Gaiareport 2002

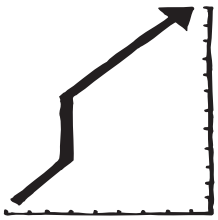
For the protection of our earth
HORIBA/Environmental Report

HORIBA
Explore the future

President's Message

Contributing to Society

Through our products



Through our business activities

Through environmental preservation

Through contribution to society

Corporate Profile (As of March 20, 2002)

Corporate Name:
HORIBA, Ltd.

Head Office:
2, Miyanohigashi-cho, Minami-ku, Kyoto, 601-8510, Japan

Founded:
October 17, 1945

Incorporated:
January 26, 1953

Paid-in-capital:
¥6,577 million

Employees:
Consolidated 3,583
Unconsolidated 951

Fiscal Closing Date:
March 20, annually

Stock Listings:
Tokyo Stock Exchange (1st Sector)
Osaka Securities Exchange (1st Sector)

Environmental Load from HORIBA's Operations

Items	Unit/year	Amount
Total CO_2 load	t-C	1284
Consumption of electricity	m-kwh	9.63
Consumption of city gas	km^3	435.8
Consumption of water	km^3	45.7
Waste produced	t	301
Exhaust of final waste	t	129
Consumption of PRTR related chemicals	kg	1044.6

(Total of eight chemical substances over 10kg)

Editorial Policy and Coverage

HORIBA, Ltd. has been producing environmental reports since 1999. This report, "Gaiareport 2002," was compiled with the aim of describing the environmental activities conducted at HORIBA, its Head Office, Head Factory and 11 sales offices throughout Japan in fiscal 2001 (March 21, 2001 to March 20, 2002) together with a summary of HORIBA's businesses.

Contents

on Four Levels

The biggest challenge facing corporations in the 21st century is how to effectively contribute to the enhancement of society. At HORIBA, Ltd., we believe in working towards the achievement of this on four levels. Firstly, as a manufacturer, HORIBA contributes to society through our environment-oriented products and technologies. Secondly, in our business activities, we are committed to recycling funds to society by creating employment, boosting profitability and ensuring the highest dividends to shareholders. Thirdly, we create products that are environmentally friendly and employ manufacturing and sales activities that have a low impact on the environment. Fourthly, we believe in the importance of increasing interaction with society.

Since our founding, HORIBA has expanded our businesses to include automotive engine measurement instruments, air and water quality analyzers, medical instruments to improve the quality of life and analytical equipment in the semiconductor industry. Through our unique measurement technologies, we directly tackle various issues related to environment and health.

HORIBA's corporate philosophy adopted in 1994 is "Contribute to global environment preservation and seek harmony between humans and nature." HORIBA's environmental management system was granted ISO-14001 certification in 1997 and all Group companies abide by environmental "manners" in all business activities. We were among the first to stop using materials that deplete the ozone layer and chlorine-based organic solvents, and our efforts to improve the waste recycling rate produced positive results in the form of significantly reduced consumption of electricity, water, and paper.

In fiscal 2001, HORIBA commenced the second stage of our environmental project, setting our sights on achieving even higher goals. We will strive to develop products that have minimal effect on the environment, reduce resources and energy consumption and establish a "zero-emissions" production system as we head towards the realization of a recycling society.

In January 2003, HORIBA will celebrate 50 years since our establishment. With this as just one important passing point, we will lead by example by developing technologies and conducting business activities that help form a recycling society to ensure a sustainable environment and a better society.

I look forward to all your continued understanding and guidance in the years to come.

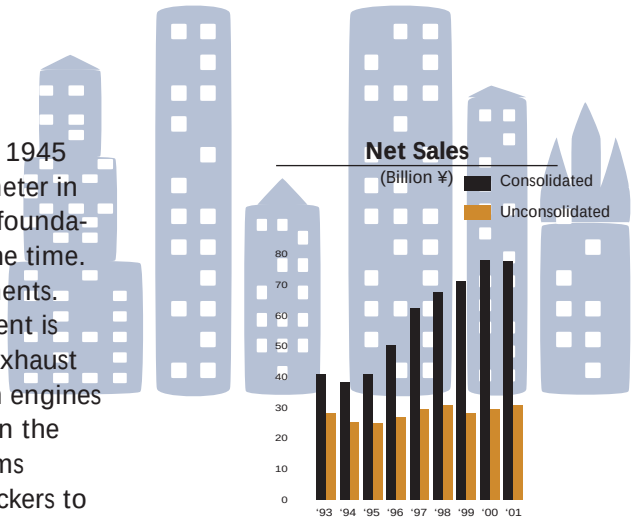
Atsushi Horiba
President

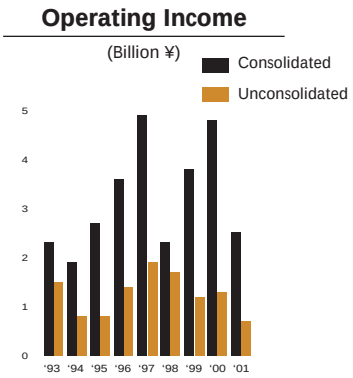
Contributing to Society

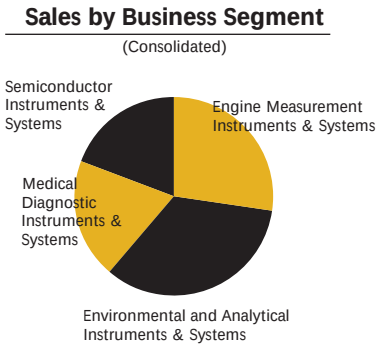
HORIBA was established as the Horiba Wireless Research Center in 1945 and was successful in developing Japan's first glass electrode pH meter in 1950. HORIBA has since expanded its businesses and grown with foundations based on measurement technologies to meet the needs of the time.

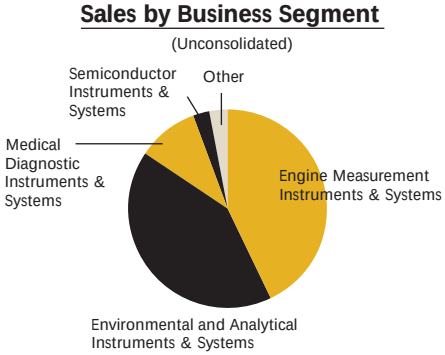
HORIBA's businesses are currently classified into four segments. The engine measurement instruments and systems business segment is involved in developing motor exhaust gas analyzers, automobile exhaust gas analyzers, next generation fuel efficient automobiles and clean engines in response to calls for automobiles that put a minimum burden on the environment. Environmental and analytical instruments and systems include air pollution monitoring equipment and water quality checkers to analyze lake, river and industrial waste water, all of which have received high acclaim. In the medical/diagnostic instruments and systems business segment, HORIBA has developed a range of quick and accurate testing systems to meet the demands of the health care industry. HORIBA supports the semiconductor industry by manufacturing and selling various cutting-edge testing equipment that eliminates waste and ensures the most effective manufacturing processes.

One of the major features of HORIBA's business development is its global business expansion, achieved by focusing on overseas technologies and markets at a very early stage, with development, manufacturing and sales activities spread around the world, centered on Japan, the United States and Europe. HORIBA is constantly aiming to be a highly valued company, full of vitality and with high growth potential. Through measurement technology, HORIBA will actively work towards solving some of the major environmental issues facing the world and society today.









