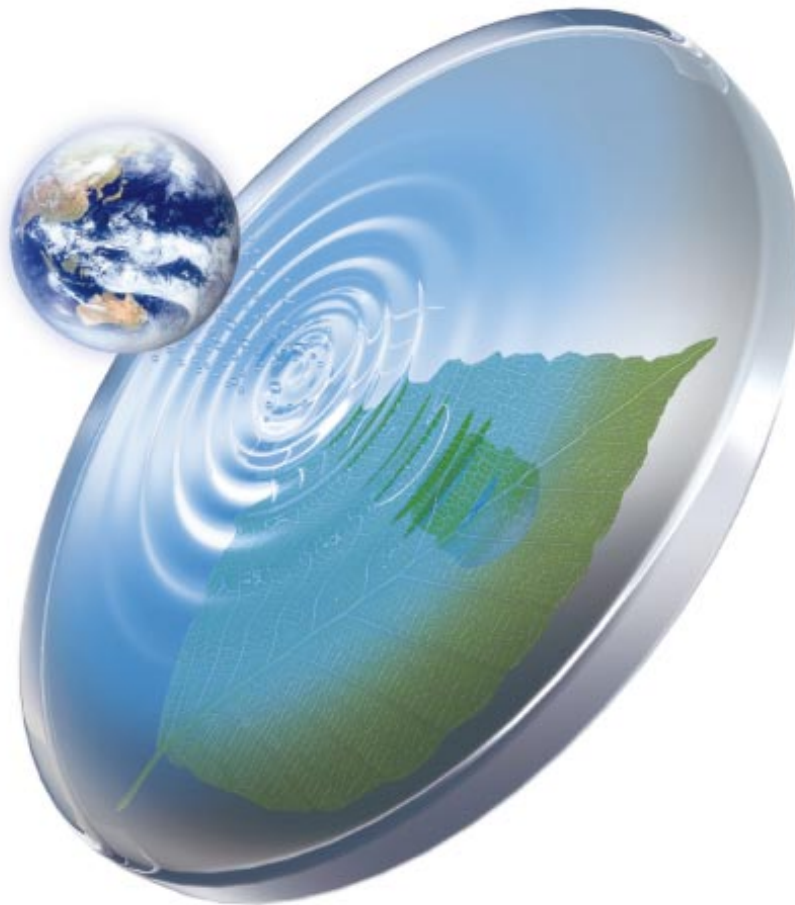




# Nikon Environmental Report 2003



## Scope of Report

This environmental report contains information on the impact of Nikon Corporation's facilities on the environment, and measures undertaken for fiscal year 2003 (April 1, 2002 to March 31, 2003) at Nikon Corporation. It encompasses the head office, as well as the Ohi, Yokohama, Sagami, Kumagaya and Mito plants. The report also includes information on activities during the term, plans for future activities, and information on group companies.

## Reference

"Environmental Report Guideline (2000)" by the Ministry of the Environment

## Web

Environmental preservation

<http://www.nikon.co.jp/main/eng/portfolio/eco/index.htm>

Corporate profile

<http://www.nikon.co.jp/main/eng/portfolio/index.htm>

Investor relations

<http://www.nikon.co.jp/main/eng/portfolio/ir/index.htm>

## Next issue

December 2004

## Major features

- The first renewal of ISO 14001 certification — including group companies — is nearing completion. (See page 8)
- The rate of eco-glass utilisation in optical designs has climbed to more than 90%. (See pages 10, 13)
- All plants developed zero emission systems with the goal of eliminating emissions which eventually become landfill. (See pages 10, 20)
- Despite our best efforts toward the reduction of CO<sub>2</sub> emissions, we fell short of our target. (See pages 17, 20)
- Nikon introduced a new three-year plan, "Nikon Environmental Action Plan for Fiscal 2004" (from fiscal 2004 to fiscal 2006). It emphasises the regulation of chemical materials — crucial for the future of Europe, as well as for our continued expansion. (See page 11)
- Reduction of environmental loading was a prime consideration in the construction of the new Nikon Ohi West Building. (See page 29)

## Issued by

Environmental & Technical Administration Dept.  
NIKON CORPORATION

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The cover design expresses a world where Nikon's corporate activities are in harmony with nature. The lens, the foundation of Nikon corporate activity, projects air, water and earth onto a green leaf symbolising life.

## Message from Management

“Recycling”... “coexistence”... these are key concepts that have served as guidelines for the broad range of activities we have undertaken in the name of environmental preservation since 1992, when we issued the “Nikon Basic Environmental Management Policy.”

The world we live in is experiencing numerous difficulties, including global warming and the pervasion of pollutants into the environment. There is considerable pressure being brought to bear on corporations to take a more proactive stance with regard to preservation of the environment. These activities are becoming a key index used in assessing corporate performance. We at Nikon are cognizant of these changes, and we have continued to intensify our efforts to comply with ever-changing requirements.

Our execution of the plan outlined in the Groupwide “Nikon Environmental Action Plan”, initiated in June of 2000, has enabled us to make great strides toward fulfilling our goals in this, the final year of our midterm plan.

We achieved zero emissions for all Nikon plants, a full year ahead of schedule. All of our plants — and nearly all of our core Group companies — have earned ISO 14001 certification.

Our efforts to minimise the environmental impact of our products continue unabated. This includes IC steppers, LCD steppers, cameras, microscopes, measurement instruments, surveying instruments, binoculars and special equipment. One of our primary objectives has been to increase the usage of eco-glass, and we have made great strides in this area — eco-glass used in optical designs has climbed to more than 90%.

We have encountered difficulties in pursuit of our goal of a significant reduction in CO<sub>2</sub> emissions, widely recognised as the chief cause of global warming, at many manufacturing facilities. However, we maintain our dedication to achieving this goal, and will not be deterred.

As we approach fiscal 2006, we have reviewed and revised the Nikon Environmental Action Plan. Major changes include emphasis on implementation of environmental preservation activities on a Groupwide basis, and taking measures to comply with the increasingly stringent chemical substance regulations in Europe and elsewhere. We pledge to do everything within our power to support and advance the prosperity and fulfillment of humankind.

We hope that this report provides a clear picture of our position on the environment, and we welcome and greatly appreciate your input.



Shoichiro Yoshida  
Chairman of the Board and  
Chief Executive Officer

*Shoichiro Yoshida*



Teruo Shimamura  
President, Member of the Board and  
Chief Operating Officer

*Teruo Shimamura*

# Company Profile

## Company Profile

**Corporate Name:** NIKON CORPORATION  
**Head Office:** Fuji Bldg., 2-3, Marunouchi 3-chome, Chiyoda-ku, Tokyo 100-8331, Japan  
 Tel: +81-3-3214-5311

**Established:** July 25, 1917  
**Capital:** ¥36,660 million  
 (as of March 31, 2003)

**Net Sales:** ¥468,958 million (Consolidated)  
 (for year ended March 31, 2003) ¥342,626 million (Non-consolidated)

**Number of Employees:** 13,184 (Consolidated)  
 (as of March 31, 2003) 5,986 (Non-consolidated)

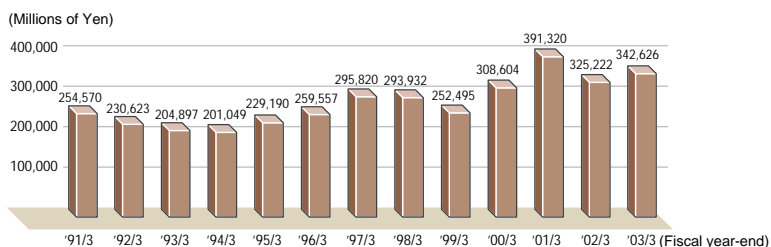
**Primary Business:** Manufacture and sales of optical instruments

## Major Products of Nikon Group

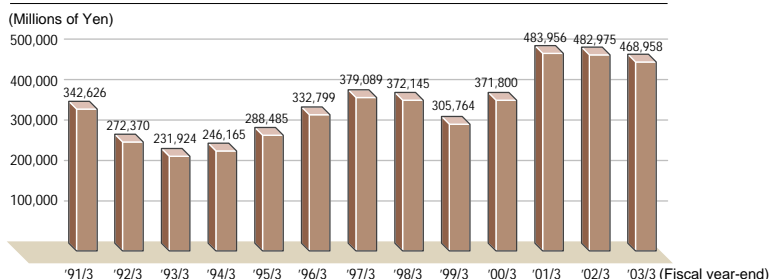
<b>Precision Equipment Business</b> (Precision Equipment Company*)	IC steppers/LCD steppers
<b>Imaging Products Business</b> (Imaging Company*)	Film cameras/Digital cameras/Interchangeable lenses/Speedlights/Photographic accessories/Film scanners
<b>Instruments Business</b> (Instruments Company*)	Biological microscopes/Industrial microscopes/Stereoscopic microscopes/Measuring instruments/Inspection equipment
<b>Customised Products Business</b> (Customised Products Division*)	Customised equipment/Space-related equipment/Astronomy-related equipment/Nuclear power-related equipment/Optical components
<b>CMP Business</b> (CMP Division*)	CMP systems
<b>Sport Optics Business</b> (Nikon Vision Co., Ltd.)	Binoculars/Monoculars/Fieldsopes/Fieldmicroscopes/Loupes/Large-objective-diameter binoculars/Sightseeing binoculars/Laser rangefinders
<b>Surveying Instruments Business</b> (Nikon-Trimble Co., Ltd.)	Total stations/GPS products/Pulse laser stations / Theodolites/Automatic levels
<b>Eyewear Business</b> (Nikon-Essilor Co., Ltd.; Nikon Eyewear Co., Ltd.)	Ophthalmic lenses/Hearing aids/Ophthalmic frames/Sunglasses/Pendant loupes

\*These companies/divisions are part of Nikon Corporation's internal structure.

