," the concept of producing products with a higher level of functionality from fewer resources. Individuals are also making lifestyle changes in order to find a balance between consumption and minimizing the generation of waste. Furthermore, I believe we need to construct a social system that supports this at various stages, from the development of resource recycling technologies and sales and distribution activities, to the recovery of used products. As president of the Hitachi Group, I hope to play a positive role in preserving the natural environment and constructing a sustainable society.

The Hitachi Group is comprised of approximately 1000 companies, both in Japan and overseas, and is involved in a broad cross-section of commercial activities, from component manufacturing and the establishment of power plants, to activities in the financial and service industries. Our operations account for approximately 1.5% of Japan's GDP, and 0.15% of the country's total energy consumption. The large scale of our operations requires that we take a global stance towards environmental issues, and in order to promote activities in this area, we initiated environmental conferences in the three major regions of Europe, Asia, and America during 2001.

However, as global competition intensifies, we must find a common set of values shared by people from diverse countries and regions in order to increase the efficiency of our business management operations. But before this is possible, corporations must have a complete grasp of the needs and values of the societies and regions in which they operate. It is also extremely important for corporations to establish a strong sense of trust with their stakeholders by independently working towards solving a variety of key issues. I believe that Hitachi has the capability to become the most trusted enterprise in the world, and that this very fact will help increase and enhance our corporate value.

We at Hitachi are not just members of a business, but also members of society, and we are striving to foster global citizens on which the future will rest.





環境価值創造 企業になる

Becoming a corporation that creates environmental value

May 2002 President and Director

Etsuhiko Shoyama

Etsuhiko Shoyama



## **Executive Commitment**

Senior Vice President and Director

Recently I began composing Japanese haiku poems as a hobby. With neither a feel for wabi or sabi (beauty and elegant simplicity), nor any poetic sense, my work is harshly criticized as senryu (satirical poetry), rather than beautiful haiku. Nevertheless, I have become increasingly interested in my hobby, and am thoroughly enjoying it. In addition, as my compositions improved, I made a startling rediscovery.

It is impossible to compose haiku amidst the hustle and bustle of company life. One needs to get away and stand amidst nature, where poetry flows more freely. By remembering what it is like to be away from it all and the overwhelming feeling of warmth that nature provides, one is able to compose poetry about this wonderful relationship between people and nature. It is as if the magnificent natural environment itself is a haiku.

I have lasting memories of the time I took a trip into the Shirakami Mountains. When I stepped into the pristine Japanese beech forest, the splendor of the green leaves stretched as far as the eye could see. The air, time, and space were all wrapped in the gentle green of the trees. I remember feeling as if my soul had just been cleansed.

A natural environment such as this enriches the heart of people. I realized then that in order to create a society filled with happy people, it is imperative that we protect the natural environment together with our cultural heritage.

While realizing that we must both protect nature and care for the environment, we drew up a new environmental vision based on a scenario of what the world would be like ten years from now (2010). Our Environmental Vision takes up the challenge of creating a recycle-oriented society that will continue to develop into the future. This vision also plans out the future direction of our business operations using an environmental compass, which we refer to as our "Sustainability Compass."

"Sustainability Compass" indicates the four directions in which our environmental activities are aimed. Here, I would like to briefly describe my understanding of each

#### Eco-mind & Management

Individual awareness is an important aspect of environmental consideration, and by raising environmental awareness through educational activities, and teaching people how to change their lifestyles so that they have less impact on the environment, we can improve our eco-management. We provide educational courses so that all employees and their families not only possess an awareness of environmental issues, but also apply this knowledge in their own lifestyles.

#### Worldwide Stakeholder Collaboration

"Young people these days..." is a phrase often heard in response to social problems, but in actual fact, many young people proactively participate in activities that care for the environment. We aim to expand the scope of such activities and create a sustainable society through the promotion of idea and opinion exchanges with stakeholders and through the nurturing of common environmental values.

#### Nature-friendly Products & Eco-factories

At our operation sites there is much debate during product development as to whether a product has been designed with due consideration for the environment. If a product clears our independent standards for ecoproducts, it is labeled with an environmental indicator and released together with a data sheet containing its environmental specifications. In addition, we have set ourselves the goal of becoming a leader in eco-product manufacturing through the utilization of new manufacturing technologies.

#### Sustainable Business Models

As part of our eco-management structure, we consider the provision of sustainable business models including services such as the recovery and recycling of used products to be very important. Equally, corporations must be able to provide environmental solution systems. We are striving to change our status from one of a manufacturer, to that of "Best Solution Partner." That is to say, not merely a provider of solutions, but a true partner based on a relationship of trust. I hope that by joining hands with our customers, we will be able to realize the creation of a sustainable society.

Finally, it is our job to ensure continued protection of the natural environment we are in effect borrowing from our grandchildren.

Together with a statue of Basho Matsuo

of these directions.

## **Environmental Vision**

The Hitachi Group has drawn up a new Environmental Vision (Sustainability Compass) based on Standards for Corporate Activities (A Basic Philosophy) and Environmental Protection Action Guidelines with the ultimate aim of creating "Green Frontiers" (regionally independent sustainable societies) by 2010.

# Standards for Corporate Activities (A Basic Philosophy) and Environmental Protection Action Guidelines

## **Standards for Corporate Activities (A Basic Philosophy)**

The basic philosophy of Hitachi, Ltd. is to further promote the principles upon which the Company was founded - harmony, sincerity and a pioneering spirit - to take pride in Hitachi and to contribute to the society of which Hitachi is a part through superior technologies and products.

In accord with this, the Company is fully aware that enterprises are also members of society, and, in addition to a deep devotion to just and transparent corporate activities, the Company strives as a responsible corporate citizen to bring about a society of real wealth through harmony with the environment and the aggressive pursuit of activities that contribute to society.

Enacted June 1983 (revised September 1996)



## **Environmental Protection Action Guidelines**

As part of Hitachi's Standards for Corporate Activities (A Basic Philosophy), these guidelines express standards in response to environmental issues concerning the Company's business activities.

- 1. In recognition that problems affecting the global environment are serious matters for all humankind, harmony with the environment will be a top management priority throughout the Company.
- 2. By establishing a structure for the promotion of environmental preservation, enacting regulations relating to the environment, setting environmental impact reduction targets, and similar measures, officers and site directors in charge of environmental promotion will promote environmental preservation activities. Moreover, environmental audits will be used to confirm the efficacy of activities and our efforts towards continued improvement.
- 3. Through a concise understanding of how best to resolve environmental problems facing the world, the Company will work to make contributions to society through the development of highly reliable technologies and products that meet those needs.
- 4. The Company gives due consideration to reducing the environmental effects a product will have throughout its entire life cycle, from the R&D and design stages, through to production, logistics, use, and disposal.
- 5. The Company will investigate and examine the effect of its business operations on the environment and seek to introduce new technologies and materials with superior functionality regarding environmental safety, energy conservation and resource conservation.
- 6. In addition to observing international, national and local regulations with regard to the environment, the Company will develop its own standards where necessary to maintain environmental conservation.
- 7. With regard to overseas activities and the export of products, the Company will give due consideration to the effects of products on the local environment, and implement measures in response to the wishes expressed by local societies.
- 8. In addition to working towards enhancing the environmental awareness of its employees, the Company will focus its activities on society at large, contributing to that society, of which Hitachi is a part, through environmental preservation activities carried out from a broad perspective.
- 9. Should an environmental problem arise as a result of the Company's business activities, the Company will take appropriate steps to minimize the impact on the environment.

## Hitachi's Environmental Vision (Sustainability Compass)

Hitachi Group Companies worldwide will work to help create a corporate community in balance with nature and to open up the way to a sustainable society. For the sake of future generations, we will act as a good corporate citizen and use our products, services, and technologies to propose innovative new business models to society while taking progressive action in four major areas:



#### Why establish an Environmental Vision (Sustainability Compass) now?

In keeping with the times, the environmental activities of the Hitachi Group keep evolving. The New Environmental Vision (Sustainability Compass), a platform for eco-management, was introduced in order to help realize our 2010 "Green Frontier" society scenario (see page 3).

The basic policy of Sustainability Compass is to create a business community, and ultimately, a recycle-oriented society that is able to co-exist in harmony with nature. We promote our actions based on the key concepts of "a pioneering spirit," "responsibility for future generations," and "global citizenship." As part of Sustainability Compass, our activities are grouped into four basic categories, that of north, south, east, and west. We believe that positive advancement in each of these directions will lead us closer to the creation of a sustainable society. On the compass, the directions north and south indicate business activities, and the directions east and west indicate corporate activities.

However, these activities have only just begun. In accordance with EcoValue Plan 2010 (Roadmap) and the more fundamental Action Plan outlined on the following pages, we intend to collaborate with our stakeholders, while promoting the disclosure of information.

## **EcoValue Plan 2010**

EcoValue Plan 2010 is a roadmap indicating the future direction the Hitachi Group intends to take in order to realize the Company's Environmental Vision. In keeping with social changes, we will expand upon the goals we have set ourselves.

Category			FY2001		
Environmental Management Strategy		ent Strategy	Promotion of environmental management		
Eco-mind & Management		Assessment system	GREEN 21 Version 2 (integration of results assessment/sustainability assessment)		
		Environmental education	Strengthen employee training and education systems		
	Natur	Eco-products	Expand the rate of eco-products to 60% (by FY2003)		
	e-frien	Effective use of resources and energy	Draw up and adopt an environmental efficiency indicator		
	ıdly pro	Chemical substances used in products	Abolish the use of lead solder used in printed circuit board connections (by FY2003)		
	oducts	Increased efficiency of transportation	Draw up and adopt a green logistics (transport efficiency) indicator		
& Eco-factories					
			Reduce the unit requirements for production-related CO2 emissions		
	Eco-fa	Prevention of global warming	Reduce emissions of global-warming gases other than CO2		
	ctories	Waste reduction	Reduce the amount of waste for final disposal (promotion of zero emissions)		
	•	Chemical substance reduction	Reduce the emissions of chemical substances by 15% in FY2003 (based on FY2000 levels)		
		Disclosure of information	Full disclosure of information		
Worldwide Stakeholde Collaboration	r	Communication	Conduct environmental town meetings*3		
		Community activities	Continue regional activities at each operation site		
		Construction of business models	Expand product recycling systems, leases, and rental businesses		
Sustainable Business Models		Environmental solution businesses	Expand the spread of environmental solution models for business		

### Environmental management - history

## Compliance with environmental regulations

1971 Established the Environmental Management Promotion Center 1972 Established the Environmental Research Center 1973 Initiated environmental audits

# Environmental operations

1991 Established Corporate Environmental Policy Division
1992 Established the Environmental Committee:Formulated the Environmental Action Plan
1994 Established the ISO Certification Committee