History of HORIBA's Growth

(Billion ¥)

Fiscal year	1997	1998	1999	2000	2001
Consolidated					
Net Sales					
Engine Measurement Instruments & Systems	19.9	23.1	19.9	18.0	20.3
Environmental and Analytical Instruments & Systems	19.1	26.1	22.7	22.9	25.2
Medical Diagnostic Instruments & Systems	6.7	8.2	12.0	12.4	14.5
Semiconductor Instruments & Systems	16.7	10.2	16.4	24.6	14.3
Total	62.4	67.6	71.0	77.9	77.9
Operating income	4.9	2.3	3.8	4.8	2.5
Ordinary income	5.5	2.8	3.5	4.8	1.5
Net income	1.6	0.6	1.1	1.4	-1.0
Cash dividends	1.0	1.1	0.6	0.8	0.8
Research and development expenses	3.2	3.5	4.0	4.9	4.3
Number of employees	2774	3044	3257	3540	3583
Unconsolidated					
Net sales					
Engine Measurement Instruments & Systems	13.3	15.4	12.7	11.5	12.9
Environmental and Analytical Instruments & Systems	12.9	12.9	11.7	12.5	12.5
Medical Diagnostic Instruments & Systems	1.0	1.5	2.0	2.6	3.0
Semiconductor Instruments & Systems	2.1	0.7	1.2	1.9	0.9
Others	0.1	0.2	0.4	1.0	0.9
Total	29.4	30.7	28.0	29.5	30.4
Operating income	1.9	1.7	1.2	1.3	0.7
Number of employees	995	1018	993	934	951

through Our Products

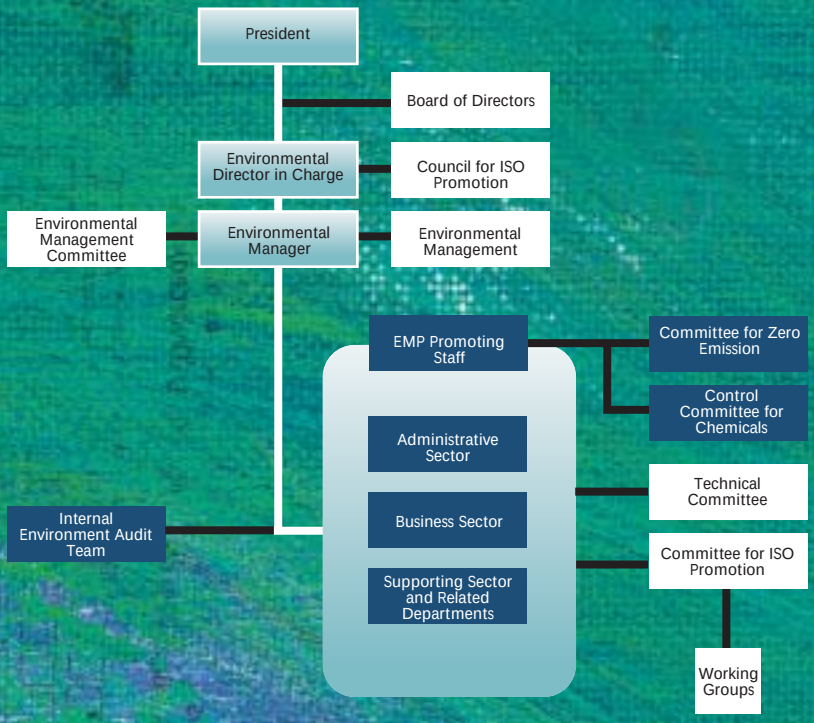
Engine Measurement Instruments & Systems

Environmental and Analytical Instruments & Systems

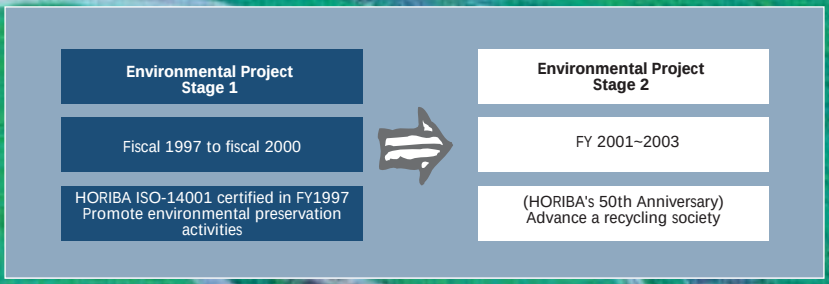
Medical Diagnostic Instruments & Systems

Semiconductor Instruments & Systems

Aggressively Tackling to be a Sustainable Company

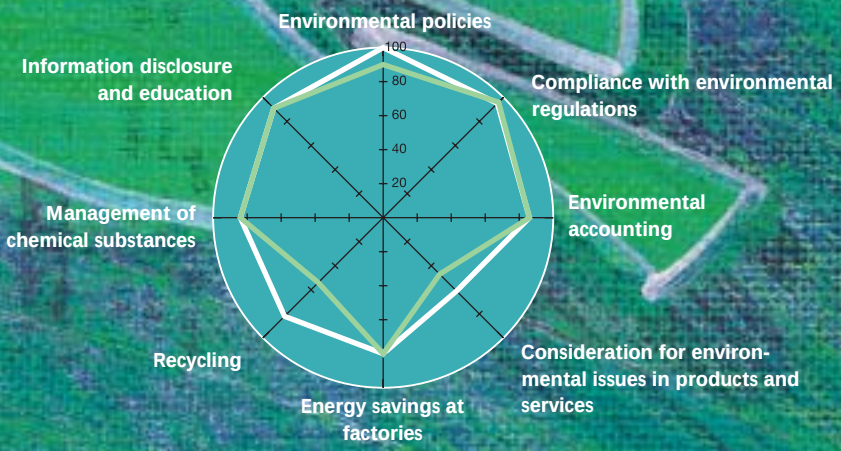


Promote Environmental Management System



Second Stage of Environmental Project

(2001–2003)



Self-Evaluation of Environmental Activities

The degree of environmental management is self-appraised on an eight-item scale and visualized on a laser chart. This Green-Point 21 system was proposed by Hitachi, Ltd.

Environmental Issues that Continues to Grow

As a maker of analytical and measuring equipment for the environment, HORIBA has an unyielding eye on the preservation of the environment in all its operating activities. Based on the second stage of our environmental project launched in fiscal 2001, HORIBA has shifted focus to the development of products that support a sustainable recycling society and is aiming to reduce the load on the environment from a number of different angles.

Environmental Philosophy and Environmental Policy

Environmental Philosophy: We are committed to the preservation of the global environment as we work to challenge the limits of technology to ensure the harmonious coexistence of humans and nature.

Environmental Policy: The following environmental policy was adopted with the aim of fulfilling our responsibilities to society through the development and diffusion of analyzers, measuring systems, and peripheral devices that contribute to protecting or improving the global environment.

1.Endeavor to develop products that pay consideration to the environment by placing primary emphasis on reducing the load on the environment.

2.Prevent environmental pollution and promote the saving of resources and energy through sustainable environment improvement activities.

3.Protect and improve the environment by setting voluntary control standards in addition to observing all environment-related laws and regulations.

Environmental Project Stage 2 Outline and Activities

Theme	Fiscal 2001 Action and Achievements	Targets for FY 2002
Promote Environmental Management		
Maintain and enhance Environmental Management System (EMS)	- Besides Head Office, HORIBA conducted environmental activities at 11 domestic sales offices - Information on environmental activities at Head Office was communicated and guidance was given on how to create EMS to subsidiaries. One of HORIBA's 13 production subsidiaries was granted ISO-14001 certification with plans for four companies to receive the certification. - Held research meetings on EMS creation in conjunction with cooperative production companies to promote environmental management. Out of the 64 cooperative companies, 59% promoted environmental management.	- Improve environmental information sharing at all HORIBA Group companies - Conduct research with cooperative production companies
Continually improve self-appraisal system	- Improved 45% in self-appraisal, as compared to 1998 standards. Communication, environmentally friendly products and "zero-emissions" were selected as areas to focus on.	- Conduct continuous self-appraisal
Create an environmental accounting system and promote effective and economic environmental preservation activities	- Enhanced precision cost efficiency	- Follow FY 2002 environmental guidelines
Create Environmentally Friendly Products		
Develop environmentally friendly products and expand the reuse and recycling of products	- Confirmed applicability by trailing environmental design - Implemented "green" procurement, lead-free production research and acceptance of goods	- Apply environmentally friendly design to all products - Develop technologies for lead-free production - Improve recycling rate of used products and components
Establish a Manufacturing System and Implement Environmentally Friendly Business Activities		
Reduce environmental load at workplaces and aim for "zero-emissions"	- Implemented measures to ensure efficiency in air-conditioning - Reduced incidence of waste acid - Optimized use of resources in production	- Establish plans to switch energy sources - Work towards "zero-emissions" - Reduce production surplus
Advance strict adherence to environment regulations	- Enhanced monitoring of additional gas consumption sensors - Prepared for legal requirements	- Add sensors - Expand online data regarding independent management of environmental activities
Reduce the use of harmful substances	- Enhanced chemical management and reduced inventories	- Reduce harmful substances
Energize Communication		
Promote the disclosure of environmental information	- Established independently chosen enlightenment themes in each department - Established independent environment label	- Start environmental label - Expand independent enlightenment activities in all HORIBA Group companies
Enhance contribution to society	- See P.18 of this report for activities conducted in FY 2001	

*EMS: Environment Management System

Promoting Effective Envi
Based on the

Global Development of EMS

The HORIBA Group consists of 37 subsidiary companies worldwide, including eight in Japan plus Head Office and 29 overseas. As we rely on cooperative companies for manufacturing, HORIBA must expand EMS into production and sales bases in order to effectively develop environmentally friendly products and penetrate markets. We also expanded ISO-14001 activities at 11 domestic sales bases and are aiming to implement EMS in three production companies in Japan and 10 overseas.