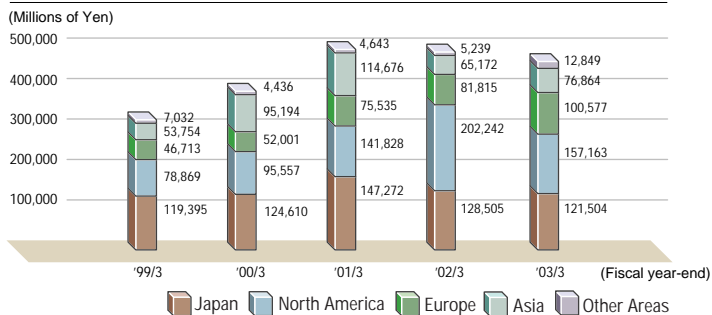
## Net Sales (Non-consolidated)



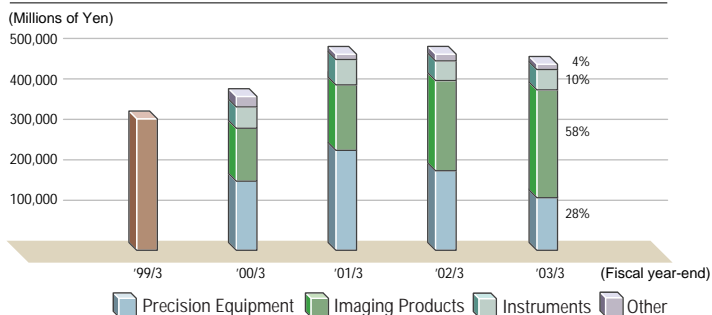
## Net Sales (Consolidated)



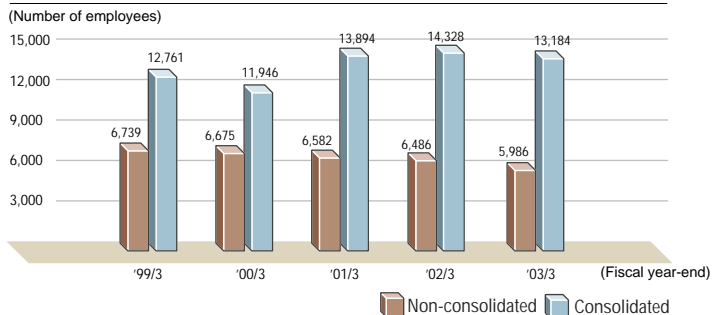
## Net Sales in Japan and Export Sales by Region (Consolidated)



## Net Sales by Industry Segment (Consolidated)



## Number of Employees (Non-consolidated/Consolidated)



# Environmental Policy

Nikon made its official stance regarding environmental management activities in 1992, when it created and implemented the “Nikon Basic Environmental Management Policy”, and has continued to be active in environmental conservation. In March 2000, we devised the corporate strategy called “Vision Nikon 21”,

which describes the direction of Nikon Group activities. Nikon also redefined its corporate philosophy for the new century, using the keywords “Trustworthiness and Creativity”. Guided by our new philosophy, we will continue to pursue the goals of the “Nikon Basic Environmental Management Policy”.

## Corporate Philosophy

### Trustworthiness

#### Nikon:

- Is trusted and loved by people worldwide.
- Exists and prospers in harmony on all levels throughout the world.

### Creativity

#### Nikon:

- Creates new values by maintaining pride and faith in our business and by encouraging entrepreneurial spirit.
- Appeals to people all over the world and satisfies them with efficient and useful products and services.

## The Nikon Basic Environmental Management Policy

### Purpose of the Policy

Nikon enacted the “Nikon Basic Environmental Management Policy” in 1992 in order to express its commitment to improvements in its local environment as well as globally, and to act as the foundation for its environmental management activities. Nikon believes that pollution prevention measures and the efficient use of resources are vital steps that must be taken, in order to be able to hand on to the next generation a healthy environment that is capable of supporting the continued development of society.

In fiscal 2002, the Nikon policy underwent a major revision in response to the anticipated needs of the coming recycling society. An outline of our action guidelines is presented at right.

### Action Guidelines

- (1) We will make every effort to promote waste reduction, reuse and recycling, while encouraging energy and resource conservation, waste reduction and conscientious waste processing, with the goal of creating an environment-conscious recycling society.
- (2) We will perform environmental and safety reviews at every stage of planning, development and design, in order to provide products that fully comply with environmental protection aims.
- (3) At every stage of production, distribution, use and disposal, we will actively introduce materials and equipment that are effective in protecting the environment, strive to develop and improve technologies in this area, and work to minimise environmental burdens.
- (4) We will meet targets for reduction of environmental burdens and use of harmful substances, and continue to improve our environmental management system through environmental audits and other means.
- (5) We will develop and follow a rigorous code of standards, in addition to observing all environmental conservation treaties, national and regional laws and regulations.
- (6) We will conduct ongoing education programmes to further employee knowledge of environmental issues and promote employee involvement in environmental activities.
- (7) We will provide Nikon Group companies and suppliers with guidance and information to promote optimal environmental protection activities.
- (8) We will participate actively in the environmental protection programmes of society at large, and implement information disclosure.



### The Nikon Environmental Symbol

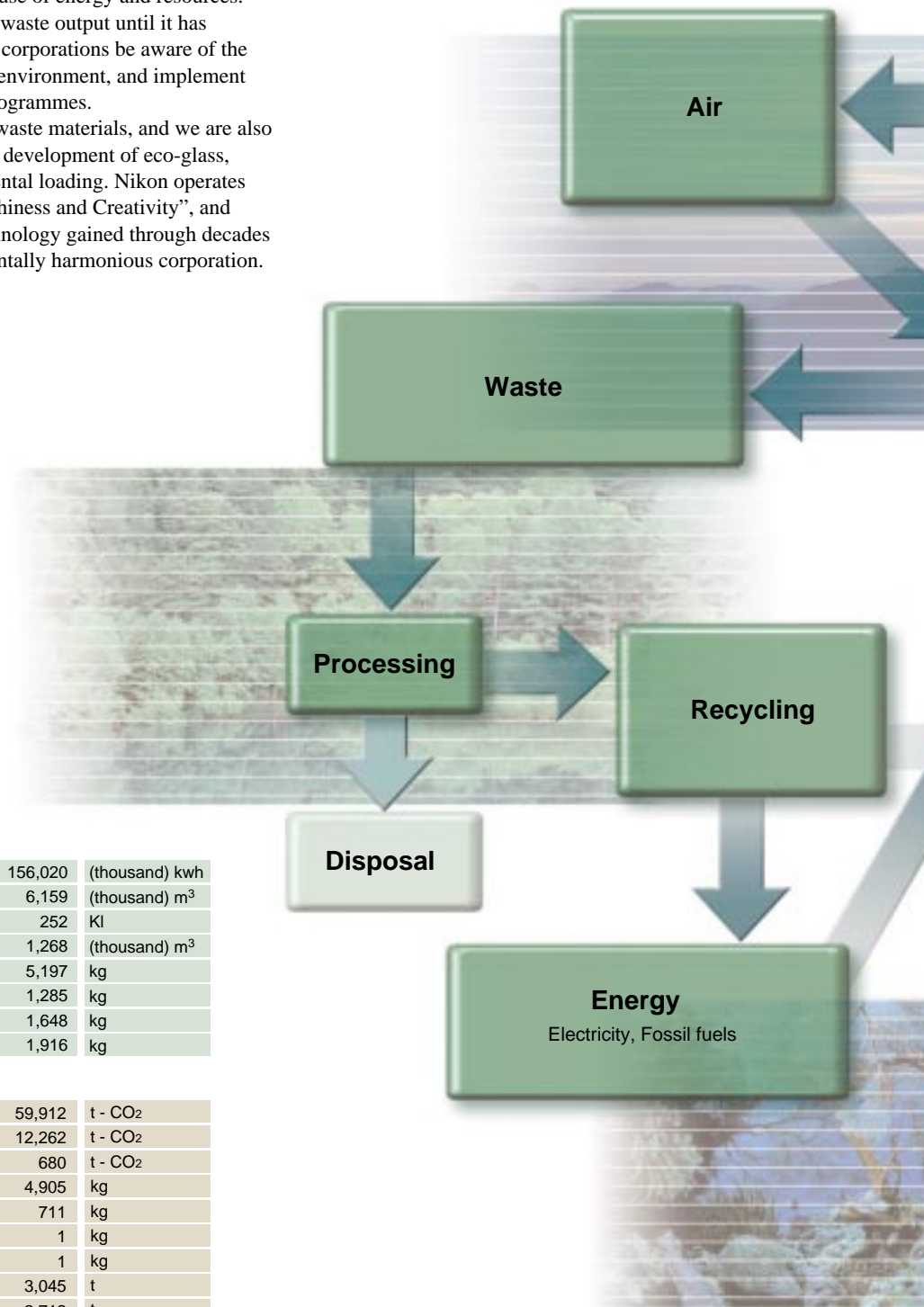
This symbol was created and introduced in 1998 to represent the environmental conservation and improvement activities being undertaken by the Nikon Group.