# Environmental management

1998 Released the first Environmental Report.
1999 Established the Senior Executive Committee for Environmental Policy Established GREEN 21 activities and the environmental logo mark
2000 Disclosed environmental accounting results Established the Green Awards for Social Contribution
2001 Established Hitachi's Environmental Vision

FY2005	FY2010		
Development and advancement of environmental management	Become a corporation that creates environmental value		
Development of GREEN 21 Version 3			
Development of educational and regional activities for employees and their families	Establishment of ecological lifestyles		
Draw up and adopt the Eco-products Value Plan*1	Development of advanced (top-runner) environmental products in accordance with the Eco-products Value Plan		
Abolish the use of six chemical substances, including hexavalent chromium, lead, and cadmium			
Increase efficiency of product transportation (promotion of a modal shift), and introduction of low-emission vehicles			
Draw up and adopt the Eco-factories Value Plan*2	Improve the Eco-factories Value Plan		
Reduce unit requirements for production-related CO2 emissions by 20% (based on FY1990 levels)	Reduce unit requirements for production-related CO2 emissions by 25% (based on FY1990 levels)		
Reduce SF <sub>6</sub> emissions to 3% or less of the purchased quantity	Reduce PFC emissions to 10% or less (based on FY1995 levels)		
Reduce the amount of waste for final disposal to 80% or less (based on FY1998 levels)	Reduce the amount of waste for final disposal to 70% or less (based on FY1998 levels)		
Reduce emissions of chemical substances by 30% (based on FY2000 levels)	Promote a reduction in chemical substance emissions		
Extensive information disclosure for operation sites			
Develop environmental town meetings at regional and international levels	Dromote open cratics with the communities		
Promote volunteer activities, such as programs that foster talent	Promote cooperation with the communities		

\*1: An eco-products indicator that combines the existing eco-products indicator with an environmental efficiency indicator.
\*2: An eco-factories indicator that combines the volumes for CO<sub>2</sub> emissions, waste, and emissions of chemical substances.
\*3: The name of communication meetings held with stakeholders in order to discuss environmental issues.

Promotion of environmental management

Further development and advancement of environmental management

Become a corporation that creates environmental value

## **Environmental Action Plan and Evaluation**

The following is our Environmental Action Plan for fiscal 2002, and an evaluation of our performance in 2001. For a description and current evaluation of each activity see the page indicated below.

		2001 performance evaluation key	: :Accomplished activ	ity :Needs impro	ovement	:New target	
C	ategory/activity	Activity targets	Target values	Target date	Performance evaluation in 2001	Reference page	
Eco	Promotion of Environmental Management	Aiming towards consolidated operations of the Hitachi Group's environmental pres environmental management systems that are in accordance with environmental re environmental management as one of its business strategies, and strive to become	voring to strengthen i Group will take up vironmental value.		P.13		
mind			21% improvement (domestic) (based on FY2001 levels)	FY2005	1		
I & Ma	Green 21	Improve green points (GPs)	21% improvement (overseas) (based on FY2000 levels)	FY2003		P.11,34	
Inage	Environmental Management System	Implementation of an environmental management system(principally at non-manufacturing sites) (representing 85% or more of the environmental burden of consolidated group companies)	Acquire ISO 14001 certification	FY2002		P.14,34	
me	Environmental Accounting	Establish environmental accounting practices throughout the Hitachi Group and		P.15,34			
nt	Environmental Education	Create advanced eco-minds amongst employees and their families Increase the level of employee education and number of licensed and certified p	personnel			P.14	
		Expand range of eco-products	60% or greater	FY2003		P.17,35	
		Promote green procurement activities				P.18	
	Eco-products	Abolish the use of lead solders in printed circuit board connections	Abolished (Hitachi Group products)	FY2003		P.17,35	
N		Abolish hexavalent chromium, lead, cadmium, mercury, PBB, and $PBDE^{\star1\!j}$	Abolished (electrical and electronic devices covered by RoHS* <sup>2)</sup> )	FY2005		P.17	
iture-		Abolish products that use HCFCs*3) Abolished Domestic: End 2003 Overseas: End 2006				P.17	
frie	Increase efficiency of Transportation	Promote the reduction of environmental loads (emission of CO2 ,NOx, PM {part	iculate matter} during produc	ct transportation)		P.18,35	
endly	Prevention of Global Warming	Reduce the basic unit of production-related CO <sub>2</sub> emissions as an energy saving measure at factories	Reduced by 25% (based on FY1990 levels)	FY2010		P.19,35	
Prod		Reduce global warming gases other than CO2	SF6: Emission volume of 3% or less of the purchased quantity	FY2005		P 35	
ucts		(in compliance with the Industrial Action Plan on HFC, SF <sub>6</sub> , and PFC <sup>*4)</sup> )	PFC: Reduced emissions by 10% or greater(based on FY1995 levels)	FY2010		1.00	
and I	Waste Reduction			FY2005			
Eco-f		Reduce the amount of waste for final disposal		FY2010		P.20,36	
factor		Control the amount of waste and reusable waste generated	Planned reductions and setting of target values for each site	FY2005		.,	
ies		Promote zero-emission facilities	28 facilities	FY2005			
	Chemical Substance Management	{Prohibited substances}       {Prohibited substances} Totally abolished         Thorough management of chemical substances       (based on FY2000 levels)         and reduction of emission volumes       {Emissions} Reduced by 30%         (based on FY2000 levels)       (based on FY2000 levels)		FY2005 FY2003 FY2005		P.21,36	
	PCB Management	Strict storage management (quantity, leakage etc.) of electrical devices that use	PCBs, such as transformers	s and capacitors		P.21	
We		Hitachi is committed to strengthening communication with stakeholders (custor business partners, and general citizens), and information disclosure activities un					
orldwide Stal Collabora	Environmental Communication	(Information disclosure and communication) Disclosure of information through PR and advertising activities Periodic release of information about production sites through the publication of environment Active participation in a variety of environmental activities outside the Company, from presental Conducting environmental town meetings with stakeholders Opinion exchanges through questionnaires, surveys, and study tours		P.23 ~ 26			
keholder tion	Global Citizen Activities	Become involved in activities that contribute to society through the planning of volunteer activities and by encouraging employees to actively participate in local volunteer activities. Carry out environmental awareness education activities with local communities through the introduction of environmental activities, and by opening Hitachi facilities to the public Cooperation with local NGOs Implementation of local alforestation activities					
		Work towards expanding the recycling and collection of used products, and the	e spread of recycle-oriented	business models		P.31	
E	Sustainable Business Models	Maximize the use of the Hitachi Group's environmental preservation technologie including low environmental impact business and environmental information sol	es, and strive to develop tota utions	I solutions,		P.32	
		Actively promote R&D that contributes to environmental preservation activities				P.33	

\*1) PBB: Polybrominated biphenyl, PBDE: Polybrominated diphenyl ethers

\*2) RoHS: Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment EU (proposed)
 \*3) HCFC: Hydrochlorofluorocarbons

\*4) HFC: Hydrofluorocarbons, SF6: Sulfur hexafluoride, PFC: Perfluorocarbons

## **Green 21 Activities Results Report**

## Green 21 Activities

While using specific evaluation standards to continually improve and advance all our environmental activities, Hitachi has actively promoted a system of harmonious co-existence with the environment together with the managers of our business groups and major affiliated companies, who play an instrumental role in our environmental management structure.

Evaluation target: 8 categories (43 performance indicators)

Evaluation frequency: Once a year

Calculation method: 100 points in each category, with a possible maximum of 800 points.

(Evaluation points are referred to as "green points" (GP).) Targets:

Domestic: To achieve a 21% improvement in green points by fiscal 2001

(Base year: FY1998)

Overseas: To achieve a 21% improvement in green points by fiscal 2003

(Base year: FY2000)

Application method: Results are displayed in a radar chart to facilitate decisions of business groups and major affiliated companies concerning environmental management. By doing this on an annual basis, progress can be quantitatively evaluated.

#### Green Point Average Trends and Improvement Rates

Hitachi, Ltd. and affiliated companies (domestic)



#### Evaluation Criteria (8 categories/43 performance indicators)

No	Category	Principal performance indicators
1	Environmental Management Policies	Degree of development of environmental management policies, structure of activities, consistency, comprehensiveness
2	Compliance with Environmental Regulations	List of regulations, preparation and management of independent standards, sufficiency of licensed and certified personnel
3	Environmental Accounting	Equipment expenditure, maintenance costs, stages in the management process
4	Environmental Consideration of Products	Implementation of product assessment, plans for and execution of green procurement
5	Energy Saving at Facilities	Rate of improvement for energy conservation, amount of energy conserved, measurement coverage rate
6	Recycling	Recycling and appropriate disposal of industrial waste, recovery and recycling of used products
7	Chemical Substance Management	Preliminary inspection system for new chemical substances, status of Pollution Release and Transfer Register (PRTR), plans for reduction and the abolition of substances
8	Information Disclosure and Education	Information disclosure outside the company, internal and external commendations, regional activities, education and training

## **Results Report**

The results for fiscal 2001, the final target year for domestic sites, are as follows. The green point average\*1) improvement rate\*2) of 37.2% for Hitachi, Ltd. and our domestic affiliated companies exceeded our target of 21% (based on fiscal 1998 levels).

Improvements were particularly noticeable in the categories of Environmental Management Policies and Environmental Consideration of Products. Improvements in the first category are due to our successful implementation of a groupwide Environmental Action Plan at all of our production sites, made possible through a strengthened environmental management structure. Similarly, improvements in the second category are a result of further developments with regard to eco-products.

Conversely, the green point average dropped in the category of Energy Saving at Facilities due to a decrease in unit values as the result of a decline in sales. Our task now is to continue strengthening activities in these areas, while creating more advanced indicators based on our new Environmental Vision. This new system will be promoted as GREEN 21 Version 2.