Observation of Laws and Preventative Maintenance

HORIBA pursues preventative maintenance by voluntarily conducting periodic measurement of our site environments through our "environment analysis system." During fiscal 2001, we received two noise complaints, one due to noise from air-compressors and one from our cleaning tower. In response, we promptly stopped the facilities, solved the problem, and conducted a review of similar facilities.

Internal Environmental Audit

Internal environmental audits of each section are conducted once a year. Presently, there are over 40 internal environment auditors. These auditors maintain and improve standards by studying auditing techniques and legal trends.
- Non-conformance cases: 128 (12% improvement)

Legal Qualifications

HORIBA always encourages its personnel to attain legal qualifications. We have exceeded the legally required number of personnel qualified. Qualified personnel receive financial incentives.

Education and Enlightenment Activities

Besides specialized education within each department, we are conducting enlightenment activities for all employees through lectures, an in-house information network and journal.

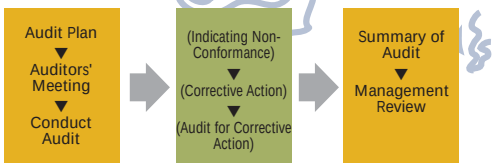
Training for Emergency

HORIBA conducts yearly emergency training at our workplaces. In fiscal 2001, we worked hard to improve accident prevention safety in the workplace by adding amendments to our work procedure and supplementing necessary equipment.

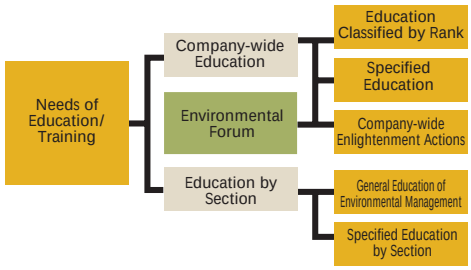
General Meeting of EMP

A general meeting of the Environmental Management Program (EMP) is held annually in June with discussions on how to improve performance and methods to stabilize product lines. Results are announced and enlightenment activities are conducted at all group companies.

Internal Audit Scheme



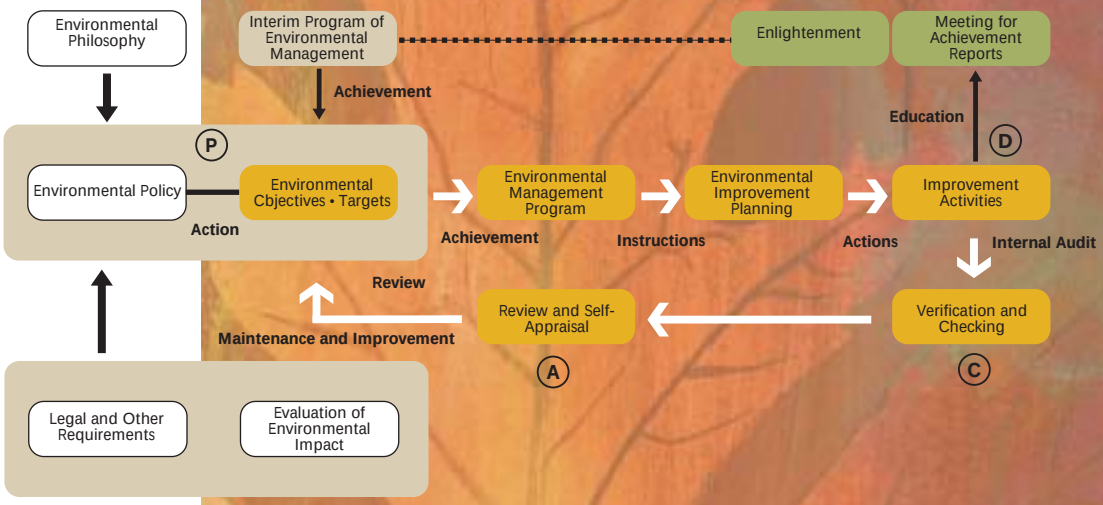
Education System



Training for emergency

ronmental Management
ISO Integrated System

Environmental Management System Flow Chart



Global Development of EMS

Established EMS* at 13 Production Sites

		EMS	Obtained ISO
Overseas Subsidiary			
HAD	Ann Arbor, MI, U.S.A	●	2001
HII	Irvine, Ca, U.S.A	●	2002
HCP	Tempe, AZ, U.S.A.	●	Independent
HE	Sulzbach, Germany	●	2003
HIL	Northampton, U.K.	●	2002
HK	Pucheon, Korea	●	Under investigation
ABX	Montepellier, France	●	2003
JY	Longjumeau Cedex, France	●	Under investigation

		EMS	Obtained ISO
Domestic Subsidiary			
STEC	Kyoto, Japan	●	(SEM, GCC)
COS	Kyoto, Japan	●	(HOR site)
HJC	Tokyo, Japan	●	Under investigation
HTS	Kyoto, Japan	●	(HOR site)
BAS	Kyoto, Japan	●	(HOR site)

Holders of Major Environment-Related Qualifications

Legal Qualification	No. of people
Environmental Analyzing and Measuring Manager	6
Pollution Prevention Manager (General)	2
Pollution Prevention Manager (Air)	26
Pollution Prevention Manager (Water)	25
Pollution Prevention Manager (Others)	8
Energy Manager	4
Chief Electrical Engineer	16
Manager, Specially Controlled Industry	1
Chief Engineer for Radioactive Substances	8
Poisonous and Harmful Substance Supervisor (Manufacturing industry)	2
Poisonous and Harmful Substance Supervisor (Sales industry)	1
Working Environment Measurement Expert	4
Designated HP Gas Supervisor	2
Hazardous Material Engineer	21

Results presentation

Environmental Accounting

HORIBA introduced environmental accounting in fiscal 1999 as an important tool for environmental preservation activities and management. By disclosing information regarding environmental activities, HORIBA aims to enhance its transparency and promote environmental management.

Thoughts on Environmental Accounting

HORIBA's environmental accounting system, introduced in 1999, is based on the guidelines of the Ministry of the Environment of Japan. Since fiscal 2001, capital investment related to R&D was included in pollution prevention costs in accordance with new accounting standards. Regarding economic effects, we calculated only those items that have definitely led to a reduction in costs. Effects such as risk avoidance are not included.

Analysis of FY 2001 Accounting Effects

In fiscal 2001, a total of 19.7 million yen, or a 15% increase over the previous year, was invested in environmental preservation activities, with expenses amounting to 707.1 million yen, or a 9.7% increase.

We are striving to reduce expenses by enhancing measuring management and facility maintenance, rationalizing business administration and advancing education and enlightenment activities. HORIBA was able to reduce costs related to management activities by 13% by promoting environment-applied design.

We were successful in reducing the power consumption factor* by 2.3% as a result of implementing various power saving initiatives despite the fact the amount of CO_2 emissions (energy and service water related) was 14t-c, a 1.1% increase over the previous year.

Although energy consumption, including electricity and town gas, remained roughly on a par with the previous year, we were able to reduce the power consumption factor by 6.7% to 3% as a result of measures to save energy in air-conditioners, which comprise 60% of total energy use. With regard to activities to reduce chemical materials with the ultimate objective of "zero-emissions," we worked to promote the recycling of resources, improving our recycling rate by 12 points and reducing our power consumption factor of harmful substance emissions by 33%.

*Power consumption factor = total electric power used in the year (megawatt-hours) divided by annual sales amount (Billion ¥)

Promoting Environmental Management

Approximately 70% of HORIBA's business revolves around environmentally related products. HORIBA proposes the creation of environmentally friendly products, and is working to improve environmental activities by promoting environmentally applied design. We have developed 38 kinds of products to help save energy. In the years to come, we will reform our accounting techniques and improve accuracy in calculating the effects of our environmental activities.