# Nikon and the Environment

A corporation is like a living organism, functioning within the global environment. As it grows, it provides products and services to society and continues to grow, and during this time it consumes various resources and energy, and generates numerous types of waste.

It is crucial that we recognise the importance of recycling and conservation — particularly reductions in the use of energy and resources. We must also continue working to reduce our waste output until it has virtually been eliminated. It is imperative that corporations be aware of the impact their operations may be having on the environment, and implement more sophisticated ecological management programmes.

Nikon is continuing its efforts to reduce waste materials, and we are also actively pursuing unique activities such as the development of eco-glass, which will significantly reduce our environmental loading. Nikon operates based on its corporate philosophy, “Trustworthiness and Creativity”, and today we are applying the experience and technology gained through decades of work in the field to form a new, environmentally harmonious corporation.



## Primary environmental loading

### Input

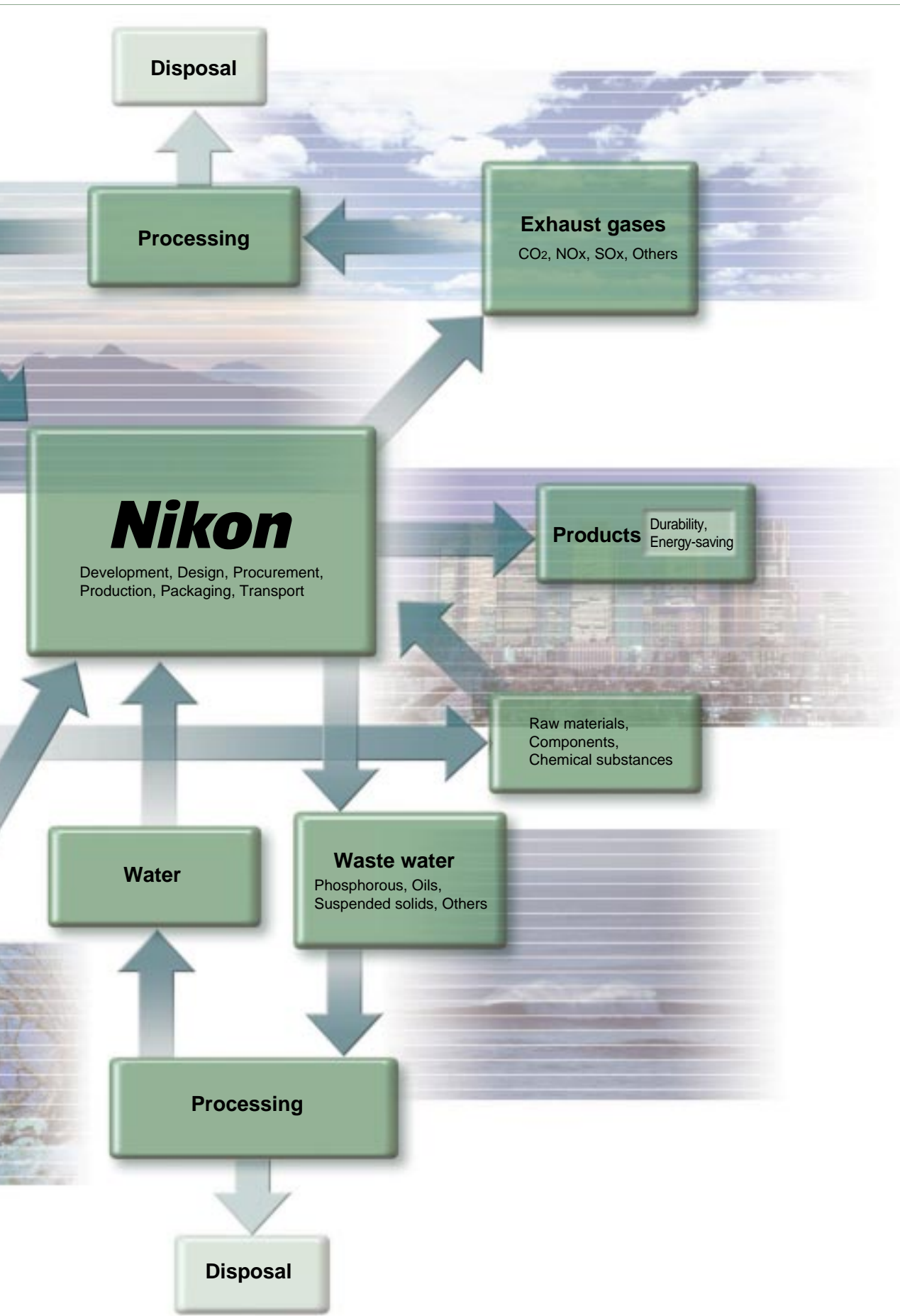
Energy	Electricity	156,020	(thousand) kwh
	Gas	6,159	(thousand) m <sup>3</sup>
	Heavy oil	252	Kl
	Water	1,268	(thousand) m <sup>3</sup>
PRTR substance	Dichloromethane	5,197	kg
	Toluene	1,285	kg
	Lead and lead compounds	1,648	kg
	Boron and boron compounds	1,916	kg

### Output

CO <sub>2</sub> Exhaust	Electricity	59,912	t - CO <sub>2</sub>
	Gas	12,262	t - CO <sub>2</sub>
	Heavy oil	680	t - CO <sub>2</sub>
PRTR substance exhaust	Dichloromethane	4,905	kg
	Toluene	711	kg
	Lead and lead compounds	1	kg
	Boron and boron compounds	1	kg
Disposal	Amount of waste generated	3,045	t
	Amount recycled	2,712	t
	Amount of landfill	38	t