\*1) Green point average = the number of green points obtained by a site divided by the total number of sites

\*2) Rate of improvement = (the GP\* for the new fiscal year - the GP for the base year) divided by (the maximum GP score possible - the GP for the base year)



#### Green Points Acquired by Production Sites (FY1998/ FY2001 comparison)



		Category Environmental Consideration of Products								
- [	Category Environmental Accounting									
Cat	Category : Compliance with Eenvironmental Regulations							1		
Segr	nent	No	Item	0 point	1 point	2 points	3 points	4 points	5 points	1
Addi sect	tion tion	1	Arrangement status of regulations	No list of applicable regulations and equipment, etc	-	-	Incompete list of applicable regulations and equipment, etc	-	Complete list of applicable regulations and equipment, etc	
		2	Setting status of internal standards	<ul> <li>No internal standards are set.</li> </ul>	<ul> <li>Internal standards an set for part of items or substances.</li> </ul>	Interr	al standards are set for	all of applicable items, s	ubstances.	
						<ul> <li>Internal standards an set regardless of the degree of margin to the regulation values</li> </ul>	-	<ul> <li>Internal standards are set allowing a margin o 50 % to the regulation values</li> </ul>	Internal standards exceeding the environmental standards are set	
		3	Compliance status with internal standards	Interparation variable. In the second						
				No counter-plan	Insufficient counter- plan report, clarification of causes, counter budget etc.)	sufficient counter pla underway	Countermeasures     completed			
				The same number of	qualified staff as regula	ted secured (No majgin	The regulated number	of qualified staff plus m	ore than one secured.	
		4	Sufficiency of legally qualified personnel	. No training program	<ul> <li>Insufficient training program (schedule of qualification acquisition no selection of candidates, budget, e)p</li> </ul>	Sufficient training program (selection of candidates, budget, etc	Complied with part o regulations	-	Complied with all of regulations	]

11

# **Eco-mind & Management**

Bountiful crops are the result of good quality soil. For instance, if we were to compare our environmental activities to a small bud, the soil which nurtures that bud is eco-management, and it is the awareness, the "eco-mind", of our employees which helps this bud grow strong. This small bud is growing rapidly, and until it finally bears fruit as a sustainable recycleoriented society, we will perform each of our environmental activities to the best of our ability.

**Eco-mind & Management** 



## **Eco-mind & Management**

#### **Eco-mind & Management**

In order to realize eco-management, Hitachi promotes organizational and educational structures as well as management systems that support the awareness and actions of each company employee.

#### **Eco-management Structure**

We are developing an eco-management structure on a consolidated corporate base from which to promote activities related to environmental issues. We established the Senior Executive Committee for Environmental Policy, an executive management level body led by Hitachi's president, which assesses and sets the direction for our environmental policies and activities.

Information regarding policies and activities set by the Committee is released by the Environmental Management Operational Committee. Further, the Environmental Committee and its various sub-committees develop surveys, shared technologies, and evaluation methods designed to resolve the topics and issues that are central to drawing up policies and achieving targets. As a body specifically designed to promote fundamental environmental activities in accordance with business operations, the Committee has appointed environmental promotion officers to manage the environmental departments for each of our business groups and affiliated companies.

In fiscal 2001, we initiated environmental conferences in the three major regions of Europe, Asia, and America. At these conferences, in addition to making our environmental policies more comprehensive and sharing information about the laws and re-gulations of various countries and their market trends, participants are asked to think of new ways in which we can strengthen environmental activities at our operational sites.

#### From GREEN 21 to Sustainability Progress Indicator (SPI)

With the establishment of our new Environmental Vision (Sustainability Compass), GREEN 21 Version 2 (Sustainability Pro-gress Indicator (SPI)) will replace GREEN 21, an environmental activity evaluation system adopted in fiscal 1998. SPI will be systematically designed to complement Sustainability Compass as a means for measuring our progress in achieving the goals we set ourselves. SPI is to be divided into several parts - Ecomind & Ma-nagement, Nature-friendly Products & Eco-factories, Worldwide Stakeholder Collaboration, and Sustainable Business Models - to ensure that our Roadmap and action plans for future direction are enforced. This new indicator will be drawn up and announced



#### **Eco-management Structure**



Environmental Management Operational Committee meeting



Environmental Conference (Europe: Brussels)

### **Environmental Education** - Nurturing Eco-minds

The Hitachi Group has an environmental education system aiming to nurture eco-minds, in other words, making employees think more about environmental issues, and encouraging specialists to study and implement new environmental technologies. This education system can be divided into two basic categories: group training and onsite training.

As part of our special employee education system, group training focuses on educating internal auditors for environmental management systems, as well as educating planners and manufacturing departments about ecoproduct development. In fiscal 2002, we will focus on general environmental education activities through the Internet, with the aim of improving environmental awareness amongst executive-level management staff, and creating ecominds amongst our general employees.

Onsite education activities also target eco-mind creation by strictly enforcing environmental activities as well as resource and energy conservation activities based on ISO14001 standards at each site. In addition, we teach employees with certain job classifications the correct operation procedures and emergency drills with regard to operations that have a notable impact on

## **Environmental Management** System

Seeking continued improvement in environmental management and the reduction of environmental risk, we have established environmental an management system based on the international standard ISO14001. In accordance with this, we promote continued participation in all of our environmental activities. In fiscal 1999, our entire manufacturing base had received ISO14001 accreditation, and we aim to acquire accreditation at the operation bases of all our nonmanufacturing sites, such as software and services companies, during fiscal 2002.

Our business sites seek to make continual improvements not just based on the results of their own internal audits, carried out to assess the effectiveness of envi-ronmental activities, but also based on the periodic audit results of accredited auditors outside the Company. We host seminars for environmental auditors to improve the quality of internal audits, and register qualified staff as auditors at these seminars.

Furthermore, we have been carrying out environmental and performance audits from a managerial standpoint as

Education System To be introduced in FY2002						
Group training	Special education	Auditing training Eco-products developm				
	General employee education	Eco-mind education (vi	ia the Internet)	ucation about environmental management		
Onsite training	Special education	[ Training that meets ISC Training for empl	0 standards ] loyees			
	General employee education	with certain job class Onsite eco-mind c	sifications creation			
		General employees	Administration	Executive management level		







Group training for internal auditors

#### **Environmental Audit System**

Types of Environmental Audit		Frequency	Auditors	Content	
Environmental Policy Office		Once every 3	Auditors from Corporate	Prevention of environmental problems	
audits (perform	nance audits)	years	Environmental Policy Division	Environmental management from a managerial standpoint	
ISO14001 environmental audits		Internal wironmental audits	Auditors from the facility to be audited	Efficacy of environmental management systems at the departmental level	
	Internal environmental			Compliance with laws and regulations	
	Audits that meet ISO14001 standards			Establishment of autonomous environmental objectives and targets	
		Once a year	Auditors from an accredited facility other than the one to be audited	Suitability as well as appropriate implementation and maintenance of environmental management systems	





### **Environmental Accounting**

Hitachi is striving to help the public better understand the Company's stance on environmental activities through information releases on the distribution of ma-naged resources, as well as releases concerning environmental technology and environment-preserving products. In fiscal 1999, we introduced our first environmental accounting system in order to promote efficiency and continual improvements in the areas of environmental investment and environmental activities.

In addition to environmental activityrelated plant and equipment investment fi-gures, which we have been announcing since fiscal 1997, costs include ordinary expenditure items, such as R&D costs and the cost of operating and managing environmental conservation facilities. The effectiveness of environmental activities is assessed both in terms of economic results (monetary values) and quantitative results (based on the degree of environmental impact reduction). Economic results are calculated on the results obtained from obtainable valid data. Quantitative results are based on our fundamental principal of contribution to society through the development of superior technology and products, meaning that these results are calculated according to the degree of environmental impact reduction achieved not only during product manufacturing, but also during product usage. Furthermore, ecoefficiency is assessed according to the amount of cost reduction achieved for each environmental impact item.

In fiscal 2001, we recorded an 8% increase in environmental impact reduction expenditure compared with the previous year, while eco-efficiency increased by 6%. Because the increase in eco-efficiency should exceed that for expenditure, we will focus on improving internal environmental accounting

### Environmental Performance Evaluation System

We have created an Environmental Performance Evaluation System to quickly and accurately compile information about environmental performance related to our environmental activities. This system, established on our intranet. automatically calculates environmental data registered by our production facilities and affiliated companies. The results are effectively used to plan environmental activities for the Hitachi Group, as well as our business groups, affiliated companies, and individual production facilities

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Intranet homepage for our Environmental Performance System



#### **Environmental Performance Evaluation System**



# **Nature-Friendly Products & Eco-factories**

Objects created by Nature are returned to the ecosystem once they have served their purpose. In contrast, the majority of conventional man-made objects place a large burden on the environment. Therefore, in the future, we intend to follow Nature's example and develop products that tread lightly on the ecosystem not only during the manufacturing process, but also during usage. We have established strict independent standards, and our eco-factories are manufacturing eco-products while controlling environmental impact. Nature-Friendly Products & Eco-factories



## Nature-friendly Products & Eco-factories

### **Nature-friendly Products**

During product design, it is essential to assess the potential environmental impact of a product. Hitachi is endeavoring to develop environmentally friendly products through the implementation of a product assessment system, green procurement, and similar activities.

#### Design For Environment Assessment and Eco-products

Design For Environment (DFE) is an ideology based on the principle of minimizing the environmental impact of a product over the course of its life cycle, from the selection of a product's component materials, to its manufacture, distribution, use, recovery and disassembly, and proper disposal. With this in mind, we have introduced the Design For Environment Assessment System, an assessment method applied to each product during the development stage. Before a product can be labeled as an "eco-product," indicating that it has a superior environmental rating, it must receive a minimum rating of 2 points (out of a total 5 points) for each assessment item, or a total average of 3 points or more. We provide environmental information about our eco-products published in catalogs and on our Web site in the form of an environmental data sheet and environmental logo mark.

As of March 2002, we have developed 240 products, including a total of 1,504 different model types, classified as "eco-products." In terms of sales, these products account for 22% of our overall sales volume, and we are making efforts

#### Chemical Substances Used in Products

During product manufacturing, we aim to use only those chemical substances that are non-harmful to the environment. Therefore, we promote the abolishment of lead solders that were used in the printed circuit board connections of conventional electrical and electronic devices. Currently, we test components used in certain products to check their heat-resistance, as well as checking their connection reliability using a mixing process. Although we were unable to achieve our goal of abolishing the use of lead solders in fiscal 2001, we continue to promote technology development in this area, and have set a new target of fiscal 2003. In regard to products that use HCFCs, during fiscal 2001, we completed the switchover to HFCs for turbo-powered refrigerators, and plan to complete the switchover for shop and office use air conditioners by October 2002. Furthermore, we have started working towards the goal of abolishing other chemical substances used in electrical and electronic devices, such as hexavalent chromium, lead, mercury, cadmium, and bromine-based flame retardants (PBB and PBDE), by fiscal

#### Complete Life Cycle Product Design Ideology







#### Design For Environment Assessment System Criteria

Category	Life cycle stage	Assessment criteria
Resource reduction	Selection of component materials, production, distribution	Resource conservation, compactness, lightweight, conformity, high yield, standardization
Product longevity	Usage	Upgradability, ease of repair and maintenance, durability, reliability
Resource recycling	Reuse, distribution	Reusability, conformity of component materials, use of recycled materials, promotion of resource recycling, labeling of materials
Ease of disassembly	Disassembly	Ease of disassembly, selection of component materials, ease of separation, labeling of materials
Ease of processing	Production, distribution, disassembly	Crumbling, fragmentation, disassembly and separation, ease of processing
Environmental safety	Selection of component materials, production, distribution, usage, disassembly, disposal	Potential toxicity, potential harmfulness, explosiveness, potential for implosion, potential hazard
Energy conservation	Usage, production	Energy conservation, energy consumption, energy efficiency
Provision of information	Usage, disassembly	Provision of information regarding processing, provision of information regarding product disposal



Vacuum cleaner " Karuwaza Clean Ball " : model number XV-PE9 40% reduction in power consumption 50% reduction in resource usage



Residental ceiling mounted fixture with 100W Twin-tube circular fluorescent lamp " Pearumic IC " 20% reduction in power consumption (when used in full power mode)



Cash dispenser: model number HT-2808EX 30% reduction in power usage 30% reduction in resource usage

For further details on data, see P.35.