(1) Costs and Effects of Environmental Preservation Activities

(Million ¥)

Item		Details	FY 2000		FY 2001							Other specific effects
			Environmental preservation costs		Environmental preservation costs		Economic effect			Environmental preservation effects		
			Investment	Expenditure	Investment	Expenditure	Details	Amount	Difference	Effects	Material effects	
(1) Business area			11.1	28.5	15.7	40.1		97.8	42.0			
Details	Pollution prevention	Prevent air pollution Maintain water quality	0.0	2.6	3.3	3.5	Enhanced effectiveness of maintenance and monitoring & measuring	7.0	0.2	Reduced exhaust gas Improved water quality	Under 1/5 air pollution regulation figure Under 1/2 water quality regulation figure	
	Environmental preservation	Prevent global warming Prevent ozone depletion Save energy Reduce chemical substances Effective water usage/other	7.7	1.1	12.4	5.3	Reduced and stopped consuming harmful chemical substances Reduced energy Reduced waste water	49.6	31.9	Reduced/eliminated materials that attribute to global warming Saved energy	Reduced and stopped using di-chloromethane and substitute CFCs 128 t-c (carbon conversion) -2.3% (PCF)	
	Resource recycling	Reduce waste Recycling	3.4	24.9	0.0	31.3	Reduced waste/promoted recycling	41.2	9.9	Reduced waste Increased recycling	57.2t 20.4t	Improved recycling rate by 22%
(2) Upstream/downstream		Green procurement Recycling of environmetally friendly products and containers & packages	0.2	9.8	0.2	9.7	Effects of reuse/recycling	2.6	-7.3	Recycled materials/components Reduced consumption of lead solders Recovered and reused products	145 kg (as lead) 23 machines	
(3) Maintenance of environmental management		Create environment management program Information disclosure/advertising Monitoring and measuring of PRTR effect on environment Environmental education Other	5.8	140.9	3.8	121.7	Improved effectiveness of EMS Effects of advertising/PR activities Enhanced effectiveness of environmental load management Effects of education	42.8	-82.8			Conducted education of environmentally applied design at each level Expanded ISO-14001 activities at 11 sales offices
(4) R&D		Develop environment-related measuring products Develop environment-friendly products Hold/assist with environment-related events		462.8		533.6						Conducted trial production of seven environmentally applied designs Promoted lead-free technical research
(5) Social activities		Maintain and control acid rain network Provide environmental information and hold and support events	0.0	2.2	0.0	2.0						Provide information on acid rain via Internet/disclose environmental information via environmental report/participated in "green" activities and increased communication about the environment
(6) Damage to the environment			0.0	0.0	0.0	0.0			0.0			Implemented measures against noise prevention
Total			17.1	644.1	19.7	707.1		143.1	-583.7			
Environmental preservation investment to total capital investment (%)			4.3		2.6							
Total capital investment			398		760.0							
Environmental preservation costs to net sales (%)			—	2.2	—	2.3						

(2) Balance of Substance in Production Activities

INPUT					OUTPUT				
Item	Unit	FY 2000	FY 2001	Change	Item	Unit	FY 2000	FY 2001	Change
Power consumption	10,000 kw/h	958.5	963.4	4.9	CO_2 emissions	t-C	1270	1284	14.0
Power consumption factor	10,000 kw/billion ¥	33	32	-1.0	Power consumption factor	t-C/billion ¥	43.1	42.1	-1.0
Town gas consumption	km^3	449.1	435.8	-13.3	Total waste produced emissions	t	338	301	-37
Town gas consumption factor	km^3/billion ¥	15	14	-1.0	Total waste produced factor	t/billion ¥	11.5	9.9	-2.0
Water consumption	km^3	45.7	45.7	0.0	Exhaust of final waste emissions	t	187	129	-57
Water consumption factor	km^3/billion ¥	2.0	1.0	0.0	Exhaust of final waste factor	t/billion ¥	6.3	4.2	-2.0
PRTR related chemical consumption (over 10 kg)	kg	831.6	1044.6	213.0	Recycled amount	t	151	172	20
Lead consumption	kg	470.8	335.5	-135.3	Recycling rate	t	44.8	57.0	12.2

Reduced electric energy consumption in product use

Item	Types	Sales volume	Energy reduction compared to FY 2000	Energy reduction compared to FY 2001	Change	Effects of energy reduction FY 2001	Energy consumption in product use/net sales ratio
1) Energy reduction in the market for environmentally friendly products	38	1571	404,000kw/h	369,000kw/h	-3.5	5.5M¥	5.40%

(3) Standards for Environmental Accounting

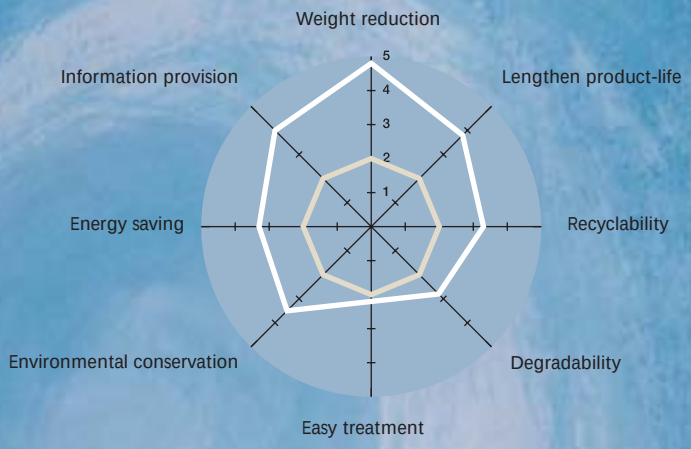
1) Coverage: Head office/factory, 11 sales offices
2) Period: March 21, 2001 to March 20, 2002
3) Investment, expenditure: Figures for FY 2000 have been revised in line with a review of accounting methods and in compliance with financial accounting standards.
4) Expenditure: Includes expenses related to personnel, management and research. Does not include depreciation.
   I) Personnel costs: Average labor cost multiplied by the number of working hours related to environmental preservation.
   II) R&D expenses: Includes research costs related to R&D expenses (research materials, personnel costs) for environment-related products and the promotion of activities to improve the environment.
5) Calculation effects:
   I) Amount reduced: Amount in previous year minus amount in current year. The 11 sales offices are not included as they started environmental activities during FY 2001.
   II) Economic effects: Based on useful life (usually six years) of major capital investments and products with major impact on the environment, and environmental preservation activities (Minimal effects are not included)
   III) Expresses energy saved in fiscal 2001 in relation to environmentally-friendly products sold

Creating a Beautiful Earth throu

Utilizing environmentally friendly design is one of our corporate missions as we work to lessen the impact on the environment. HORIBA responds rapidly to customer needs and we are determined to continue providing environmentally friendly products to satisfy customers. We will never become self-complacent, but instead will continue to provide products that will satisfy customers as we aim to be the leader in environmental activities.

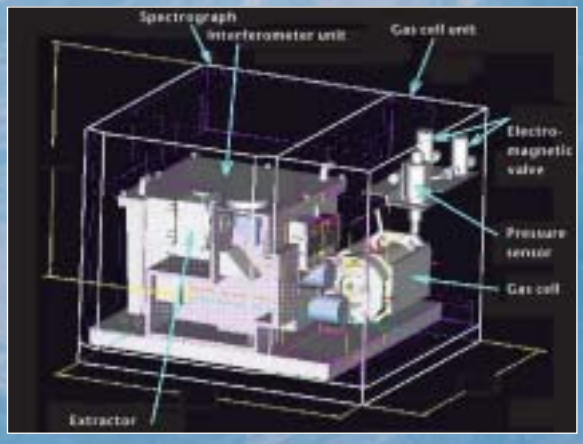
Executive Director, Environmental Systems Control
Koichi Matsumoto

In charge of promotion



All-round evaluation of trial themes

New product development
Past products



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FTIR analyzer

gh Our Environmental Businesses

Objectives and Targets

HORIBA has established an Environment Management Program (EMP) based on the following five objectives and targets taken from our environmental policy. We have designated Promotion Executives for each EMP and formulated an annual plan to improve our environmental activities.