## <Target Plants>

Ohi, Yokohama, Sagami-hara, Kumagaya and Mito

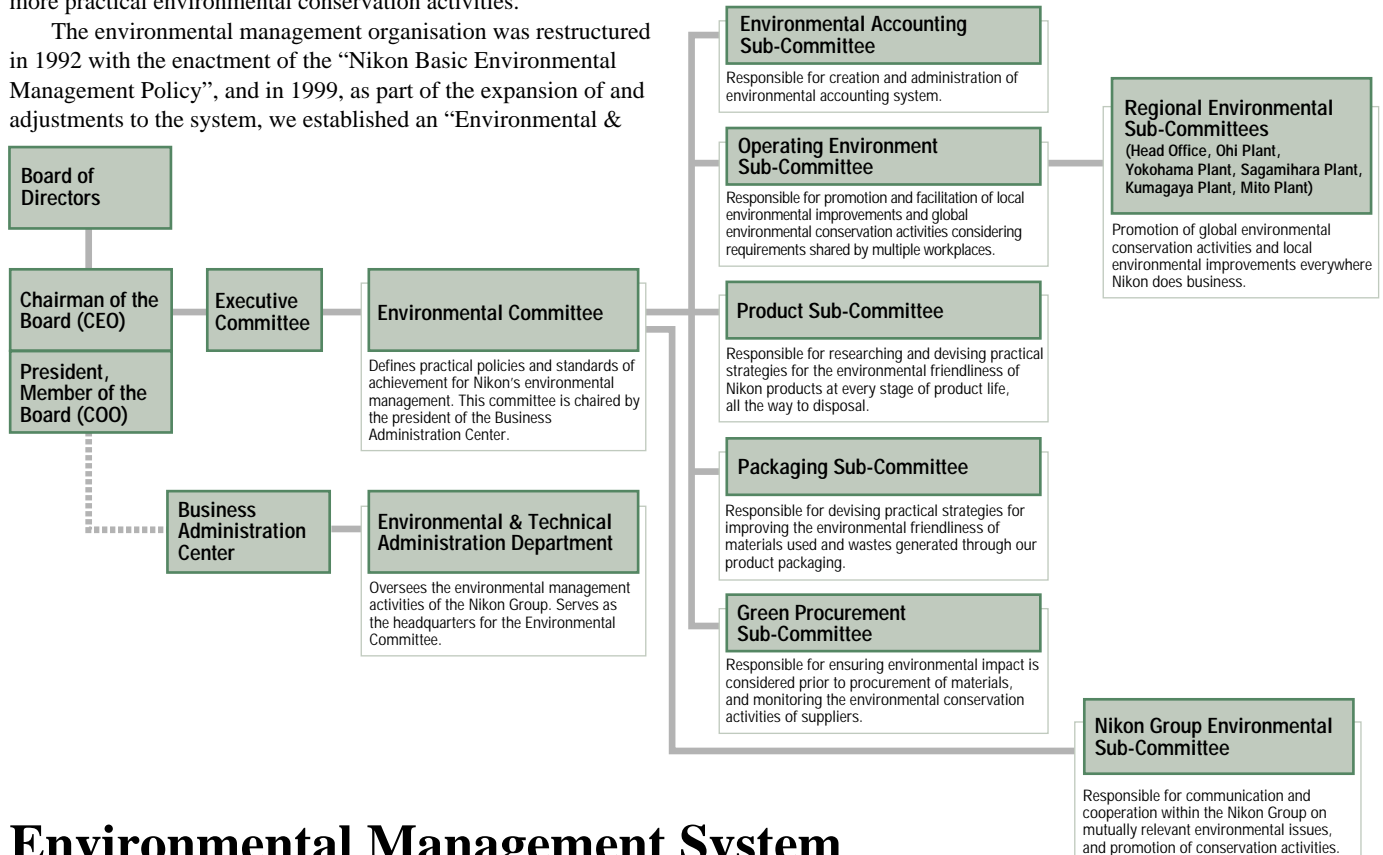


# Environmental Management Organisation

Nikon first entered into environmental protection activities in 1970, when it formed its “First Pollution Response Committee”. This committee was renamed the “Pollution Prevention Committee” in 1971, and again in 1973 to be known as the “Environmental Improvement Committee”. This gave birth to our programme of more practical environmental conservation activities.

The environmental management organisation was restructured in 1992 with the enactment of the “Nikon Basic Environmental Management Policy”, and in 1999, as part of the expansion of and adjustments to the system, we established an “Environmental &

Technical Administration Department” within the company. The current environmental management organisation ensures that we are constantly kept abreast of new domestic or international laws, treaties or regulations, or modifications to existing ones, as well as the ever-changing needs of society.



# Environmental Management System

In September 1996, an international standard on environmental management systems (ISO 14001) was officially introduced by the International Standards Organisation. The intention of the standard is to promote the self-improvement of environment-related aspects of corporate activities, with the United Nation’s policy for ensuring the sustainable development of the human race as its foundation.

The Nikon Group’s current environmental status and schedule for obtaining ISO certification are indicated below, along with each facility’s main activities. The facilities which have been recertified are identified by asterisks (\*).

Through earning this certification and our dedication to our

Location	Date of Approval	Primary Activities
Ohi Plant	July 1998*	Development of basic technology, development and design of Imaging Company products
Kumagaya Plant	August 1998*	Development, design and manufacture of IC steppers
Sagami-hara Plant	August 1998*	Manufacture of optical glass, research and development of lenses
Yokohama Plant	October 1998*	Development, design and manufacture of Instruments Company products and LCD steppers
Mito Plant	April 1999*	Development of manufacturing technology, production of customised products
Sendai Nikon Corporation	March 1997*	Manufacture of cameras and LCD steppers
Zao Nikon Co., Ltd.	March 1999*	Manufacture of component devices for IC/LCD steppers, surveying instruments
Tochigi Nikon Corporation	September 1999*	Manufacture of IC/LCD steppers, various optical lenses
Nasu Nikon Co., Ltd.	December 1999*	Manufacture of ophthalmic lenses
Aichi Nikon Co., Ltd.	December 1999*	Manufacture of ophthalmic lenses
Kurobane Nikon Co., Ltd.	December 1999*	Manufacture of lenses for microscopes, profile projectors and surveying instruments
Mito Nikon Corporation	December 1999*	Manufacture of component devices for IC/LCD steppers, cameras
Hikari Glass Co., Ltd.	June 2000*	Research, development and manufacture of optical glass
Nikon Logistics Corporation	March 2002	Logistics
Okuma Shokai Co., Ltd.	May 2002	Sales of microscopes and measuring instruments
Kogaku Co., Ltd.	February 2003	Sales of microscopes and measuring instruments

environmental activities, we have not only achieved improved levels of environmental management, but have also become stricter in our classification of waste, significantly increased our recycling rate for paper, reduced our output of paper and other forms of refuse, and intensified our promotion of energy-conserving measures.

This Environmental Management System functions together with the quality standards set forth in ISO 9000 guidelines — for which each business unit has received certification — allowing us to meet our customers’ needs while showing consideration for the environment, and at the same time supplying high-quality products.



# Environmental Accounting

Nikon introduced its first comprehensive environmental accounting system in fiscal 2001. Environmental accounting involves accounts that show the cost and the effects of environmental conservation activities. Through the introduction of environmental accounting, we aim to improve the effectiveness of our conservation activities,

## Features

Nikon's environmental accounting features the classification of environmental costs and effects in line with our environmental preservation activities.

## Basic Policy

The figures contained in our environmental accounts for fiscal 2003 are for Nikon Corporation only. Environmental costs (investments and expenses) are based on Nikon environmental targets and measures, as well as standards set forth in the Environmental Accounting Guideline (2002 version) of the Japanese Ministry of the Environment.

and implement sustainable environmental policies over the long term with quantifiable results. We are also working to heighten awareness of our environmental conservation activities, through the publication of related information and the clarification of our stance on the environment.

## Development

We established an "Environmental Accounting Sub-Committee" within the "Environmental Committee" in June 2000, with the aims of creating an environmental accounting system and an appropriate means of operation. This Sub-Committee is active on an ongoing basis.

## Effects

The effects of our environmental activities are shown under the heading "Results through Fiscal 2003" on the Environmental Action Plan in the next chapter. These results are the actual results of strategies implemented in response to our environmental target values.

### Cost of Environmental Conservation (Fiscal 2003)

Unit: millions of yen

Category		Main Activities	Investment	Expenses	Total
Product environment	Product development: Energy conservation, reduced use of resources, reduction in use of harmful chemical substances, ozone layer protection	Energy-saving design, switch to hot-runner moulds, design products for use with eco-glass	-	109	109
	Containers and packaging	Reduction in use of plastics in packaging materials	-	0	0
	Green procurement	Operation of green procurement guide	-	3	3
	Product Environmental Accounts		-	112	112
Workplace environment	Energy conservation	Replacement of air conditioning systems, installation of inverters	96	7	103
	Resource recycling	Recycling of waste plastics, promotion of paper reuse, reducing water use	6	38	45
	Reduction in use of harmful chemical substances	Promotion of use of alternative solvents, refurbishment of wash machines	9	0	9
	Improvement of office	Improvement of office environmental performance	-	26	26
	Workplace Environmental Accounts		112	72	184
Response to laws and regulations		Operations management for gas and water emissions processing equipment, maintenance of noise and vibration-emitting facilities, waste management, control of dangerous substances	72	409	481
Management activities		ISO 14001 related (EMS management, workplace education), introduction of greenery	3	364	366
Total			187	957	1,143

### Classified According to Guidelines of the Ministry of the Environment (Fiscal 2003)

Unit: millions of yen

Category	Details	Investment	Expenses	Total
Cost within business area		184	454	638
Pollution prevention costs	Operations management for gas and water emissions processing equipment, maintenance of noise and vibration-emitting facilities	72	226	298
Global environment conservation costs	Energy conservation, reduction in use of harmful chemical substances, control of dangerous substances	106	68	174
Resource recycling costs	Waste reduction (recycling of waste plastics, promotion of paper reuse), waste management, reducing water use	6	160	167
Upstream/Downstream costs	Containers and packaging measures (reduction of plastics in containers and packaging materials)	-	4	4
Management activities costs	ISO 14001 related (EMS management, workplace education)	-	387	387
R & D costs	Energy-saving design, switch to hot-runner moulds, design products for use with eco-glass	-	109	109
Social activity costs	Financial sponsorship for a wide range of activities	-	2	2
Environmental damage costs	Processing contaminated soil	3	0	3
Total		187	957	1,143

Scope of Data:  
Nikon Corporation  
(Non-consolidated)  
Applicable Period: April 1,  
2002 to March 31, 2003

\* Costs which could not be clarified are in principle not included in these accounts.  
\* Depreciation and amortisation have not been factored into these accounts.  
\* Where a facility has been utilised for several purposes and breakdown is considered complex, the entire cost has been included in the investment cost.  
\* All costs have been rounded up or down to the nearest whole number, so in some cases the totals do not match the figures indicated.