Provision of information through an environmental data sheet and environmental langer state

> Expanding our range of eco products (60% by 2003)

Products that meet or exceed the standards set in accordance with the Design For Environment Assessment System are registered as "eco-products.

#### **Green Procurement**

To create products that have a low environmental impact it is essential to be to procure materials and able components with reduced environmental impact. Hitachi distributes copies of its Green Procurement Guidelines to suppliers, and requests that they provide the Company with certain information about themselves and their products via the Internet. This includes information regarding the environmental preservation activities of the supplier, environmental impact reduction details for the products being procured (such as resource and energy conservation, as well as recycling details), together with information on chemical substances used in products that are subject to our independent management standards. We make the information collected available to all of the members in our group, and are developing eco-products by effectively utilizing this in our design support and materials procurement systems. By March 2002, we had completed surveys on 2000 of our suppliers.

Further, in February 2002, we hosted the Green Procurement Components Exhibition. 57 of our suppliers participated in the exhibition, displaying components that reduce environmental impact, as well as providing visitors with information about trends in environment-related technologies. 820 Hitachi employees attended the exhibition in order to follow up their procurement investigations. In the future, we plan to carry out these types of investigations as a group in the Kansai,

### Increasing Product Transportation Efficiency

In order to regulate carbon dioxide (CO<sub>2</sub>) and nitrogen oxide (NOx) emissions during product transportation, we are working to create an efficient distribution system. As part of this, we aim to increase the efficiency of our product transportation methods by promoting collective transportation with other companies, and building a cooperative transportation system.



#### **Green Procurement Activities**



## Nature-friendly Products & Eco-factories

## **Eco-factories**

In order to reduce the environmental impact at each of its production sites, Hitachi is creating eco-factories working to prevent global warming through energy conservation measures, reducing waste and managing chemical substances

### Prevention of Global Warming Energy Conservation

Energy conservation activities must be carried out in order to realize the 6% globalwarming gases reduction target set for Japan in the Kyoto Protocol. Until now, we have made continual improvements to our production-related CO<sub>2</sub> emission unit requirements based on our Environmental Action Plan. This has included increasing the efficiency of our air conditioning systems as well as introducing high-efficiency motors and energy-saving equipment on a groupwide basis. For example, our Telecommunication Systems Division used financial assistance from NEDO\* to introdu-cing BEMS (Building Energy Management System), a system based on mathematical principles. Using BEMS together with their onsite energy monitoring system, the Telecommunication Systems Division used the results obtained from this process to create an ope-rating system that can estimate time periods for the following day when the environmental impact of air conditioning can be minimized.

In fiscal 2001, our production-related CO<sub>2</sub> emissions decreased by 15% compared with fiscal 1990 levels. However, this result was

1% higher than the previous year due to a large drop in output.

\* NEDO: New Energy and Industrial Technology

#### Hitachi's CO<sub>2</sub> Emissions Reduction System

To stimulate activities that reduce CO2 emissions, we have introduced a CO<sub>2</sub> Emissions Reduction System. This system assesses whether production facilities have attained their reduction targets for CO<sub>2</sub> emissions by comparing annual target values and actual values for the amount of energy (electrical power or fuel) converted into CO2 at each production facility. The CO<sub>2</sub> Emissions Reduction System promotes efficient energy conservation activities through the energy-saving activities fund; a special in-house fund that awards performance points based on the above evaluation. We intend to test this system for two years starting in April 2002, and will target approximately 100 production sites that account for 80% of the our overall CO2 emissions. If it is successful, the system will be officially implemented at the end of the trial period.

#### The Introduction of Renewable Energies

We have begun introducing renewable energies, including the use of solar power at two sites in Japan - Hitachi System Plaza Okayama (20 kW of solar power) and Hitachi Cable, Ltd.'s Takasago Works site (10 kW of solar power). Further, in support of our new energy creation objectives, we were recognized under the Japan Natural Energy Company Ltd.'s Green Power Certification System, and have signed a contract to provide them with 1 million kW of annual wind power.



Solar power system introduced at Hitachi System Plaza Okayama

# Trends in Production-Related CO<sub>2</sub> Emissions



\*1: For the conversion unit of CO<sub>2</sub> for power, we used the user's end CO<sub>2</sub> emission unit requirements publicized by the Federation of Power Operators. The figures for fiscal 2001 were calculated by interpolating the values for fiscal 1998 and fiscal 2010 with a straight line.

#### Introduction of BEMS (Example for the Telecommunication Systems Division)



#### Main Energy Conservation Activities

Category	Activity policy
Air-conditioning system	Install energy-efficient equipment, reduce airflow of air-conditioning, increase efficiency by regulating unit numbers
Heat-treatment furnace	Reduce heat loss through improved insulation, reduce operation loads by regulating the rotational frequency of blowers
Co-generation system	Increase overall efficiency by using a gas turbine co-generation systeacm
Boiler	Switch to smaller boilers, increase efficiency by regulating unit numbers, recover exhaust heat
Compressor	Increase efficiency by regulating unit numbers, correct exerted pressure
Motor	Switch to high-efficiency motors
Other	Switch to smaller vacuum pumps, install energy-efficient lighting, install thermal

## Outline of Hitachi's CO<sub>2</sub> Emissions

Reduction System



For further details on data, see P. 35.

#### Waste Reduction

Hitachi's numerous production activities produce a variety of waste and reusable waste products. The operational years of final disposal sites that treat industrial waste are limited. With this in mind, and in accordance with our policy of using valuable resources in the most efficient manner possible, we established independent targets for reducing final disposal volumes, and promote resourcerecycling activities based on these targets. In a consolidated business step, we adopted a standard target value for reducing our final disposal volumes to 70% or less by fiscal 2010 for all Hitachi Group members and affiliates. In fiscal 2001, we had reduced our final disposal volumes to 64%, but this was largely the result of active participation in final disposal reduction activities, and a drop in waste caused by a decrease in production volumes.

We not only aim to reduce our final disposal volumes, but hope to ultimately a-chieve zero emissions. At Hitachi, zero emissions is defined as an emissions volume of less than 1% of the final disposal rate of the current fiscal year, or less than 5 tons/year, and we are participating in activities that will bring us closer to this target. We not only recycle the waste we generate during production, but are working to control the very generation of waste itself by increasing production line yields (efficiency) and

### Strict Enforcement of Correct Disposal Methods

The majority of our industrial waste is processed by recycling contractors, and as part of our responsibility as a waste discharging company, we have established our own guidelines for appropriate waste disposal to ensure that recycling contractors meet certain standards.

In April 2001, we set up an information database on our intranet, enabling Hitachi businesses to access information on waste processing plants and recycling companies contracted by Hitachi. Using this system, recycling contractors can be searched for according to region, type, or process used. Furthermore, the database is used as a medium for sharing information on recycling technology and correct disposal methods. While pursuing activities in waste reduction, our information database also allows us to effectively manage correct disposal at each of our production sites with regard to permit and contract periods for recycling contractors.

#### Trends in Final Disposal Volume Reduction



#### Main Reuse Methods

Material	Reuse method
Paper	Material for Recycled paper, RDFs*
Wood	Charcoal, RDFs
Plastics	Recycled for internal processing, RDFs, material for blast furnaces
Sludge	Base material for cement
Oil	Distilled and reused, used as fuel additives
Acid, alkali	Distilled and reused, used as neutralizing agents
Slag	Base material for iron, steel, and cement
Raw garbage	Compost

#### Zero Emissions Production Sites



Intranet Homepage for Hitachi's Recycling Contractor Information Database



### Hitachi's Sustainable Recycled Paper Recycling System



brand of recycled paper - Hitachi Recycled Paper, creating a repetitive recycling system.

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### Nature-Friendly Products & Eco-factories



### Chemical Substance Management

The introduction of Hitachi's Comprehensive Chemical Substance Management System has enabled Hitachi Group members to search for information on chemical substances, as well as real-time PRTR\*1) data perform compilation, via the group network. As part of our independent standards, comprehensive management activities include expanding the number of substances covered (to include highand dangerous pressure gases substances), and reinforcing the minimum values set for handling volumes (1/10th or

#### Chemical Substance Emissions Reduction

We manage the emission and transfer volumes for chemical substances according to their classification ("abolish," "manage," or "reduce") in our original Risk Assessment Standards. In order to reduce the burden we place on the environment,

# Trends in Chemical Substance Emissions and Transfer Volumes



we plan to abolish the discharge of chemicals classified as substances to be abolished by fiscal 2005. In addition, we have established reduction targets of 30%, based on fiscal 2000 levels, for substances to be reduced. For instance, we have reduced the volume of chemicals discharged when handling toluene by 30% through the introduction of a material recycling system that uses solvent recovery equipment, as well as a thermal recycling system that uses heat storage type furnaces. In terms of preserving water and air quality, we have established independent standards for each of our production sites that are far stricter than the values set by laws and regulations, and are carrying out operations in accordance with these.

#### Storage of Devices That Use PCBs

As PCBs (polychlorinated biphenyls) possess insulation and non-flammable characteristics, they were once used as insulating oils in transformers and condensers. However, their toxic effects soon became apparent, and the production of PCBs has been prohibited in Japan since 1972. Further, in accordance with a special domestic law that promotes the correct processing of polychlorinated biphenyl waste, which came into effect in July 2001, it became mandatory for corporations to strengthen their storage management practices and dispose of all PCBs over the next 15 years.

At Hitachi, we use the correct storage management practices for PCBs, including special locking devices and identification plates to guard against mishandling, as well as bulwarks and storage boxes to prevent leakage in the unlikely event that these devices become damaged or corrode. We are also continuing our investigations into correct disposal procedures.

In the past, some of the transformers and condensers we manufactured contained PCB insulating oils. In response to this, we have posted alternative storage methods specific to each affected device on our Internet Web site.



chemical substances, and compile and confirm PRTR data



(An example of high-pressure condenser storage management)

#### Hitachi's Voluntary Substance Management System (for 1,400 substances)



For further details on data, see P. 34. For information regarding alternative storage methods for devices containing PCBs, refer to the following Web sites: http://www.hitachi.co.jp/Prod/i-support/pcb/ (only in Japanese) http://www.hgl.co.jp/pcb/hgepcb00.htm (only in Japanese)

# **Worldwide Stakeholder Collaboration**

As one company, it is limited how much we can do to create a recycle-oriented sustainable society. However, we can increase our power to make a difference by networking with our customers, suppliers, local citizens, and other stakeholders. We provide information about our environmental activities and listen to the opinions of our stakeholders. Through this system of mutual communication, we are joining forces to increase the scale of our activities, from the individual to the regional and on to the global level.