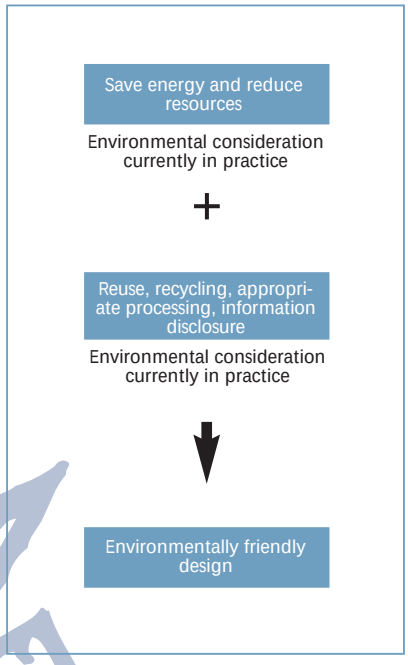
Objectives and Targets

	Objectives	Environmental Plan Stage 2	FY 2001 Targets	Results 2001
1	Develop environmentally friendly products	Make 60% of new products environmentally friendly	Conduct trial design of environmentally friendly products and evaluate at least three	Introduced five themes
2	Reduce substances harmful to the environment	Decrease consumption and inventories by 30% compared to FY 2000	Reduce consumption and inventories by 10% compared with FY 2000	Eliminated 11 of 19 banned substances and reduced chemical substance inventories by 17%
3	Promote energy and save resources	Reduce CO_2 load on environment in 3 years by 3% in power consumption factor	Reduce CO_2 load on environment by 1% in power consumption factor	Reduced CO_2 load on environment by 2.3% in power consumption factor
4	Reduce waste and aim for "zero-emissions"	Improve recycling rate to 99% in FY 2003 and reduce emissions by 50% compared to FY 2000	Improve recycling rate by 60% and reduce emissions by 5%	Improved recycling rate from 45% in 2000 to 57% and reduced emissions by 31%
5	Comply with rules and regulations	Enhance environmental accounting management	Introduce 100% primary and secondary automated environment measuring system	Implemented 100% of primary system and deferred secondary system until after FY 2002
Enlightenment activities	Implement common themes at all Group companies	Turn off lights at lunchtime and OA equipment on holidays, and set air-conditioner to 28°C (summer) and 20°C (winter)	Implement in over 90% of all Group companies	Implemented at 97% of all companies (70% at 11 sales offices)
	Conduct public relations	Follow yearly plan	Conduct advertising in environmental comics, update environmental homepage and data on acid rain	Followed plan 100%
	Develop independent enlightenment themes	Promote independent activities in each section	Reduce OA paper, packaging materials, and contribute to society	Conducted at 10 sections with 14 teams and 22 themes

■ Develop Environmentally Friendly Products

HORIBA has continued the development of environmentally friendly products, placing importance on product lifecycle as we head towards the realization of a recycling-society. In fiscal 2001, we conducted trials in readiness for full-scale activities after fiscal 2002.

Thoughts on Environmentally Applied Design



Evaluation of Environmentally Applied Design

	Item:	Evaluation points:
1.	Weight reduction	Improve consistency, yield rate and standards, and reduce resources, size and weight
2.	Lengthen product-life	Simplify repair and maintenance, and enhance endurance and reliability
3.	Recyclability	Enhance capabilities, resource consistency, material reuse, recycling and material display
4.	Degradability	Improve degradability and separation of materials
5.	Easy treatment	Simplify processes for dismantling and separation
6.	Environmental conservation	Reduce toxicity, harmful effects, explosive and implosive properties, and hazardous nature
7.	Energy saving	Improve efficiency by saving energy and reducing waste
8.	Information provision	Disclose information on processes and at time of product disposal

Activities to Support the Development of Environmentally Friendly Products

In order to create environmentally friendly products, HORIBA promotes Green-Procurement, research into lead-free print circuits and the recycling of used products, incorporating these elements into product design.

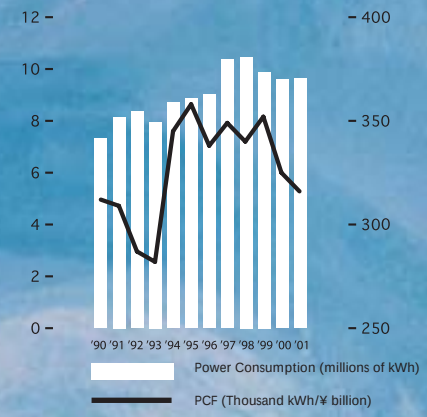
1. HORIBA has set up a forum on green procurement through the Internet for the supply of materials, conducting presentations and research.
2. HORIBA has conducted experimental production of lead-free print circuits and technical plans are in place for basic packaging substrates, and research into various problems is continuing.
3. HORIBA supplies 23 used products to SSERC (Scientific and Semiconductor Manufacturing Equipment Recycling Co., Ltd.) as part of its recycling activities.

PRTR (annual amount over 10kg)

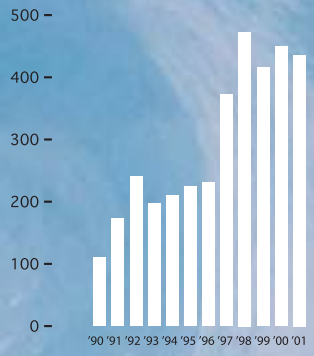
(Kg/year)

PRTR No. in Japan	CAS No.	Chemical substance	Volume handled (Annual handled)		Volume consumed (Including product)		Release: Exhaust (Air)		Release: Drain (Water)		Release: Dump (Soil)		Changed (Neutralize, etc)		Transfer (Waste products)		Recycle (Reprocess)		Main use
Year			2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	
230	7439-92-1	Solder (lead)	470.8	335.5	325.8	215.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	1.1	141.8	118.5	Print circuits and soldering attachments
253	302-01-27	Hydrazine hydrate	31.8	250.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.8	250.6	0.0	0.0	Semiconductors
63	1330-20-7	Xylene (including mixture)	145.4	138.4	4.8	0.0	9.6	0.0	0.0	0.0	0.0	0.0	49.5	0.0	81.4	53.4	0.0	85.0	Cleaning semi-conductors and components
24	22155-30-0	Alkyl benzene sulfonate (A) Alkyl benzene sulfonate (B) Akyl hydroxyl benzene Aromatic hydrocarbon	16.2	123.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.2	123.2	0.0	0.0	Semiconductors
47	60-00-4	Ethylene di-amine tetraacetic acid	111.0	121.0	111.0	121.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Additional products
283	7664-39-3	Hydrofluoric acid (HF50%)	27.4	41.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	25.1	41.2	0.0	0.0	Cleaning semiconductors and components
283	7681-49-4	Sodium fluoride	21.9	20.4	21.9	20.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	Additional reagent products
283	12125-01-8	Ammonium hydrogen fluoride (Ammonium fluoride 30%, fluorine 6%, water solution)	7.0	14.2	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.1	0.0	0.0	0.0	Semiconductors
Total			831.6	1044.6	463.5	359.2	9.6	0.0	0.0	0.0	0.0	0.0	53.1	0.0	163.5	481.6	141.8	203.5	

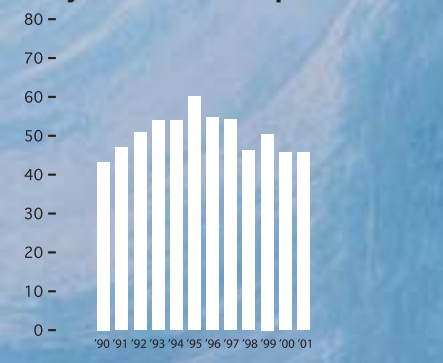
Power Consumption and PCF



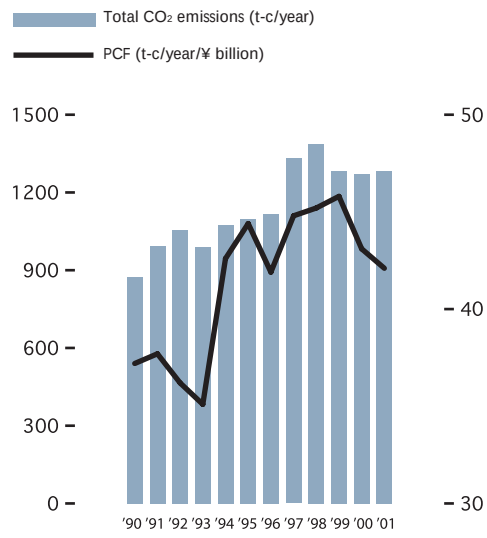
Town Gas Consumption (Gas Km³)



City Water Consumption (Water km³)



Reduction in CO_2 Load on the Environment



■ Reduce the Effect of Chemical Substances on the Environment

Since 1991, HORIBA worked towards reducing and eliminating chloride-based organic solvents and other substances that cause the depletion of the ozone layer and was successful in doing so in 1999. Since then, HORIBA has reduced the number of chemical substances used in production and R&D. In line with PRTR regulations, we have been working to improve data collection and raise the accuracy of our environmental accounting for chemicals of which more than 10 kg are used per year. In fiscal 2001, the amount of such chemical substances was 336 kg. Although the number of these chemicals used was reduced from 11 to eight, the total amount handled increased 25.6% to 213 kg due to an increase in consumption of related substances as a result of higher production levels of semiconductors. We reduced inventories and consumption in line with fiscal 2003 mid-term objectives.