## The Ongoing Challenge

In addition to trying to collect environmental cost data more quickly and efficiently, we are also aiming to improve our methods for gauging the effects of our activities, so that we can clearly illustrate the relationship between cost and effect. Furthermore, we are

considering more extensive environmental accounting training, and looking at ways in which environmental accounting procedures could be put into use by our manufacturing subsidiaries, whose environmental impact is relatively significant.

# Environmental Action Plan

Nikon implemented its corporate policy statement for group activities, known as “Vision Nikon 21”, in March 2000. This was the basis for the midterm environmental targets we specified in our “Nikon Environmental Action Plan 21 for Fiscal 2001”. Now we have the revised plan, “Nikon Environmental Action Plan 21 for

Fiscal 2003”, which separates the targets into 13 categories representing the product and workplace environments as shown below. The results achieved to fiscal 2002 are shown below.

The following evaluation encompasses fiscal years 2001 through 2003, as this is the final year of our midterm environmental plan.

## The Nikon Environmental Action Plan for Fiscal 2003

### Product Environment

Theme	Midterm environmental targets	Results through fiscal 2003	Evaluation
<b>1. Energy conservation (prevention of global warming)</b>	<ul style="list-style-type: none"> <li>Improvement in energy efficiency of 30% or greater for functions on products newly released during fiscal 2003, compared with products sold since fiscal 1998.</li> </ul>	<ul style="list-style-type: none"> <li>11 out of 16 products selected from among products newly released during fiscal 2003 achieved a 30% or greater improvement in energy efficiency. Some examples are introduced on pages 14 and 15.</li> </ul>	△
<b>2. Reduction in use of harmful chemical substances</b>	<ul style="list-style-type: none"> <li>Use of eco-glass in 90% or more of all optical designs in fiscal 2003.</li> <li>Begin employing lead-free solder in Printed Circuit Boards from fiscal 2003, progressing so that in fiscal 2006, 100% of PCBs in consumer products and 50% of PCBs in industrial products will be lead-free.</li> </ul>	<ul style="list-style-type: none"> <li>92% (78%).</li> <li>Unable to implement lead-free solder on PCBs in fiscal 2003, but positive results are expected from trial production and testing.</li> </ul>	○ △
<b>3. Ozone layer protection</b>	<ul style="list-style-type: none"> <li>Reduction of models using ozone layer-damaging HCFC, used as refrigerant for IC and LCD steppers to fewer than 30% of all products shipped in fiscal 2003, with ultimate goal of total elimination of use of HCFC by the end of fiscal 2005.</li> </ul>	<ul style="list-style-type: none"> <li>38% (46%).</li> </ul>	△
<b>4. Containers and packaging</b>	<ul style="list-style-type: none"> <li>40% reduction in plastic containers used in consumer products in fiscal 2003, compared with figures for fiscal 1999.</li> <li>Total elimination of non-separable multi-material for new packaging from fiscal 2001 onward.</li> </ul>	<ul style="list-style-type: none"> <li>Use of plastic containers increased by 95% (53% reduction).</li> <li>As in the previous period, no non-separable multi-materials were used.</li> </ul>	× ○
<b>5. Green procurement</b>	<ul style="list-style-type: none"> <li>Increase suppliers' average environmental conservation evaluation by 20 points by the end of fiscal 2003, compared with fiscal 2000.</li> </ul>	<ul style="list-style-type: none"> <li>Increased by 21 points, compared with fiscal 2000. (Increased by 7 points, compared with fiscal 2000.)</li> </ul>	○

### Workplace Environment

Theme	Midterm environmental targets	Results through fiscal 2003	Evaluation
<b>1. Energy conservation (prevention of global warming)</b>	<ul style="list-style-type: none"> <li>20% or better reduction in energy consumption per net sales in fiscal 2003, compared with figures for fiscal 1999.</li> </ul>	<ul style="list-style-type: none"> <li>Reduction rate fell to 13% in fiscal 2003, compared with fiscal 1999. (Reduction rate fell to 16% in fiscal 2002, compared with fiscal 1999.)</li> </ul>	△
<b>2. Waste reduction</b>	<ul style="list-style-type: none"> <li>Develop zero-emission system for at least two plants by the end of fiscal 2003, and for all plants by the end of fiscal 2005.</li> <li>Boost waste recycling rate to at least 85% in fiscal 2003.</li> <li>Reduce amount of waste generation per net sales by at least 40% in fiscal 2003 compared with figures for fiscal 1999.</li> </ul>	<ul style="list-style-type: none"> <li>All plants developed zero-emission systems in fiscal 2003.</li> <li>89% (78%).</li> <li>Reduction rate fell to 31% in fiscal 2003, compared with fiscal 1999. (Reduction rate fell to 19% in fiscal 2002, compared with fiscal 1999.)</li> </ul>	○ ○ △
<b>3. Reduction in use of harmful chemical substances</b>	<ul style="list-style-type: none"> <li>Reduce use of chlorinated organic solvents in wash by at least 70% in fiscal 2003, with goal of elimination of these solvents by the end of fiscal 2006.</li> </ul>	<ul style="list-style-type: none"> <li>Reduction rate fell to 84% in fiscal 2003, compared with fiscal 1999. (Reduction rate fell to 62% in fiscal 2002, compared with fiscal 1999.)</li> </ul>	○
<b>4. Green procurement</b>	<ul style="list-style-type: none"> <li>Increase the number of new or replacement ecological office supplies by at least 300 over fiscal 2001 level, by the end of fiscal 2003.</li> </ul>	<ul style="list-style-type: none"> <li>352 new ecological items added since fiscal 2000. (259 new ecological items added since fiscal 2000.)</li> </ul>	○

\*In the section titled, “Results through fiscal 2003”, the data in parentheses are results through fiscal 2002.

Symbols: Circle indicates progress on-schedule; triangle denotes insufficient effort; “X” represents significant gap between stated goal and actual performance.

Nikon introduced a new three-year plan, “Nikon Environmental Action Plan for Fiscal 2004” (from fiscal 2004 to fiscal 2006), which incorporates considerable revisions to the previous plan. The targets for fiscal 2004 are also displayed.

Nikon is committed to reaching every one of the targets during the coming period.

## The Nikon Environmental Action Plan for Fiscal 2004

### Product Environment

Theme	Midterm environmental targets	Targets for fiscal 2004
<b>Energy conservation (prevention of global warming)</b>	<ul style="list-style-type: none"> <li>More than 30% improvement in overall energy efficiency of product models newly released during fiscal 2006, compared with figures for fiscal 2001.</li> </ul>	<ul style="list-style-type: none"> <li>More than 10% improvement.</li> </ul>
<b>Reduction in use of harmful chemical substances</b>	<ul style="list-style-type: none"> <li>Use of eco-glass in 100% of new consumer product optical designs and in at least 95% of industrial products by fiscal 2006.</li> <li>100% of printed circuit boards in consumer products and more than 50% of new printed circuit boards in industrial products shipped in the second half of fiscal 2006 will be lead-free.</li> </ul>	<ul style="list-style-type: none"> <li>More than 95% in consumer products and more than 91% in industrial products.</li> <li>Some PCBs in both consumer and industrial products will be lead-free.</li> </ul>
	<ul style="list-style-type: none"> <li>Elimination of hexavalent chrome, lead, cadmium, mercury, PBB, PBDE and polyvinyl chloride from all consumer products shipped, excluding special materials, by the first half of fiscal 2006.</li> </ul>	<ul style="list-style-type: none"> <li>Notable progress.</li> </ul>
	<ul style="list-style-type: none"> <li>Total elimination of HCFC as a refrigerant for IC and LCD steppers shipped by fiscal 2006.</li> </ul>	<ul style="list-style-type: none"> <li>Reduction of models utilising HCFC to less than 15% of total models shipped.</li> </ul>
	<ul style="list-style-type: none"> <li>Reduced purchases of products containing hexavalent chrome, lead, cadmium, mercury, PBB, PBDE and polyvinyl chloride to less than 50% of total purchases by fiscal 2006.</li> </ul>	<ul style="list-style-type: none"> <li>Identification, communication, clear indication and investigation of specific harmful chemical substances.</li> </ul>
<b>Containers and packaging</b>	<ul style="list-style-type: none"> <li>More than 40% reduction in use of plastic containers for consumer products by fiscal 2006, compared with fiscal 2001.</li> </ul>	<ul style="list-style-type: none"> <li>More than 30% reduction.</li> </ul>