## Worldwide Stakeholder Collaboration

## **Environmental Communication**

A stakeholder is defined as any party with an interest in the activities of an organization. To create a sustainable society, stakeholders and corporations must create a partnership and work together.

Hitachi sets up hands-on display corners at exhibitions where children can have fun learning about the environment, and hosts environmental town meetings with stakeholders. Through these types of activities, we are working to increase communication with our stakeholders.

### Information Disclosure

We are constantly providing more information regarding our environmental activities through the publication of our En-

vironmental Sustainability Report and our Web site (hitachi green web). In addition to this, our group companies and production sites have begun publishing reports concerning their own individual environmental activities, and displaying this information on our Web site.



The hitachi green web homepage

Eco-Products 2001

At the Eco-Products 2001 exhibition, we provided a fun learning experience for children on products and services developed with conside-ration for the environment based on the theme "Look, Touch, Experience," with a presentation that included experiments and a quiz.





Experiment corner

Environmental Sustainability Advertisement contest ballot corner

#### **Communication with Stakeholders**



#### **Environmental Advertisement Contest**

As a way of conveying information concerning our environmental activities to the public, we invited applications for artwork that clearly expresses our activities and philosophy as a Company. We received 139 entries from around the world, and after they were initially judged, the best 48 entries were displayed at our booth at the Eco Products exhibition in December 2001. The competition attracted some 2500 votes from the visitors to the exhibition, and we declared the six winning entries based on these results.

Award for Excellence



Yoshitaka Suzuki (Ibaraki Prefecture)

#### Original Idea Award



Yoshinobu Sasamoto (Tokyo)

#### Eco-Products Exhibition Visitors' Award



Kazuko Souji (Kanagawa Prefecture)





Fumihiro Hayamura (Tokyo)

#### **Original Idea Award**



Kenji Abe (Fukuoka Prefecture)

#### Eco-Products Exhibition Visitors' Award



Teruaki Narita (Chiba Prefecture)

## **Environmental Town Meetings**

Hitachi commenced its environmental town meetings with stakeholders in FY2001. These meetings are the first step towards establishing a new communication system with our stakeholders which is not one-way, but based on a mutual exchange of ideas in the hope that this will lead to a better understanding of our activities. We aim to establish a forum where we can exchange opinions freely. When we asked our stakeholders for their opinions, we received frank and honest ideas about what we can do to make our environmental activities more effective. We are currently investigating how we can apply these ideas.



"I think that using your products to publicize the C o m p a n y ' s e n v ir o n m e n t al activities, and the creation of a brand name image would send an important message to the public."

(Mr. Hayamura)

"I think it would catch people's attention easier if you included a list of eco-friendly points about products next to their pictures in product catalogues and on the product information pages of the Company's Web site."

Comments on Eco-products

(Mr. Abe)

"I think recycling is important, but I also think that consumers want to be able to repair and continue using their favorite products for as long as possible. So why don't you provide consumers with more information about the product repair system?"

(Mr. Sasamoto)

"Information handed out to children inevitably ends up in their parents hands. By making an environmental report aimed at children, you could raise the awareness of people who would otherwise not be interested, and at the same time improve your corporate image."

(Ms. Mizuno)

"After entering your Environmental Advertising Contest, I became really interested in Hitachi's environmental activities. It would be even more interesting if some of the ideas in your Eco-products Design Contest actually materialized." "I think it would be a good idea to present more negative information, that reads like a story from 'problem to solution'."

(Mr. Okura)



Comments On Environmental Information Disclosure and General Topics



"I think it is only natural that enterprises should carry out environmental activities. However, what I didn't realize until now, was that it is the effort and enthusiasm of employees that is responsible for the results."

(Ms. Toda)

realized that enterprises are listening to the opinions of citizens and students, and are trying to pick up on those opinions. I also came to understand the stance of businesses in relation to the release of information. I'd like to see more of the actual production sites, and talk with employees. (Mr. Kijima)



(The photographs are from Town Meetings held in February 2002 with applicants in Hitachi's Environmental Advertisement Contest and with students in March 2002.)

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## **Opinions on Hitachi's 2001 Environment Report**

We received 50 responses to the questionnaire we supplied with the 2001 Environment Report. The results are as follows:

#### **Appraisal Points**

- I could easily see that Hitachi is working on a broad variety of issues.
- I found the evaluation method GREEN 21 Activities interesting.
- · The report was concise and easy to understand.

#### Main Requests

- The report would be easier to understand if all of the data was published in a single document.
- Sometimes there are too many words on each page making the report hard to read.
- Future policies and the direction of Hitachi's activities need to be stated more clearly.
- · The pages on "Exchanges with Society" need improvement.

#### Points Reflected in This Report

- Added information to the main report about major areas of improvement, such as the accomplishment of action plans.
- Improved readability by adjusting the size of the characters and page layout.
- Clarified the future direction of our environmental activities by adopting an Environmental Vision.
- Expanded upon activities carried out in collaboration with stakeholders, and disclosed information about these activities.

Ms. Kimie Tsunoda, who works in the field of corporate environmental information disclosure, for the second consecutive year reviewed our environmental report. She kindly noted her opinions about the report, while making suggestions along the way.

Based on such comments, we will work towards improving our information disclosure through media such as future environmental preservation activities and environmental reports.

## Third party opinion on Hitachi's Environmental Sustainability Report 2002



Ms. Kimie Tsunoda

Member, Organizing Committee Valdez Society\*

Since publishing the Environmental Report 2001, Hitachi has taken up the challenge of sustainability reporting based on its new Environmental Vision, and I believe they are making real progress in this area. I especially felt Hitachi's spirit for taking on challenges in the description of the Company's environmental vision in EcoValue Plan 2010, the positive note in the foreword by Hitachi's executive-level management, and the articles on environmental town meetings.

On the other hand, many items start with general explanations and finish with targets from previous fiscal years, making it unclear as to what Hitachi's "continual improvements" actually were. Although the actual improvement results for environmental impact were presented as having increased in Hitachi's self assessment with the previous year, these results need to be further expanded upon to make the Company's improvement efforts easier to understand.

While information on environmental impact was presented as separate topics (CO<sub>2</sub> emission levels, waste, and chemical substances), there is still room for improvement in the breakdown of information for raw material expenditure and overseas data. Furthermore, although data was included in the main body of the report, the reason for including some data in the main report and some in a separate data summary needs to be clarified.

I have no doubt that the gap between printed and electronic media will increase in the future. However, I hope that Hitachi will take the needs of its stakeholders and their levels of IT literacy into account when disclosing environmental

 Valdez Society is a non-governental organization composed of civic conscious consumers, corporate employees, scholars and journalists. The main target is to introduce the spirit of the CERES principles and to make Japanese corporations disclose more environmental information through its research groups and seminars.

#### Survey Results for Opinions on Hitachi's 2001 Environment Report

ort (a total of 50 responses, period of response: June 1, 2001 to March 31, 2002)



## Third Party Comments on the Environmental Vision and EcoValue Plan 2010

To assist in formally cementing our Environmental Vision and EcoValue Plan 2010, we asked the 2001 Blue Planet Prize recipient, Dr. Norman Myers, to give us his opinions from the perspective of a third party.

#### HITACHI'S ENVIRONMENTAL VISION AND ECOVALUE PLAN 2010



Dr.Norman Myers

#### Consultant in Environment and Development Professor of ecological systems and resource economics at the University of California

Providing consultancy services to a variety of research organizations and development agencies such as the U.S. National Academy of Sciences, Soviet Academy of Sciences, World Resources Institute, the White House, U.S. Departments of State, Defence and Energy, World Bank, United Nations agencies, OECD, NASA, European Commission, Shell and McKinsey, and the Rockefeller and Ford Foundations.

Dr. N. Myers is well known as an authority on the Gaia Theory\*. He has served as a visiting professor to several universities including Harvard University and the University of Oxford, and is the recipient of many prizes, including the UNEP Environment Prize and the 2001 Blue Planet Prize.

Gaia Theory: The Gaia Theory considers the Earth as a whole, possessing self-adjusting and selfregenerating mechanisms to maintain an ideal condition for life processes.

#### Comments:

I think the fundamental concepts behind the Hitachi Group's Environmental Vision and EcoValue Plan 2010 are fine, insofar as they set the direction for the entire enterprise in its journey toward a sustainable society. Hitachi is certainly to be congratulated for even venturing to probe in this direction. However, there are several comments and suggestions I would like to offer regarding both the Environmental Vision and EcoValue Plan

#### 2010.

Environmental Vision:

- Concrete goals regarding the improvement of resource productivity through the implementation of ecoproducts as described in "Naturefriendly Products and Eco-factories" are not clear.
- Concrete goals for reducing environmental impact through sustainable business models as described in Sustainable Business Models" are not clear.

EcoValue Plan 2010:

· More concrete goals concerning the

development of eco-products by 2010 should be included in "Nature-friendly Products."

- Activities for improving product ecoefficiency as described in "Naturefriendly Products" should be implemented forthwith.
- Clearer focus on the indicator of zero emissions in "Eco-factories" is suggested to give Hitachi's Roadmap more substance.

I commend the conceptual analyses and synthesis in Hitachi's Environmental Vision. However, in some places it sounds a little academic and lacks concreteness. Therefore, I suggest that Hitachi constantly review

## Hitachi's response and future approach:

We will search for ways to implement each of the above items into EcoValue Plan 2010. Our Environmental Vision (Sustainability Compass) is a broad concept that sets the overall direction of our environmental management structure, whereas concrete items are addressed more clearly in EcoValue Plan 2010 (p.6-9)



## **Employee Relations**

We have implemented Hitachi Value; a set of standards outlining a code of behavior and list of shared values for all of our employees. While endeavoring to improve the environmental awareness of our employees, we have introduced a variety of personnel systems in the hope of creating a vibrant workplace that will inspire our diversely talented employees to continually set themselves challenges. Further, we place the highest priority on maintaining the health and safety of our employees, and are making efforts not just to maintain, but also to further improve our already high safety and sanitation levels.

# Developing a Shared Sense of Values through Hitachi Value

In November 1999, in order to realize our basic stance on management as stated in the Hitachi Management Vision, we drew up the Hitachi Value standards, detailing the values and behavioral conduct we would like to instill in all of our employees. By releasing these standards groupwide, we hope to improve the general environmental awareness level of our employees.