Energy inspection

■ Reducing Energy and Resources

HORIBA saved electric energy in development and production processes, and reduced waste and OA paper. We also ensured total adherence to environment "manners" by turning off lights during lunch time and switching off equipment on holidays.

Reducing Electricity, Gas and Water Consumption

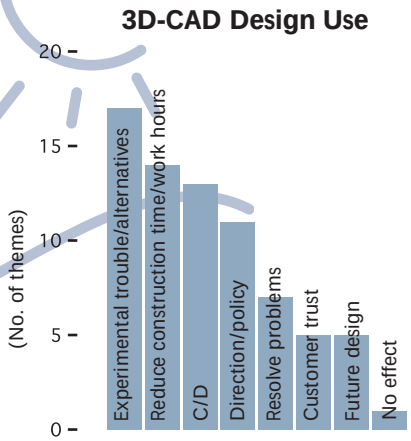
Despite introducing energy-saving equipment such as inverters, and stopping unnecessary and non-essential equipment, excessive heat coupled with new examinations and non-stop operations at research facilities caused consumption to increase 0.6% over the previous year. The power consumption factor declined six points to 31,500 kWh/billion yen. As a trial, we stopped using our water-cooling machines and significantly reduced gas consumption in each air-conditioner. An increase in work volume at semiconductor R&D facilities offset efforts and consumption increased by 2% on a year-on-year basis. We will endeavor to significantly reduce electricity, gas and water consumption in the following years.

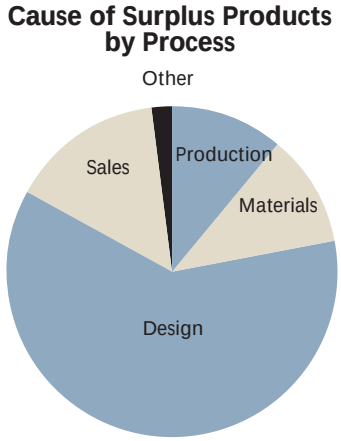
Reduced CO_2 Load on the Environment

The total energy consumed by HORIBA in 2001 increased 1% to 1,284 ton-c (carbon converted value) due to an increase in electric energy, offsetting the decrease in city gas consumed. The target for reducing total energy consumed is 1% per year.

Environmentally Friendly Production

HORIBA conducted research into maximizing resource use by reducing resources in our production activities. We saved 3.64 million yen in materials and work hours by 114 workdays through experimental design by using three-dimensional computer-aided design (3D-CAD) employing IT in all processes, from planning to design. In product assembly processes, we will conduct analyses to reduce surplus production and resources from fiscal 2002.





Recycling platform (temporary separation)

Drainage Measurement and Actual Measurement

(mg/L)
∗: Under detection limit so omitted

	Items to be regulated	Kyoto City regulations	HORIBA standards	Maximum value 1999	Maximum value 2000	Maximum value 2001	Non-detectable amount
Items concerning home environment	pH	5 - 9	6 - 8	6.2 - 8.0	6.2 - 7.7	6.1 - 7.6	/
	n-hexane extract	5	3.5	2	1.8	2.1	/
	Phenol	1	0.3	∗	∗	∗	0.002
	Copper	3	0.9	0.21	0.19	0.37	/
	Zinc	5	1.5	0.313	0.232	0.236	/
	Iron (soluble)	10	3.0	0.442	0.970	1.110	/
	Manganese (soluble)	10	3.0	0.058	0.030	∗	0.02
	Fluorine	15	4.5	0.38	0.77	0.94	/
	Nickel	2	0.6	∗	∗	∗	0.02
	Boron	1	0.3	0.056	0.200	∗	0.02
Items concerning human health	Cadmium and its compounds	0.1	0.03	∗	0.001	∗	0.001
	Cyanide	1	0.3	∗	∗	∗	0.1
	Lead and its compounds	0.1	0.07	∗	0.042	∗	0.005
	6-chromium	0.5	0.15	∗	∗	∗	0.04
	Arsenic and its compounds	0.1	0.03	∗	∗	∗	0.005
	Mercury and its compounds	0.005	0.0015	∗	∗	∗	0.0005
	trichloro ethylene	0.3	0.09	∗	0.003	∗	0.002
	dichloro methane	0.2	0.14	∗	0.016	∗	0.002
	Carbon tetrachloride	0.02	0.014	0.0004	∗	∗	0.0002
	1,1,1-trichloroethane	3	0.9	0.0027	0.0011	∗	0.0005

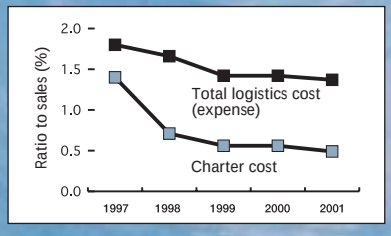
Note: Regulation figures are from Kyoto City sewage and drainage standards.

Air Measurement and Actual Measurement

(mg/L)
∗: Under inspection limit so omitted

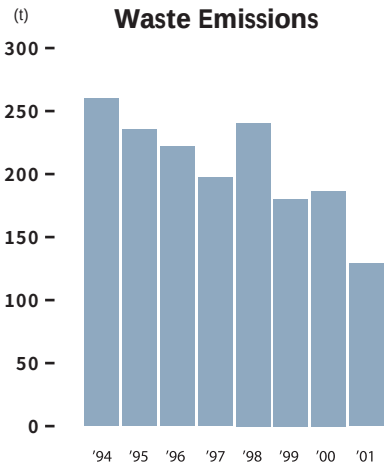
	Items to be monitored	Unit	Kyoto City regulation	HORIBA standards	Maximum value 1999	Maximum value 2000	Maximum value 2001	Non-detectable amount
At outlet	di-chloromethane	Vol ppm	200	180	16.0	—	—	
	Xylene	Vol ppm	300	28	—	<5	<2	
	Ammonia	Vol ppm	100	28	—	7	1.2	
	Fluorine compounds	mg/m3N	5	3.5	0.1	0.7	<0.7	
	Hydrogen chloride	Vol ppm	20	6	0.5	1	<1	
	Nitrogen oxides (NOx)	Vol ppm	100	30	1.0	10	<10	
At the boundary line	di-chloromethane	Vol ppm	2	—	∗	—	—	under 0.5
	Xylene	Vol ppm	1	—	—	0.3	<0.3	
	Ammonia	Vol ppm	1	—	—	<0.3	0.2	
	Fluorine compounds	mg/m3N	0.05	—	0.03	0.01	0.01	
	Hydrogen chloride	Vol ppm	0.2	—	0.02	0.02	0.05	
	Nitrogen oxides (NOx)	Vol ppm	1	—	0.5	0.022	0.085	

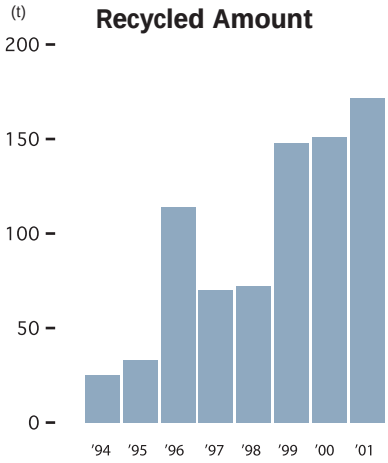
Note: Regulation figures are based on Kyoto City environmental laws.



Logistics improvement activities

Natural gas automobiles used for transportation





Product accessories in returnable containers

Separating and disposing of waste paper

Turning off lights

■ "Zero-Emissions:" Reducing Waste

In fiscal 2001, waste emissions amounted to 129 tons, down a significant 30%, mainly by reducing waste acid generated in the semiconductor clean room by 20 tons. We improved our recycling rate by 57%, a 13 point improvement, by separating waste paper. We will aim for a recycling rate over 65% in fiscal 2002.

■ Air Pollution and Water Quality Control

HORIBA has established voluntary control standards for exhausts and effluents discharged from our factories. The drainage from rinsing plants is separately treated for reuse, which also helps to reduce water consumption.

Drainage Management and Regulations

HORIBA has set voluntary control standards based on sewage water laws and Kyoto City sewage water regulations to prevent any water contamination from its experimental laboratories and factories. The pH is monitored and regularly measured at the drainage channel and the outlet. All items were below our voluntary control standards.

Preventing Air Pollution

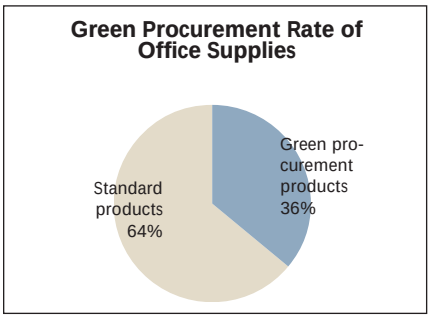
HORIBA has set voluntary control standards for the emission of harmful substances. Through regular surveillance, maintenance and control of equipment, HORIBA is working to prevent air pollution.