### Workplace Environment

Theme	Midterm environmental targets	Targets for fiscal 2004
<b>Energy conservation (prevention of global warming)</b>	<ul style="list-style-type: none"> <li>More than 3% reduction of greenhouse gas emissions per net sales from fiscal 1998 to fiscal 2002 (converted for yearly average of CO<sub>2</sub> over 5 years) by fiscal 2006.</li> </ul>	<ul style="list-style-type: none"> <li>More than 1% reduction.</li> </ul>
<b>Waste reduction</b>	<ul style="list-style-type: none"> <li>Development of a zero-emission system for major manufacturing subsidiaries by fiscal 2006.</li> <li>Reduction of the amount of waste discharge per net sales compared with figures for fiscal 2001 by at least 20% by fiscal 2006.</li> </ul>	<ul style="list-style-type: none"> <li>At least one subsidiary.</li> <li>More than 5% reduction.</li> </ul>
<b>Reduction in use of harmful chemical substances</b>	<ul style="list-style-type: none"> <li>Total elimination of chlorinated organic solvents in wash, including at major manufacturing subsidiaries, by the end of fiscal 2006.</li> </ul>	<ul style="list-style-type: none"> <li>More than 80% reduction, compared with fiscal 1999.</li> </ul>
<b>Green procurement</b>	<ul style="list-style-type: none"> <li>Introduction of “Nikon Green Purchasing Guidelines” in fiscal 2004, with at least 80% of purchases conforming to the “Nikon Green Purchasing Guidelines” by fiscal 2006.</li> </ul>	<ul style="list-style-type: none"> <li>Introduction of “Nikon Green Purchasing Guidelines”, with at least 60% of purchases conforming to the guidelines.</li> </ul>

## Activities in the Product Environment

# Product Assessment

To minimise the adverse environmental effects of our products throughout their life cycles (see diagram to right), Nikon formulated its own product assessment system in 1995. This system makes it possible to quantify the degree of reduction of environmental impact during product development.

From 1995 we implemented this system in all product development and design departments, in order to gradually decrease environmental loading caused by our products.

Nikon is constantly adding items and standards for assessment. We have introduced a new product assessment system (5th edition) which incorporates stricter standards, in order to boost the efficiency of natural resource usage, energy consumption and harmful substance management.

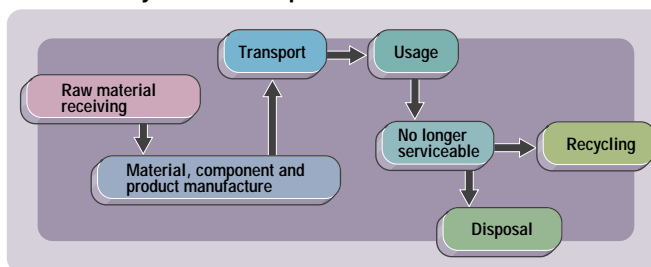
### Features of Nikon Product Assessment System

- Priority placed on reducing consumption of resources and energy; recycling; long product life; reduction in use of harmful substances; reduction and simplified processing of waste; disclosure of material information.
- Advance survey and investigation of emerging environmental issues and regulations in each country, and development of Nikon standards that take the characteristics of our products into account.
- Formulated after thorough discussion among product development teams, material engineers and other related personnel.
- Make product assessment mandatory in design reviews and related phases of product development sequences, with procedures and standards clearly defined.
- Continuous revision through item addition and improvement; Version 4 is currently in use.
- Vigilance in product improvement from one model to the next.
- Support designers by building and maintaining an environmental database of material information (eco-glass, flame retardants, etc.), explanatory text and documentation.

### Contents of the Nikon Product Assessment

- Continuing reduction in product mass, volume, and part count.
- Assessment and improvement of energy consumption based on Nikon's "Power Consumption Efficiency" formula (product functionality/power consumed).
- Pursuit of extended product life and simpler repair.
- Promotion of recycling of secondary batteries (simplified removal, content marking and explanations).
- Elimination of specific brominated flame retardants (suppression of dioxin in waste processing).
- Reduce use of vinyl chloride (added chlorine and lead, cadmium and phthalates can cause problems after waste disposal).
- Elimination of ozone layer-depleting substances (specified CFCs and alternative substances).
- Marking of materials used (compliance with ISO 11469 international plastic marking standard, parts marking).
- Reduction in use of harmful substances (heavy metals in materials such as resin, electric wire, solder etc.).
- Simplified separation of plastics and metals.
- Reduction in amount of waste generated from consumables; appropriate customer guidance on waste processing.
- Use of optical glass free of lead and arsenic in optical system components such as lens elements (see page 13).
- Strict observance of environmental laws and regulations.
- Overall assessment (comments on degree of improvement, overall assessment points, etc.).

### General life cycle for Nikon products



### Nikon Product Assessment Record

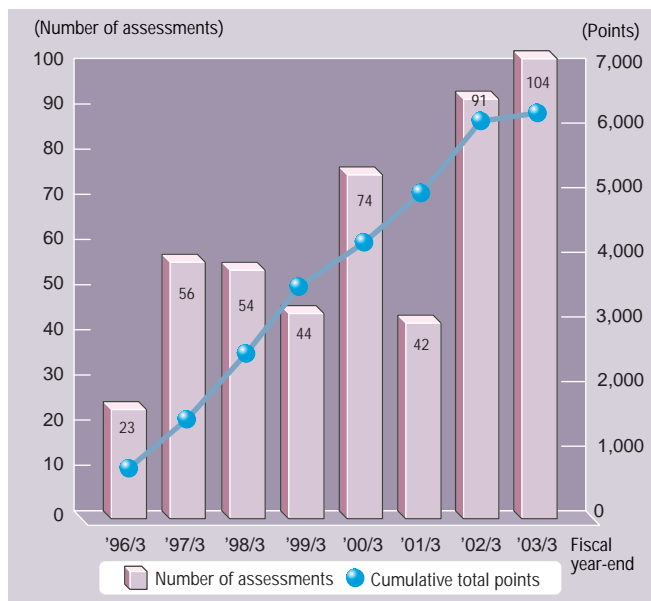
In all Nikon product categories, products are assessed at all stages of development, including prototype and mass production. Efforts to improve environmental friendliness are constant.

If a product shows improvement in terms of environmental friendliness when compared with the prior model, assessment points are awarded. If the product is about the same, no points are given. If it has deteriorated, points are subtracted. The assessment point scale ranges from -100 to +100.

For the eight-year period from fiscal 1996 to fiscal 2003, a total of 488 assessments were made under this programme, with an average assessment of +12.6 points. The current cumulative total exceeds 6,000 points.

Nikon is continuing its efforts to improve and enhance the functionality and performance of all of its products, while releasing new products to world markets, and this assessment indicates that our environmental efforts are gradually being rewarded.

### Product Assessment Results (through FY2003)



# Environmentally Sound Optical Glass (eco-glass), Lead-free Solder

## Targets

- Use of eco-glass in 90% or more of all optical designs in fiscal 2003.
- Begin employing lead-free solder in Printed Circuit Boards from fiscal 2003, progressing so that in fiscal 2006, 100% of PCBs in consumer products and 50% of PCBs in industrial products will be lead-free.



Nikon began full-scale work on the development of eco-glass, the environmentally sound optical glass free of lead and arsenic, in 1995. We are employing this new glass in all of our product categories such as IC steppers, cameras and microscopes that incorporate optical systems.

## History of Eco-glass Development

Since Nikon was established in 1917 as the first optical glass manufacturer in Japan, we have placed a high priority on the development and manufacture of optical glass designed for use in optical equipment.

As part of our anti-pollution efforts, in the 1970s we developed a new composition for optical glass totally free of cadmium, a toxic material.