Hitachi Value documents the conduct we expect from our employees, in particular, the type of behavior and attitudes we expect from our leaders. The standard outlines ten separate items specifically related to employees, including "customer satisfaction," "reliability," "speed," and "challenges and reforms," and details the conduct required to achieve positive results in each of these areas. Since fiscal 2000, we have been introducing personnel rating systems to evaluate whether the code of conduct in Hitachi Value is being carried out in the workplace, an activity initially directed at managerial staff. While promoting improved environmental awareness in our employees, we aim to establish a system where the concepts of merit and performance form the basis of our employee management practices.

### Systems That Promote Employee Satisfaction

We value the different abilities and ideas of our workers, and in support of this, have set up a variety of internal public appeal systems in which participation is completely voluntary. These include our FF Plan (Gender Free & Family Friendly Plan) which supports the activities of women and compatibility between work and family life, and career plan selection system for older employees. These systems were devised with the ultimate aim of creating new and important business activities at each of our production departments.

# Equal Opportunity Employment for the Handicapped

We have developed a normalization policy under which we are actively increasing the number of positions available to handicapped persons as part of our employment promotion activities. As of March 2002, our employment of handicapped persons satisfies the minimum statutory employment rate requirements, and we plan to further promote employment in this area. The establishment in October 1999 of Hitachi You and I, a special subsidiary that only employs mentally disabled persons, was part of this plan.

#### **Occupational Health and Safety**

We make good use of the knowledge regarding health and safety issues that we have acquired over many years of promoting accident-prevention activities, including knowhow in the areas of health and safety management, education, and equipment, as well as how to create safe work environments, and pass this on for the benefit of others. In addition, we are supporting the introduction of an Occupational Health and Safety Management System that provides a high level of health and safety standards that can be maintained and improved upon under the supervision of any of our employees.

Furthermore, to ensure that our employees are always bright and fresh and perform to the best of their ability, we are taking positive steps to preserve their health through counseling, specialist support, educational activities, and a support page on the Internet, allowing employees to contact staff trained in industrial health issues.

### A New Evaluation System and Business Plan for Hitachi's Management Vision



#### **Basic Policy for Occupational Health and Safety**

Basic Policy While respecting human life and acting in accordance with the law, we are strengthening our platform of "continued growth into the 21st Century as a corporation overflowing with vitality" through health and safety activities based on the following universal standard evaluations.

- 1. Construct a systematic safety management system, and urge managers to set examples for others.
- Make genuine safety improvements to equipment and production processes.
- Enhance safety awareness, and establish a workplace with good communication by improving safety education levels.
- 4. Ensure the physical and mental health of our employees, and create a comfortable workplace.
- 5. Reinforce health and safety management at branch offices and production sites.
- 6. Strictly enforce countermeasures for dangerous management practices
- (promote disaster prevention activities against earthquakes, fire, and explosions).

#### **Occupational Health and Safety Action System**



Intranet homepage for Hitachi's Health Consultation System

For further details on data, see P.37.

## **Social Contribution Activities**

In order to become an energetic corporation that can continue to grow into the 21st Century, it is essential that Hitachi share its values with people throughout the regions of the world, and build strong ties of trust through continued social contribution activities that promote the Company's principles and policies. Under the motto "Inspire the Next," we introduced a new set of principles and policies on a group-wide scale, along with the slogan "Growing People, Our Link to the Future" and a new symbol to inspire employees to work together as they engage in social contribution activities. Our active participation in social contribution activities is centripetal to these renewed principles and policies.

### A Group-Wide Common Philosophy and Policy of Social Contribution Activities

#### Philosophy

The Hitachi Group strives to demonstrate its corporate citizenship in response to social needs and expectations, while endeavoring to enrich the quality of life and realize a better society.

#### Policy

The Hitachi Group promotes various social contribution activities to build a vibrant society based on fostering leadership to implement reformation for the next era. This is achieved by making optimal use of our knowledge and information technology in three specific areas, namely, education, the environment, and social welfare.

#### Basic Philosophy of Hitachi's Social Contribution Activities

All of the companies belonging to the Hitachi Group and six of its foundations have come together to form a single corporate entity. As this corporation works to fulfill its social responsibilities, it is adopting the social contribution activities each of its individual organizations previously participated in. However, these are not viewed as mere charity activities, but as corporate activities that are important in helping to make Hitachi into an environmental brand value. Together, all of the members of the Hitachi Group are carrying out social contribution activities towards the building of a better society.

Hitachi employees are striving for "Improvement of each employee" by taking part in social contribution activities, such as volunteer activities. These types of activities not only help to build a better society, but produce corporate vitality on a large scale.



#### Basic Philosophy of Hitachi's Social Contribution Activities

#### Worldwide Stakeholder Collaboration



## **Volunteer Activity Support**

Hitachi supports the creation of a workplace environment, where employees are free to participate in volunteer activities as often as they like. So that employees can easily learn about their work environment, we conduct a variety of in-house training and educational programs, as well as disclose information to teach the importance of participating in social contribution activities.

In order to support the volunteer activities carried out by each of our employees, we have dedicated a page on our intranet to outlining the aims of each of these social contribution activities, providing a forum where employees can exchange ideas and information about volunteer activities. We have also set up a "special annual paid leave system" to encourage our employees to participate in these types of activities.

#### **Activity Examples**

#### Green Award for Social Contribution We established the Green Award for Social Contribution to support and promote activities that contribute to society and the global environment, and recognize worthy contributions in these areas.

The fiscal 2000 Award for Excellence was awarded to Hitachi Industrial Equipment Systems Co., Ltd. Nakajo Division for its continued exchange in a wide variety of regional activities, including afforestation activities carried out by employees, exhibitions detailing the Company's environmental activities, participation in a water quality survey sponsored by the prefecture, and the Company's acceptance as a research fellow of the Japan-China Friendship Environmental Conservation Center.

Further, the Chubu branch of Hitachi Systems & Services, Ltd. received a special prize for its efforts towards creating a recycle-oriented society through recycling activities. The Chubu branch donates disused office computers to NPOs as part of its activities aimed at recycling reusable resources.

#### Mt Fuji Foothills Restoration Support

With the aim of re-vegetating the forest regions on the foothills of Mt. Fuji that suffered great damage caused by typhoon No. 17 in 1996, the employees and their families of Hitachi Capital have been actively participating with local governments, businesses, and citizens to restore the natural forests. These activities are carried out under the "Manabi no Mori" project, which began in 1998, and in April of fiscal 2001, twenty members of the Hitachi Capital Group participated in project activities.

#### Victims of Terrorism in America

In support of local restoration efforts and victim relief activities after the multiple terrorist attacks took place in America on September 11, 2001, the Hitachi Group donated 1 million dollars to the U.S. Red Cross. In addition, we contributed equipment in the form of DNA sequencers to aid in the identification of victims' bodies, as well as demolishing hammers and metal cutting devices.

Further, our employees, particularly those affiliated with our American companies, donated blood and made personal contributions, while some even participated in victim relief volunteer activities.

The Hitachi Foundation located in Washington D.C. made a special donation of 5 million dollars to the American Red Cross Fund.

#### Foundation Activities

We have established a total of six domestic and international foundations, which conduct social contribution activities. The Hitachi Environment Foundation conducts surveys and research on environmental issues, while carrying out business operations that expand and encourage environmental preservation activities.

The Hitachi Group's Six Foundations The Odaira Memorial Hitachi Education

The Kurata Memorial Hitachi Science and Technology Foundation The Hitachi Scholarship Foundation The Hitachi Environment Foundation The Hitachi Mirai Foundation



Intranet homepage for supporting volunteer activities



Hitachi Systems & Services, Ltd. Computers that were donated to NPOs



Hitachi Industrial Equipment Systems Co., Ltd. Participating in their annual water quality survey activities together with elementary school children.



Conducting nature restoration activities on the foothills of Mt. Fuji.





The Hitachi Environment Foundation "Environmental Research" Journal.

For further information about our social contribution activities, visit the following Web site: http://global hitachi.com/Int-e/skk/

Foundation

The Hitachi Foundation

# **Sustainable Business Models**

In the future, we intend not only to create new products and services for people, but also to create new businesses that will benefit the environment. We are currently focusing our efforts on creating "sustainable business models" that will serve as the basis for creating a recycle-oriented society. While looking to the future, we are developing business practices that help preserve the environment, including environmental research and environmental support services for customers based on this research.



## Sustainable Business Models

#### Constructing Business Models – Product Take-back and Recycling

Based on the principle of "Extended Producer Responsibility," Hitachi is constructing a recycling system that effectively utilizes the resources recovered from used products.

#### Household Recycling

In response to the electric Home Appliance Recycling Law, Hitachi Home & Life Solutions, Inc. (established in April 2002, after a split and merger within the Company's Home Appliance Group) established a new subsidiary, Kanto Eco Recycle Co., Ltd. in May 1999, to handle recycling operations for four main categories of used household electrical appliances.

The new plant is located at Hitachi Home & Life Solution's Tochigi site, and is the only recycle plant in Japan to be built within a production facility. By feeding back information obtained from the production facility to product designers, this new company is helping to reduce the burden products place on the

environment throughout their life cycle, and increasing the amount of reusable materials used to manufacture future products.

#### **PC Recycling**

Under revisions made to the Effective Use of Resources Promotion Law in April 2001, computers were classified as "products for recycling." This made it mandatory for manufacturers and importers to recover and recycle all computers employed throughout their business operations once they are no longer needed. Until this time, our manufacturers and importers had been referring customers to industrial waste treatment services in response to their requests for disposal. However, in

accordance with this new law, and in order to promote the smoother recovery of resources, we have joined hands with IBM Japan, Ltd. to build a new national recovery system. We have also been approved as a designated waste processor for a wide range of industrial waste materials. This has enabled us to improve our services, in particular the publication and management of manifests (industrial waste management forms) on behalf of our customers. Furthermore, we have established an Internet service for handling everything from waste management price inquiries and applications, to the confirmation of recycling processes.

#### Number of Household Electrical Appliances Recycled and Product Recycling Ratio (FY2001)

Category	Air conditioners	Televisions	Refrigerators	Washing machines	
Number of appliances recycled	units	172,564	330,298	360,827	376,532
Recycling rate	(%)	79	78	61	57

# Household Electrical Appliance Recycling (at a recycle-oriented plant built within a production site)



PC Take-back Results (FY2001)

Category	Desktop computers	CRT displays	Notebook computers	Liquid crystal monitors
Number of computers recovered (units)	18,673	15,330	3,734	184

Take-back results for FY2001 are from before the introduction of wide area certification

PC Recycling System



For more information about household electrical appliance recycling, visit the following Web site: http://kadenfan.hitachi.co.jp/kankyo/recycle/index.html (only in Japanese) For more information about computer recycling, visit the following Web site: http://www.hitachi.co.jp/Prod/comp/OSD/pc/flora/environment/recycle.htm (only in Japanese)

## **Offering Total Environmental Solutions**

Hitachi utilizes a wide range of tools, such as results and technologies accumulated through activities in a variety of environment-related areas, to provide customer support for environmental management, especially in regard to waste, energy, air, water solutions and services.