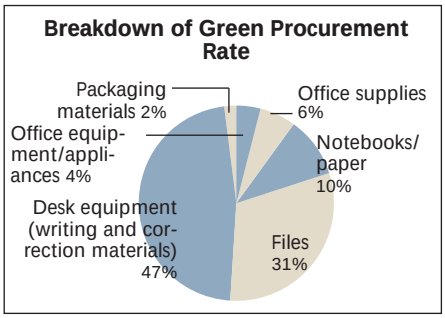
■ Enlightenment Activities

All employees participate in creating enlightenment themes to improve environmental awareness. All levels of the organization set objectives and targets to reduce environmental load and carry out independent activities to accomplish them.

Voluntary Activities: Improving Upstream and Downstream Activities

- Green procurement rate reached 36% for office equipment in fiscal 2001, with 3,746 items
- Reduced packaging materials by 363 kg by delivering product accessories in returnable containers
- Reduced freightage times by employing mixed loading on charter flights





Activities to Improve the Environment at Sales Offices

HORIBA conducted power saving of air-conditioning and OA equipment, reduction of OA paper, separation of waste and environmentally conscious driving at 11 sales offices. As a result, OA paper consumption decreased 23% to 6.2 t, waste paper decreased 25% to 3.9 t, emissions from waste plastic decreased 57% to 0.3 t, and oil and gasoline consumption decreased 2.3% to 42kL. Electricity consumption increased 6.2% to 628,000 kw/h.

Challenging Environm Measuremen

Some of HORIBA's newly developed products follow:

New products in response to diesel regulations
HORIBA has developed the MEXA-130S Opacimeter, which allows highly sensitive measurement of smoke emitted from diesel vehicles. Other features include simultaneous monitoring, compactness and ease of use and maintenance.

Opacimeter MEXA-130S

Developed emissions analyzer for exhaust gas
Developed at our U.S. subsidiary, the Bag Mini-Diluter is a new exhaust gas sampler that takes the place of conventional CVS and is now being used by Ford and other automobile manufacturers. The latest technology is used to measure the discharge of diluent and mixing gas, supporting ultra-low emission measurements.

New system for measuring total nitrogen and total phospherous (TPNA-300)
This product was developed to meet demands of the fifth series of water quality regulations. The unit further strengthens the high maintainability of the ultraviolet acidolysis decomposition method, and through component ranking and measurement flow, extremely low costs are realized.

Total nitrogen/phosphorous analyzer
TPNA-300

FG-100 Series FTIR gas analyzer for semiconductor manufacturing
This is designed for gas analysis in semiconductor production processes and measures the effects of harmful substances on the environment. The unit is compact and has superior FTIR functions and accuracy. It is also easy to move and is capable of continuous measuring.

Ultraviolet fluorescent method sulfur analyzer (SLFA-UV21)
This sulfur analyzer applies high precision analytical technology and combustion techniques. The new model can analyze sulfur in the air quickly, precisely, and in a wide range, from 30 ppb found in gasoline to the high density in light oil.

Driving control system to optimize fuel consumption
This device calculates gas density and related parameters and displays it in on a time-line, ensuring drivers can master the most efficient way to drive.

New radiation thermometer that improves air-conditioning and efficiency in operations
HORIBA has developed a device that can measure temperature distribution without touching the surface. This unit makes it possible to distribute temperature from air-conditioners and stop unnecessary heat, achieved by placing the infrared sensor on a digital camera and visually displaying temperature distribution.

FG-100 series FTIR gas analyzer

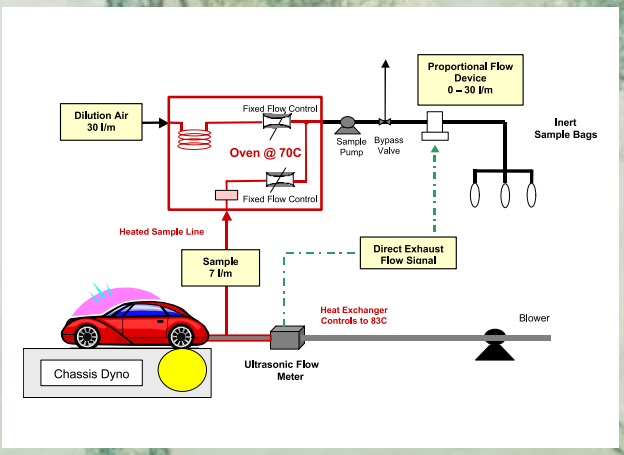
Radiation monitor (PA-300)
HORIBA's handy radiation monitor allows simple and accurate measurement through our CSI technology. With this unit, it is possible to measure the level of natural radiation around us in everyday life.

mental Issues through
t Technology

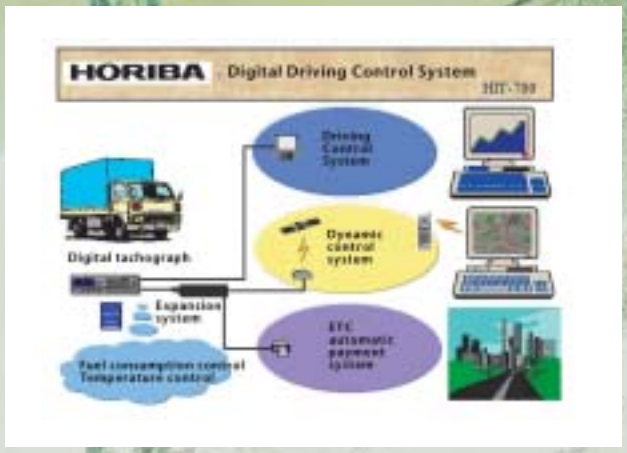
Ultraviolet Fluorescent Method Sulfur Analyzer
SLFA-UV21

Two-dimensional radiation thermometer
Ii-1064

Radiation monitor PA-300



EPA-approved Bag Mini-Diluter (BMD) Systems to measure automobile exhaust emissions
(Source:ERC Technical Report Homepage)



Driving control system to optimize fuel consumption

Contributing to Society, Measurement

Accepted environmental students from developing countries

Sponsored workshop at the 9th International Conference on the Conservation and Management of Lakes

Introduced acid rain measuring kits to the corporate disclosure corner at the Miyako Ecology Center

Participated in the clean-up of the Suma Seashore

Took part in cutting reeds at Lake Biwa

Introduced an environmental information disclosure system

y through our Environmental Businesses

HORIBA is aggressive in its approach to disclosing environmental information to the community with the objective of spreading and enhancing awareness of environmental preservation. We have also established an in-house system to respond to all enquiries via e-mail.

Accepted environmental students from developing countries
With the purpose of spreading environmental measurement technology at the request of JICA and ILEC, HORIBA has been taking on dispatch personnel technicians from overseas and Japan and training them. We also placed eight technicians from developing nations in our factories for one week and trained them on the environmental measurement technology used in our measuring equipment.

Sponsored workshops at the 9th International Conference on the Conservation and Management of Lakes
HORIBA co-sponsored a workshop on water quality monitoring with ILEC (International Lake Environment Committee Foundation) where we introduced successful examples of the use of HORIBA's portable analyzer, the U-20 multi-component water quality monitor, in Lake Biwa in Japan and Lake Ypacarai in Paraguay.

Donated acid rain measuring kits to the Miyako Ecology Center
The Miyako Ecology Center, which was set up for elementary and junior high school students in Kyoto to study the environment, was completed on March 21, 2002. HORIBA exhibited acid rain measuring kits at the corporate display corner introducing environmental activities with other Kyoto companies.

Participated in the clean-up of the Suma Seashore
The Suma Seashore is the nearest beach to Kyoto. HORIBA's employees voluntarily participated in a clean-up of the beach, an event sponsored by United Nations Environment Program (UNEP) Kansai Clean-up Office.

Took part in cutting reeds at Lake Biwa
As a symbol of cleanliness, the local community holds an annual festival to cut the reeds surrounding the lake. This year, a large number of HORIBA employees working in Shiga Prefecture participated in the event.

Introduced Environmental Information Disclosure System
HORIBA has established a system for the disclosure of environmental information based on the environmental declaration, JISQ14021. In the future, HORIBA will disclose information on environmental products that contain our environmental marks, logos and data sheets. The environmental mark, "Harmoniearth" reflects natural coexistence with the earth.