In the 1990s, to contribute to the resolution of global environmental problems, we thoroughly reexamined compositions of optical glass bearing in mind the possible effects on the environment. The majority of 70 to 100 types of optical glass contained lead and arsenic. We have recognised that this fact is one of the most significant environmental aspects of our business activities and products. Therefore, we decided to develop a new

## Eco-glass Development Highlights

- Fiscal 1996 Eco-glass development project launched full-scale.
- Fiscal 1998 Eco-glass-related items added to Nikon product assessments.
- Fiscal 1999 Eco-glass database completed; employed across the board in optical design.
- Fiscal 2000 Development of eco-glass composition about 80% complete; eco-glass used in 77.1%\* of new optical designs.
- Fiscal 2001 Development of eco-glass composition complete; (cumulative total development cost is 410 million yen); eco-glass used in 86.1%\* of new optical designs.
- Fiscal 2002 Eco-glass used in 78.1%\* of new optical designs.
- Fiscal 2003 Eco-glass used in 92.2%\* of new optical designs.

The rates of eco-glass utilisation\* in new optical designs in various fields are as shown below.

	Fiscal 2002	Fiscal 2003
IC steppers	73.5%	98.5%
Cameras and digital cameras	81.0%	100.0%
Microscopes and measuring instruments	83.8%	80.8%
Surveying instruments, customised products, others	94.4%	98.2%
Future product development	90.8%	94.4%
Nikon overall	78.1%	92.2%

\*Rates are calculated based on component units.

## Introducing Lead-free Solder

As part of our efforts to minimise the use of harmful substances, Nikon is planning to replace existing lead-tin alloy solder with new lead-free solders made from alloys such as tin-silver-copper.

One step in the implementation of lead-free solder is the promotion of trials and assessments, using the high-performance, lead-free soldering reflow furnace at the Yokohama plant, and at other facilities among our Group companies.

Nikon has also enacted technical lead-free soldering standards for our engineers, and will keep our manufacturing system, as well as group and cooperative companies abreast of the situation.

An environmental action plan has been developed for future product plans.

See pages 10,11

Nikon offers an extensive range of optical equipment and, given this diversity, some products incorporate parts that may not accommodate eco-glass. As far as technically possible, however, we intend to switch over to the new material. We will take the same stance in replacing solder that contains lead with lead-free solder.

environmentally sound glass and employ it in our products.

We demanded that the new glass offer optical performance at least equalling that of the glass in use. As such, the optical glass development department and the optical design department initiated a joint effort to investigate a variety of new compositions and design factors. After development was completed and the supply stance solidified, we began introducing eco-glass into our products. In fiscal 1999, the new glass was used across the board in the optical design department.

Nikon is working to minimise the risk of environmental pollution (air, water, soil and waste disposal sites) caused by optical glass containing lead and arsenic, as far as possible throughout the entire product life cycle (raw material production, manufacturing, use and disposal).



Lenses and prisms made with eco-glass



Eco-glass development



High-performance reflow furnace for lead-free soldering

# Examples of Environmentally Friendly Product Development

The entire Nikon group is implementing the “Nikon Product Assessment” to create new products which offer enhanced power consumption efficiency, are smaller and lighter, use less harmful

substances, and utilise eco-glass. We believe these improvements will be most beneficial to the global environment. Here are a few examples:

## Precision Equipment Company Products

### ● i-line scan field IC stepper NSR-SF120

This i-line stepper delivers high-performance exposure for non-critical layers of next-generation DRAMs and MRUs. It has been designed to offer superior cost performance in mix-and-match applications with lens-scanning KrF steppers, the key systems in state-of-the-art semiconductor fabrication lines. The result is superlative productivity for advanced semiconductor manufacturing lines.

Overall power consumption efficiency has been improved through enhancements in resolution, total alignment accuracy and throughput, in combination with measures to limit power consumption.

<Power consumption efficiency> Increased by 105% over the NSR-SF100 in exposure of a 300mm wafer (internal reference).

<Ozone layer protection> New HFC refrigerant with zero ODP (Ozone-Depletion Potential) used for temperature control and air conditioning chillers.

<Global warming substances> New HFE refrigerant with low global-warming potential used in equipment internal cooling.



NSR-SF120

### ● Liquid crystal display stepper FX-51S/61S

The development of advanced technologies by Nikon, including multilens projection optics and a scanning exposure system has made it possible to attain both the exposure area and resolution needed for 5th- and 6th-generation plate sizes, both crucial in the production of Liquid Crystal Display (LCD) panels. The FX-51S/61S offer enhanced throughput and significantly improved energy efficiency.

<Power consumption efficiency> Increased by 66% over the FX-12S for a 13.3-inch panel, and 125% over the FX-601F (internal reference).

<Ozone layer protection> New HFC refrigerant with zero ODP (Ozone-Depletion Potential) used for air conditioning.



FX-51S/61S

## Imaging Company Products

### 1. Film-based cameras and interchangeable lenses

#### ● Nikon F75

Compared to its predecessor, the small and lightweight Nikon F65, the F75 offers an improved range of easy-to-use functions, with space-saving design implemented from the component level to enable the creation of an even smaller, lighter 35mm SLR camera.

<Reduced product volume> 7% less than the Nikon F65

<Reduced product mass> 4% less than the Nikon F65



F75

#### ● Lite · Touch Zoom 150ED QD

The adoption of a new single-motor design and downsized mechanisms make this camera the smallest and lightest in the world among 4x zoom compact cameras with sliding covers.

<Reduced product mass> 9% less than the Lite · Touch Zoom 140ED QD



Lite · Touch Zoom 150ED QD

#### ● AF-S VR Zoom-Nikkor 70-200mm f/2.8G IF-ED

This large-diameter telescopic zoom lens features Nikon’s exclusive built-in Silent Wave Motor (SWM), and employs a Vibration Reduction (VR) mechanism. Magnesium alloy is used at key points on the lens barrel to provide strength, reduced weight and recyclability, while multifunction parts help lower the total number of parts. Despite its impressive capabilities, the lens is even smaller and lighter than its predecessor.

<Reduced product mass> 7% less than the AF-S 80-200 f/2.8D

<Eco-glass usage> 100%



AF-S VR Zoom-Nikkor 70-200mm f/2.8G IF-ED

### 2. Digital cameras

#### ● COOLPIX 5400

Nikon’s highly advanced optical technologies enable the incorporation of a 4x zoom lens with coverage from 28mm, while still offering reduced weight. The COOLPIX 5400 also boasts high energy efficiency.

<Power consumption efficiency> 50% higher than D1



COOLPIX5400

#### ● COOLPIX 2100

This camera is cleverly designed to afford both a compact body loaded with high-performance functions, and a highly ergonomic design for simple, comfortable operation.

<Longer battery life> 17% longer than the COOLPIX 755

<Reduced product mass> 19% less than the COOLPIX 755

<Eco-glass usage> 100%, including projection lens



COOLPIX2100

## Targets

- Improvement in energy efficiency of 30% or greater for functions on products marketed during fiscal 2003, compared with products sold since fiscal 1998.
- Reduction of models using ozone layer-damaging HCFC, used as refrigerant for IC and LCD steppers to fewer than 30% of all products shipped in fiscal 2003, with ultimate goal of total elimination of use of HCFC by the end of fiscal 2005.



## Instruments Company Products

### • CNC video measuring systems NEXIV VMR-10080, VMR-H3030

The Nikon NEXIV VMR series of general-purpose, high-precision, non-contact measuring systems are capable of measuring 3D shapes such as electronic parts and precision components, using an optical head with high-power zoom optics and laser auto-focusing, an automatic stage and image-processing capabilities.

(See the NEXIV website at [http://www.nexiv.net/eng/index\\_e.htm](http://www.nexiv.net/eng/index_e.htm) for specifications and applications of the NEXIV VMR series.)

The new series employs LED light sources in place of halogen lamps, which greatly reduces generated heat and power consumption while enhancing precision. Measurement speed is doubled thanks to improved controllability, optical characteristics and performance.

<Power consumption efficiency> 300% higher than the previous NEXIV models

<Eco-glass usage> 82% in VMR-10080/79% in VMR-H3030

<Consumables> Number of halogen lamps has been reduced from six to two



NEXIV VMR-10080



NEXIV VMR-H3030

## Nikon Group Products

### • Fieldscope ED82 (straight body)/ED82 A (angled body)

To meet the sophisticated needs of avid birdwatchers, these Fieldscopes offer large, 82mm-diameter object lenses with multilayer coatings and the bright, sharp imagery provided by a two-piece ED lens. The waterproof construction helps prevent fogging and the growth of mould in the optical system even if it is pervaded by moisture, providing the durability and ease of use needed for field observation.