### A Project Promoting Environmental Symbiosis

With the assistance received from the New Energy and Industrial Technology Development Organization (NEDO), we are using an old mining site in the City of Utashinai in Hokkaido as the base for our regional development promotion activities. The project centers around the establishment of a recycle-based power plant that uses waste to create electricity and heat. In general, the plant uses shredder dust (the byproduct created when waste vehicles and household electrical appliances are crushed and the reusable waste removed) as fuel, and generates electricity and heat by melting industrial waste and converting it into a harmless material.

We sell the electricity generated from this process to a power company, and provide new businesses with the heat energy collected. In this way, we are helping to build an industrial community that can coexist in harmony with the environment, combining environmental business with regional development activities.

In July 1999, the City of Utashinai and the Hitachi Group established "Eco Valley Utashinai, Ltd.," to oversee this new venture. With donations received from the Japan Regional Development Corporation, the Hokkaido Mining Regional Development Center and the city of Utashinai, the plant which is presently under construction is expected to be producing recycled power by October 2002.

#### Implementing Shared Energy Savings through ESCOs

The adoption of an energy service company initiative(hereafter ESCO) at the Sapporo Beer Company's Hokkaido and Sendai plants was the first time project financing had been used for this purpose in Japan.

The ESCO introduced energy-saving equipment at no cost to the customer, adopting a shared energy savings model

where the energy saving effects of the new equipment are shared between the ESCO and cooperating company.

At Hitachi, in addition to installing energysaving equipment at the production sites of our business partners, we provide a complete range of services, including guaranteed energy savings and postinstallation maintenance services. At the Sapporo Beer Company's Hokkaido plant, we introduced a highly efficient gas cogeneration system using city gas, resulting in annual energy savings of 25,052 giga joules. This is equivalent to approximately 7% of the total energy currently used at the Hokkaido plant.

At the Sendai plant, we installed an inverter control device into an existing brine refrigerating machine used in the manufacture of beer, producing annual energy savings (electricity only) of 3,197 giga joules.

Both of these improvements were introduced at the end of September 2001.





For business schedule details, visit the following sites. The recycle-based power plant Hitachi Group environmental news (information on the products and services offered by 30 of the Group's companies): http://www.hitachi.co.jp/Div/kankyo/ Energy solutions: http://www.hitachi.co.jp/ESCO/index.html

Environmental information solutions: http://www.hitachi.co.jp/Prod/siji/kankyo/ (Homepages only in Japanese)

#### ESCOs( Energy Service Companies )





Hokkaido Plant, gas

co-generation facility



Sapporo Breweries, Ltd. Sendai Plant, refrigeration inverter facility



New Technology Development for Environmental Solutions While actively engaging in research and development that contributes to environmental preservation through products and services, the Hitachi Group is studying how it can best develop its various environmental systems.

### Environmental Management System

We collect data relating to the environmental activities carried out by each of our departments, and then calculate the cost of these activities per department. This is a complicated and enormous task, the results of which are analyzed from a variety of angles, and offered on a timely basis to help management in decisionmaking activities, aiming to achieve the ultimate environmental management system. We proposed the most suitable management system based on an analysis of our present state of affairs, offering an "environmental solution" for phasing in environmental management.

We offer a complete series of management software packages that cover a variety of topics, including green procurement, LCA support, recyclability assessment, environmental specifications creation support, environmental accounting support, and environmental information collection. Two examples in this series are "Chemilution," a compact Web-based system for chemical substance management and know-how, and "EcoAssist," an environmental management system.

## **Direct Methanol Fuel Cells**

As a countermeasure to global warming and resource depletion, we promote the development of clean fuels as an alternative for conventional fossil fuels. As part of our research and development into compact fuel cells, we have conducted tests on direct methanol fuel cells (DMFCs) to determine their suitability as an alternative "clean" power source for mobile devices, such as notebook computers and portable information terminals. As DMFCs can supply a continual source of power generated from a combination of methanol, water, and oxygen, they make an excellent power source that does not need to be recharged. Also, since the process used by these fuel cells to generate power is extremely simple, they can be made more compact, lightweight, and affordable than conventional fuel cells.

#### Low-power Application Processor Technology for Next-generation Cell Phones

With improvements in data transfer efficiency for next-generation cell phones, multimedia processing, such as video clip and music transfer, has become essential. In order to perform these types of operations, we have developed lowpower application processor technology that enables media transfer at high speeds with reduced power consumption. Because this technology is compatible with the encoding software MPEG-4, which is required when sending video mail, we can confirm operation at low power levels similar to those for 70 MHz and 140 mW specialist hardware. This technology not only supports MPEG-4, but can be used to play back music or perform Java\* (TM) processing, enabling a variety of multimedia functions required of next-generation cell phones at low cost and reduced power consumption.

\*Java and all Java trademarks and logos are trademarks or registered trademarks of Sun Microsystems, Inc.

## Environmental Management System Overview



## Structure of a Methanol Fuel Cell



#### Photograph and Specifications for a Low-power Application Processor Chip

The second	2
-	

Processor	0.18um
Frequency	133mHz
Power during operation	170mW
Power during standby	10uA or less
Chip size	43mm <sup>2</sup>
Cache size	32KB
Internal RAM	144KB

## Eco-mind & Management

## **GREEN 21 Activities**

### Average Points by Category

No.	Category		Hitachi, Ltd.			Hitachi, Ltd. and affiliated companies (domestic)				Affiliated companies (overseas)*	
	C ,	FY 1998	FY 1999	FY 2000	FY 2001	FY 1998	FY 1999	FY 2000	FY 2001	FY 2000	FY 2001
1	Environmental Policies	70	77	81	84	57	67	72	89	63	72
2	Compliance with Environmental Regulations	73	80	84	83	61	68	72	73	57	71
3	Environmental Accounting	58	65	69	71	42	49	57	68	49	51
4	Environmental Consideration of Products	44	51	56	63	31	37	43	52	27	31
5	Energy Saving	57	60	65	66	45	50	54	49	45	47
6	Recycling	67	73	77	79	55	61	65	66	47	52
7	Chemical Substances Management	63	66	72	73	57	63	68	72	65	69
8	Information Disclosure & Education	66	70	77	81	51	60	67	79	54	59
Тс	otal Average Points	498	542	581	600	399	455	498	548	407	452
Im	provement Rate(%)	Base year	14.6	27.5	33.8	Base year	14.0	24.7	37.2	Base year	11.5

## **Environmental Management System**

## **ISO14001** Certification Status

	Hitachi, Ltd. companies	and affiliated (domestic)	ated Affiliated companies ic) (overseas) T		
	Production sites	Non-production sites	Production sites	Total	
No. of Certified Sites	162	31	23	216	

67.6

59.0

35.8



Investment in energy-saving equipment and equipment that directly reduces environmental loads

## **Environmental Accounting**

## Cost

Expenses

Costs Hitachi, Ltd Hitachi, Ltd. and affiliated companies Item Overview FY 1999 FY 2000 FY 2000 FY 2001 FY 2001 1. Business area costs 97.7 107.2 111.8 359.6 382.1 Maintenance of equipment with low environmental impact, depreciation, etc. Green procurement expenses, recovery and recycling of products and packaging, recycling expenses Labor costs of environmental management, implementation and maintenance of an environmental management system 2.Up stream/down stream costs 18.0 14.0 13.2 35.8 32.7 3.Management activity costs 26.0 28.6 36.3 83.5 110.9 R&D for the reduction of environmental loads caused by products and production processes, product design expenses Environmental improvements such as afforestation and beautification, PR and publicity expenses 4. Research & development costs 111.9 116.5 130.0 300.3 343.6 5. Social activity costs 10.6 12.4 1.3 32.3 5.3 6.Environmental damage costs 9.3 8.2 Environment-related measures, contributions and levies 3.3 3.0 2.8 Total expenditure 267.0 281.7 295.4 820.8 882.8

180.1

212.5

## Effect

34

Total investment

(Units: 100 million yen)

(Unit: 100 million yen)

(Unit noints)

Ē				Expenses				
ön	Item		Hitachi, Ltd.		Hitachi, Ltd. and at	ffiliated companies	Overview	
noc		FY 1999	FY 2000	FY 2001	FY 2000	FY 2001		
nic I	Net income effect	11.0	9.4	7.6	55.8	50.9	Profit on sales of recycled waste	
Ξffe	Reduced expenses effect	30.6	32.2	33.6	120.3	135.6	Reduction in material costs due to resource saving, reduction in waste treatment costs due to reduced waste, reduction in power expenses due to energy savings	
ct	Total	41.6	41.6	41.2	176.1	186.5		
-		Expenses						
hy	Item		Hitachi, Ltd.		Hitachi, Ltd. and af	filiated companies	Overview	
sica		FY 1999	FY 2000	FY 2001	FY 2000	FY 2001		
Ē	<ol> <li>Reduction in the amount of energy used during production</li> </ol>	94 million kWh 27,000 households	84 million kWh 24,000 households	97 million kWh 28,000 households	169 million kWh 49,000 households	331 million kWh 95,000 households	Decrease in energy expenses due to installation of energy-saving equipment	
fect	<ol> <li>Reduction in the final amount of waste disposal</li> </ol>	792t 3,000 households	1,212t 4,000 households	1,905t 6,000 households	6,051t 20,000 households	7,369t 25,000 households	Decrease in final waste output volumes due to separation and recycling activities	
	3. Reduction in the amount of energy	165 million kWh	772 million kWh	303 million kWh	844 million kWh	522 million kWh	Decrease in energy requirements of Hitachi products	

Note 1: Depreciation on capital investment and the resulting effect are calculated using a five-year flat rate formula.

Note 2: Regarding the classification of items and economic effect

•Net income effect: Effects for which there is real income, including the sale of valuables and environmental technology patent income.

•Expense reduction effect: Reduction in electricity fees and waste treatment expenses related to environmental impact reduction activities.

### Efficiency of Environmental Impact Reduction (Eco-efficiency)

#### Hitachi, Ltd. and affiliated companies

	2000	2001			
Reduction in energy used during production	0.41 million kWh/billions of yen	0.66 million kWh/billions of yen			
Reduction in amount of waste for final disposal	11.7 t/billions of yen	17.5 t/billions of yen			
Note: Eas officiency is the amount of reduction in expanses per environmental impact item					

Note: Eco-efficiency is the amount of reduction in expenses per environmental impact item.

## Ratio of Eco-products to Total Sales

#### Hitachi, Ltd. and affiliated companies

	2000	2001
Eco-products	3.0 <b>%</b>	22.0 <b>%</b>

## Nature-friendly Products & Eco-factories

## **Eco-products**



## Increased Transportation Efficiency

We calculated and tabulated the transportation impact required to deliver products from production sites to the customer for each transportation method (road, rail, sea, and air).