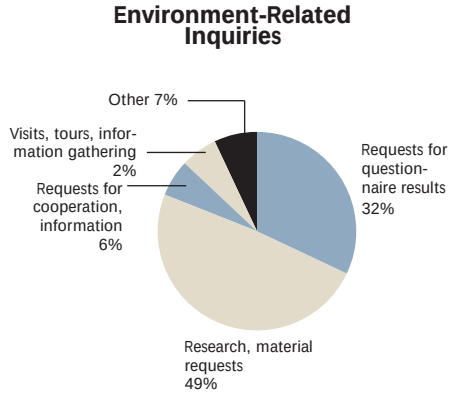
PR activities - environmental calendar and photo contests
The theme of HORIBA's 2002 calendar was "Threatened Animals." The HORIBA Award, called "Whispering Earth," has now been introduced to President Inc.'s environmental photo contest.


PR activities include entering calendar

Rewarded by the Council for Recycle Promotion
HORIBA was awarded the Chairman's Prize for the second year in a row for establishing a unique system for recycling pure water by condensing acid waste that is produced during semiconductor development processes using nanotechnology.


Received Chairman's Prize from the Council for Recycle Promotion for the second consecutive year

Environment-related inquiries
HORIBA received 85 inquiries regarding the environment in fiscal 2001, a 12% increase over the previous year, with inquiries about research into chemical substances increasing.



Discussion on Environmental Affairs
We registered with Japan Quality Assurance Organization (JQA), specializing in registration services for ISO-14001/9001 management systems, and have been getting third party inspections every year. As we head towards the second year of our Environmental Plan Stage 2 and a shift to quality ISO-2000 version, we asked Mr. Masaki, in charge of JQA, his opinion.


Masaki: Assistant Director-General at ISO Operational Headquarters of JQA.

Ishida	Masaki, JQA
1. We have been conducting design review (DR) at the development stage of production to ensure the highest quality and also created a review system for environmental demands through our DR.	1. HORIBA is registered as number 39 at Japan Quality Assurance Organization (JQA). HORIBA worked towards gaining ISO14001 very early on, promoting the management of environmental activities related to safety and quality. I believe such ISO-based management is highly efficient.
2. We have reduced power consumption in design and worked to make smaller analyzing instruments to increase competitiveness and cost efficiency. Recently, we commenced the design of environmentally friendly products with enhanced recyclability and longer life. We would like to further our pioneering role in the creation of such products.	2. Environmentally applied product design is indispensable to keep pace with the change to an environmentally friendly society. By responding to the needs of society, demand for these products is expected to grow.
3. We are actively promoting IT-related activities such as 3-D CAD. We can produce virtual simulations of trial products and conduct experimentation using IT. Positive effects include accelerated speed at the design and development stage and a reduction in resource consumption.	3. At JQA, we have advanced the development of an ISO-integrated system regarding quality and the environment to enhance management efficiency. We are expecting this pilot scheme will lead to the further integration of this system.

History of Environmental Activities

	Measures taken by Horiba					Relevant world events
	Year	Environmental preservation/Improvement activities	Year	Technical development/External activities	Year	
1970s			1950	- Developed a glass electrode pH meter and entered the analytical instruments business	1958	- Industrial Wastewater Control law
					1967	- Basic Anti-Pollution Law
			1954	- Developed a non-dispersive Infrared Gas Analyzer	1968	- Clean Air Law
	1968	- Launched a series of measuring instruments for water treatment and water quality monitoring systems				
		- Established an environmental control section within the Company	1970	- Launched a series of measuring instruments for water treatment and water quality monitoring systems. Started marketing air quality and water quality for the monitoring systems.	1970	- Clean Water Law
						- Revised Clean Air Act (U.S.A.)
	1971	- Nine HORIBA personnel passed the national examination for pollution control supervisor			1971	- Environment Agency
		- Established a pollution control system within the Company				- Qualification of Pollution Control supervisor
	1971.7	- Registered the company's wastewater treatment facilities in line with legislative requirements for water pollution control			1973	- Regulation to Prevent Gross Water Pollution
			1979	- Became a charter member of the Japan Environmental Technology Association		
	1978.3	Connected public sewage by building sewage systems				
1980s	1982.8	Established a committee for environmental management within the Company	1988	- Donated the Sensorize Tower, a display on air pollution monitoring, to Kyoto City	1988	- Montreal Protocol on Substances that Deplete the Ozone Layer
1990s	1990.2	Reduced the use or switched to substitutes for chlorine-based organic solvents and the specified CFCs	1991	- Presented vehicle for measuring air pollution to Chinese Academy of Sciences	1991	- The Environment Charter: The Federation of Economic Organization
				- Opened "HONEST" website on acid rain		
			1992	- Donated acid rain measuring equipment to elementary school in Kyoto through accumulated bell marks	1992	- United Nations Conference on Environment and Development
				- Participated in the Eco Brazil Exhibition held concurrently with the UNCED		
				- Independently developed and commenced operations of the Returnable Display Booth		
	1993.4	Stopped the use of 1,1,1-trichloroethane and switched to dichloromethane	1993	- Introduced an air background observation system to the Minami Torishima Observatory, Japan Meteorological Agency	1993	- Basic Environment Law
	1994	- Stipulated the Company's contribution to environmental management in the corporate philosophy			1994	- United Nations Framework Convention on Climate Change
		- Started preparation for the introduction of an environmental management system based on BS7750	1995	- Published message regarding environmental issues in Kyoto magazine, "Club Fame" in conjunction with Qinghua University	1995	- Packaging Materials Recycling Law
	1995.9	Started the training of environmental auditors within the Company	1996	- Developed air pollution monitoring equipment for HAPs	1996	- Appeal for Environmental Preservation by the Federation of Economic Organization
	1996.1	- Launched the project to qualify for ISO14001 certification				
		- Stipulated the Company's environmental philosophy and the environmental policy	1997	- Organized an internal meeting on the environment in corporation with the foreign participants of COP3 held in Kyoto	1997	- Kyoto Protocol to the United Nations Framework Convention on Climate Change at COP3
	1996.12	- Started activities to discontinue the use of substitutes for CFCs and dichloromethane				
	1997.6	- The HORIBA environmental management system was certified as meeting ISO-14001 requirements		- Participated in the ECO JAPAN exhibition held during COP3		
	1998.3	- Stopped all use of HCF225			1998	- Revised Energy Saving Law
	1999.4	- HORIBA was designated a 2nd model factory for saving energy	1998	- Developed water quality monitor that can measure 13 items at once	1999	- Promotion of Control of Chemicals Law
		- Started a preparatory work on rules for PRTR		- Dispatched action and guidance personnel through a JICA project to support water quality management in Paraguay		
2000s	2000.1	- Published the first edition of Gaiareport	2000	- HORIBA HIT-700 digital driving recorder won an award in the 2nd Eco-drive Contest (March)	2000.5	- Guidelines on Environmental Accounting
	2000.2	- Stopped all use of dichloromethane, a chlorine-based organic solvent			2000.6	- Basic Formation of Recycling Society Law
	2000.3	- Independently developed total environmental monitoring system HORTEM-21			2000.12	-International Acid Rain Conference at Tsukuba
	2000.4	- Implemented the recycling of packaging materials in line with legislative requirements				
	2001.3	- Established the Environmental Project Stage 2	2001	- Established the Bio Applied System, Ltd. as a subsidiary for studies on endocrine disrupters	2001.1	- Enforcement of Pollutant Release and Transfer Law
	2001.4	- Began project to expand environmental management activities based on ISO 14001 to all the local sales offices		- Sponsored workshops at the 9th International Conference on the Conservation and Management of Lakes	2001.4	- Enforcement of Home Appliances and Food Recycling Law
	2001.1	- English version of environmental report first issued			2001.4	- Enforcement of Green Purchasing Law
	2001.1	- Obtained ISO-14001 at overseas subsidiary HAD			2001.12	- Implemented fifth series of water quality regulations
	2002.2	- Established self-approved environmental mark	2002	- Completed Miyako Ecology Center and introduced permanent displays	2001.12	- Announced method to recover and breakdown CFCs

HORIBA

Explore the future

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Front cover:

Gaia was the Greek goddess known as Mother Earth who brought about purification and prosperity. HORIBA, a maker of analytical and measuring equipment, provides products that keep a watchful "eye" on the earth, contributing to the preservation of the environment. Using this premise as the mainstay of its operations, HORIBA expresses its website as "GAIAPRESS" and its environmental report as "Gaiareport."

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