### Hitachi, Ltd. and affiliated Companies (domestic)

Total transportation volume: 2,227,824,000 t-km/yea Transportation-related CO <sub>2</sub> emissions: 332,000 t-CO: Product transportation method as an expression of the to	r 2/year t <b>al tran</b>	sportation volume	A 1.6	ir 5%
Road (truck)	Rail	Sea		ł

#### Road (truck) Rail 64 9% 7.4% 26.1% Affiliated Companies (overseas)\*1

Total transportation volume: 86,260,000 t-km/year Air Transportation-related CO2 emissions: 11,700 t-CO2/year Product transportation method as an expression of the total transportation volume 3.2%

Road (truck)	Rail	Sea
38.6%	7.0%	51.2%

#### Prevention of Global Warming

Volume and Composition of Global Warming Gas Emissions Hitachi, Ltd. and affiliated companies (domestic)



\*GWP: Global Warming Potential (CO<sub>2</sub> conversion)



Heat energy as an expression

of the total energy volume: 3%

## Commission Volumes for Containers and Packaging\* (Hitachi, Ltd.)



#### Low-emission vehicles\*2 as an expression of the total number of company-owned vehicles\*3

Hitachi, Ltd. and affiliated Companies (domestic) Total number of vehicles: 10,208

49.2% 32.5% Venicies 18.3%
----------------------------

#### Affiliated Companies (overseas) \*1 Total number of vehicles: 478

Gasoline vehicles 41.4% Diesel vehicles 17.4%	Low-emission vehicles 41.2%
--	--------------------------------

- \*1: Data is for 17 selected affiliated companies (overseas).
- \*2: Low-emission vehicles include electric, methanol hybrid, CNG, LPG, fuel cell, and fuel-efficient vehicles (excluding overseas data).
- \*3: Data is for company-owned vehicles, including forklifts used for loading goods.

Electricity as an expression of the total energy volume: 1% \*RDFs: Refuse-Derived Fuels

## Waste Reduction



## Worldwide Stakeholder Collaboration

## **Environmental Communication**

#### Information Disclosure

Environmental reports p	ublished by site
Published on behalf of individual companies and company groups	12
Published by designated sites	4

According to the data collected, the

Hitachi Group was not subject to any

monetary penalties or fines during fiscal 2001. However, there was one recorded

instance in which we received a

reprimandation from the government. We also received some complaints from

citizens concerning industrial noise (6

complaints), dust (2 complaints), and

unpleasant odors (2 complaints). In

addition to offering an explanation in

each case, we took measures to

improve the machinery concerned, and

made adjustments to machinery

operation times as necessary. Further,

as a preventative measure, we revised

our guidelines for operation, and

strengthened the values set out in our

independent standards.

Information disclosure via the Internet by site

Published on behalf of individual companies and company groups	27
Published by designated sites	5

#### Response to Administrative Guidance, Recommendations, and Outside Complaints

Recommendation from the Government In regard to an incident involving the release of CFCs into the atmosphere by Kansai Recycle Systems Corporation, a Hitachi Ltd. affiliate in charge of recycling household electrical appliances, we received reprimands from both the Minister of Economy, Trade and Industry and the Minister for the Environment dated March 20, 2002. We took responsibility for the corporation's actions, and although we confirmed that there were no problems at the sites of our other recycling contractors, we are working together with their manufacturers to improve the quality of the audits carried out at the sites of our recycling contractors. In addition, we are strengthening management practices to ensure that this kind of incident does not occur again.

#### Data Provided on "hitachi green web"

hitachi green web provides information about our environmental activities. For a detailed list of data items, visit this site at:

# Promotion of environmental management system Data provided on hitachi green web History of our activities History of our activities

nind	management system	production site list
& Management	Environmental	Costs Percentage breakdown by department for expenses and capital investment Percentage breakdown of capital investment measures
	accounting	Effect Percentage breakdown by department for economic effect
	Environmental education	Current and required numbers of legally qualified personnel*
		Registered products list and data sheets*
m	Eao producto	Examples of eco-products
ř	Eco-products	List of products targeted by our green procurement policy"
pro		Green Procurement Guidelines
i.	Prevention of global warming	Percentage breakdown by department for CO2 emissions
2		Composition of energy consumption
Ţ	Waste reduction	Percentage breakdown by department for final disposal
<u>ř</u>		Percentage breakdown by type for final disposal
act		Percentage breakdown of recycling methods
orie	Chemical substance management	PRTR survey results
ň	Resource purchasing and discharge into the environment	Trends in water consumption
Worldwide Stakeholder	Environmental communication	Environmental reports published by each company and site hitachi green web links to each company and site Commendations



## **Company Profile**

#### Company Profile (as of March 31, 2002)

Corporate Name	Hitachi, Ltd.
Incorporated	February 1, 1920
Principal Office	6, Kanda-Surugadai 4-chome, Chiyoda-ku, Tokyo 101-8010, Japan
Representative	Etsuhiko Shoyama, President and Director
Capital	¥282,032 million

Number of consolidated subsidiaries : 1.066

• Number of affiliated companies accounted for using the equity method : 108

#### Main Products and Services

Information and	System integration services, software, magnetic disc systems, servers, potebook and desktop computers, peripheral devices for computers
Telecommunication Systems	converters, optical components for communication systems
Electronic Devices	System LSI solutions, memory, multi-purpose semiconductors, liquid crystal displays, semiconductor manufacturing equipment, measurement and analysis equipment, medical equipment
Power &	Nuclear power generation hardware, thermal power generation hardware, hydro power generation
Industrial Systems	carriages, elevators, escalators, machinery for automobiles, environmental equipment
Digital Media &	Optical storage drives, televisions, video tape recorders, portable devices, liquid crystal
Consumer Products	equipment, batteries, video tapes, media for recording information
High Functional Materials &	Electrical wires, cables, copper and brass products, iron castings, steel castings, high-grade
Components	speciality steel, magnetic material, chemical substances, electrical insulation materials, synthetic resins, carbon products, printed circuit boards, ceramic materials
Logistics, Services & Others	Electrical and electronic equipment sales, transportation of freight, real estate management, trade, and leasing
Financial Services	Sales of affiliated loans, leasing, life and non-life insurance businesses

## **Sustainability Data**

## **Financial Data**

### Financial Summary for Fiscal 2001 (year ended March 31, 2002)

Capital	Consolidated	Unconsolidated
Net sales	¥7,993,700 million	¥3,522,200 million
Net profit	¥-483,800 million	¥-252,600 million
Number of employees	321,517	50, 427

#### [Trends in Consolidated Performance Results]





Operating Income by Industry Segment for Fiscal 2001 (100 million yen)



## Environmental Data

Resource Purchasing and Discharge into the Environment



## Social Data

Work Related Accidents Rate (per 1 million hrs)



#### 【 Hitachi's No-accident Upgrade Register 】

Operation site	Initialization date	Suspension date	No-accident hours	Reference
Telecommuni- cations System Division	August 11, 1978	Ongoing	123,900,000 (as of February 2002)	On May 15, 2001, we established our the Japan Record which we are continually updating.

## Hitachi Group - Environmental Sustainability Report 2002

Thank you for your concern and interest in the business activities of the Hitachi Group, and in particular, for the interest you have shown towards our environmental preservation activities.

With our compliments, please find enclosed a copy of the Hitachi Environmental Sustainability Report 2002, detailing the environmental activities undertaken by the Hitachi Group during the 2001 fiscal year.

Together with the results of our activities for the previous fiscal year, this year's report also includes some additional information, including the Hitachi Group's new environmental vision, and information regarding our communication activities with the our stakeholders.

In the future, while striving to continually improve our environmental preservation activities, the Hitachi Group intends to pursue greater information disclosure in order to facilitate a wider understanding of the content of these activities.

We hope you will enjoy reading our latest Environmental Sustainability Report, and look forward to receiving your unreserved thoughts and opinions.

Inquiries: Corporate Environmental Policy Division Hitachi, Ltd. 6, Kanda-Surugadai 4-chome, Chiyoda-ku, Tokyo 101-8010, Japan

We would like to use the opinions and advice of our customers in formulating our future environmental activities and environmental reports. Please take the time to fill in the questionnaire on the reverse side of this page, and send your answers by fax to:

Tel:(81) 3-3258-1111 Fax: (81) 3-3258-5810 E-mail:kankyohon@hdq.hitachi.co.jp

# Fax: (81) 3-3258-5810

## Questionnaire

Please answer the questions below and mail or fax your completed questionnaire to the address/facsimile number on the right.

Corporate Environmental Policy Division Hitachi, Ltd. 6, Kanda-Surugadai 4-chome, Chiyoda-ku, Tokyo 101-8010, Japan Fax: (81) 3-3258-5810

#### Q1. What did you think of the Hitachi Environmental Sustainability Report? (Check one box only)

Excellent Good Average Not very good

• Explain the reason(s) for your selection. (Contents, comprehensibility, etc.)

#### Q2. What impressed you most about the Hitachi Environmental Sustainability Report? (You may select more than one box.)

Poor

	Our Future, Your Future	Message from the President
	Executive Commitment	Environmental Vision
	EcoValue Plan 2010	Environmental Action Plan and Evaluation
	GREEN 21 Activities Results Report	Eco-mind & Management
	Nature-friendly Products & Eco-factories	Worldwide Stakeholder Collaboration
	Sustainable Business Models	Data Summary
	Sustainability Data	Our Determination as a Global Citizen
If any of the selections above particularly interested you, please explain why.		

Q3. If any of the categories in the fiscal 2001 Data Summary particularly impressed you, please let us know.

### Q4. Do you have any suggestions for information that should be included in the Hitachi Environmental Sustainability Report.

Q5. Have you visited the hitachi green web?	
Yes No	
If you visited the hitachi green web, please let us know your impression.	
Q6. Given the chance, would you be interested in sharing your opinions as a parti information sharing town meetings?	icipant in one of Hitachi's environmental
Yes No	
Q7. From what standpoint did you read the Hitachi Environmental Sustainability F	Report? (Check one box only)
Customer Business partner Government/Public administrator Researcher Resident near a Hitachi Group facility Hitachi Group employee or employee family r Other ( )	/Educator Non-profit organization (NPO) member
O8. How did you find out about the Hitachi Environmental Sustainability Report?           Newspaper         Magazine         Hitachi Web site         Environmental seminar         Exhibit           Other (         )         )         )	(Check one box only) tion
Q9. If there are any environmental issues you would like to see us tackle, or feel t please let us know.	hat we are not tackling properly,
Thank you for your cooperation. Please fill in your personal details below. (Optior	nal)
Name: Male/Female Age:	
Address:	
E-mail:	
Occupation/Name of company:	