The case has also been designed for outdoor use, coloured green to help avoid startling birds and other wildlife. Prisms and lenses use eco-glass, containing no lead or arsenic.

<Eco-glass usage> 100%

<Extended product life> Bundled Stay-on case protects the body against shock; built-in slide hood; reinforced prism holders; waterproofing

<Simplified repairs> Most parts and servicing methods are identical to those of the existing Fieldscope III.



ED82/ED82 A

### • Surveying Instrument Pulse Laser Stations NPL-352/332

The successor to the NPL-350, and sister to the DTM-352/332, this Series inherits the unsurpassed reliability of its predecessors through water resistance and long-term field use. It also provides enhanced basic performance, user interface, and is capable of providing a 200m non-prism measurement distance, the longest in its class.

<Reduced power consumption> 15% less than the NST-200N Series (battery life increased from 5.5 to 6.5 hours)

<Reduced parts count> 10% less than the NST-200N Series

<Eco-glass usage> 91% (lead content of optics reduced from the 55.02g of the NST-200N Series to only 0.32g)

<Simplified repairs> The telescope does not have to be disassembled in order to repair the distance measurement system.

The new Pulse Laser Stations also feature less complex optics, fewer adjustments, integration of electrical boards, simpler assembly and automated electrical adjustments. These improvements facilitate assembly and significantly enhance repairability.



NPL-352/332

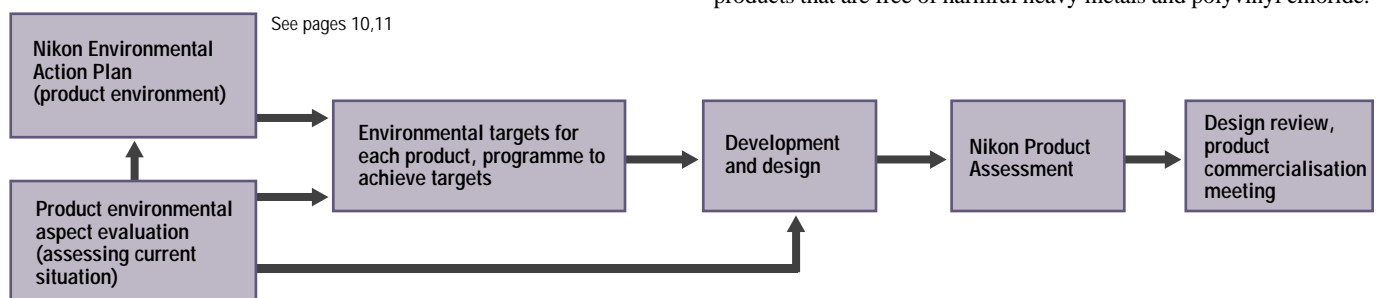
NOTE: Most of the above products were introduced in Japan during fiscal year 2003.

## Future Activities

We have established a rigorous system for environment-oriented design activities and enhancement of the ISO 14001-compliant environmental management system. We are applying this system to the development of products, supported by the more aggressive

“Nikon Environmental Action Plan” and “Nikon Product Assessment”, resulting in an entirely new level of environmental friendliness.

In addition to using lead-free solders, we are striving to develop products that are free of harmful heavy metals and polyvinyl chloride.



## Activities in the Product Environment

# Containers and Packaging

### Targets

- 40% reduction in plastic containers used in consumer products in fiscal 2003, compared with figures for fiscal 1999.
- Total elimination of non-separable multi-material for new packaging from fiscal 2001 onward.



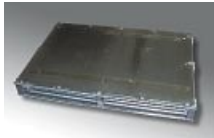



Nikon defined its “Environmental Policy Regarding Packaging Materials” in May 1998, and reviewed it in June 2000. This policy has seven main points:

1. Elimination of harmful substances.
2. Reduction in volume and content.
3. Recyclability.
4. Safety and ease of separation of

5. Use of recycled resources.
6. Reusability.
7. Marking regarding packaging materials and handling precautions.

The activities implemented based on this policy are as described in the following chart:

Theme	Policy	Contents	Application	
Non-vinyl chloride film	1. Elimination of harmful substances	Switch from use of vinyl chloride material, which is considered a major source of dioxin, to non-vinyl chloride materials such as polypropylene.	Wrapping materials for equipment such as steppers	 Cushioning film
Plant-derived filler materials	2. Reduction in volume and content	Plant-derived filler materials are made from bean and wheat husks. They are significantly safer and more environmentally friendly filler materials than those derived from crude oil. We also use biodegradable resins in packaging containing filler materials.	Gap filler (Instruments Company products)	
Cushioning film	2. Reduction in volume and content	Support with elastic film enables significantly reduced consumption of cushioning material.	Cameras	 Reinforced cardboard boxes
Reinforced cardboard boxes	2. Reduction in volume and content 3. Recyclability 5. Use of recycled resources	Adoption of reinforced three-layer cardboard boxes has enabled a significant reduction in weight and volume of packaging in comparison with old-style wooden boxes.	Stepper body (for shipping to certain destinations)	
Single-material presentation cases	4. Safety and ease of separation of materials	Use of film in presentation cases has been eliminated. Cases are now made from paper only, for ease of breakdown and decomposition.	Accessories	 Steel pallet
Assembly-type packaging	4. Safety and ease of separation of materials	The filler material and the cardboard are assembled manually for ease of separation later. Old-style packaging involved a fusing of different materials (cardboard and a crude-oil derived filler material).	Instruments Company products	
Steel pallet	4. Safety and ease of separation of materials 6. Reusability	Smoke sterilisation process used with wooden pallets is no longer necessary. This also contributes to conservation of the forests.	Stepper	 Pulp moulding
Pulp moulding	5. Use of recycled resources	A paper filler material consisting of 55% recycled paper. This material is gradually being introduced as an alternative to crude oil derivatives.	Cameras, lenses, microscopes	
Dedicated transport containers	6. Reusability	Dedicated containers are used for shipment to certain corporations.	Microscopes	
Polyethylene bags	7. Marking regarding packaging materials and handling precautions	All packaging material is marked to facilitate separation. All bags, other than those of extremely small size, are marked with a warning of suffocation risk to infants.		

So far, we have achieved the following in our challenge to meet targets:

- In fiscal 2002, use of plastic containers and packaging for consumer products was reduced dramatically — 53% in weight against fiscal 1999 levels, through progressive use of pulp moulding and other techniques. However, in fiscal 2003, it

increased to 95% in weight against 1999 levels, due to the dramatic growth of the digital camera business.

- Through the use of single-material presentation cases and assembly-type packaging, as well as other methods, from fiscal 2002 through 2003 we achieved our target of eliminating the use of non-separable multi-material for new packaging in fiscal 2003.

## Activities in the Product Environment

# Examples of Implementation in Sales and Distribution

Nikon is working tirelessly to reduce the total and long-term environmental impact of its products and services. Since Nikon supplies products worldwide, we must also pay strict attention to sales and distribution activities. The following are some examples of our reuse and recycling efforts in these areas:

### 1. Sales of used steppers for reuse

Nikon Tec Corporation has been collecting used steppers discarded by customers, and reconditioning and reselling them for new users, with the appropriate services supplied. This is an example of Nikon’s willingness and capability to reuse its own products. Fiscal 2003 saw 12 significant achievements, both domestically and abroad.

Nikon is conducting in-depth research on the needs of the semiconductor industry, in order to help companies in the field to expand their businesses. This is another area in which our dedication to environmental preservation, profitability and customer service shines through.

### 2. Recycling of packaging materials and batteries in Japan

#### (1) Packaging materials

Nikon have contracted the services of JCPRA (Japan Containers and Packaging Recycling Association) to collect and recycle packaging materials used during the sale of Nikon products.

#### (2) Batteries

Nikon and many other companies have engaged in cooperative efforts with JBRC (Japan Battery Recycling Center) to collect and recycle rechargeable batteries for digital cameras and other products discarded by consumers.

### 3. Recycling of packaging materials and batteries in Europe

#### (1) Packaging materials

Our overseas subsidiaries have contracted the services of DSD (Duales System Deutschland) to collect and recycle packaging materials used during the sale of Nikon products.

#### (2) Batteries

Our overseas subsidiaries have contracted the services of GRS (Stiftung Gemeinsames Rücknahmesystem Batterien) to collect and recycle batteries for cameras and other products discarded by consumers.



# Energy Conservation (anti-global-warming measures)

## Targets

- 20% or better reduction in energy consumption per net sales in fiscal 2003, compared with figures for fiscal 1999.

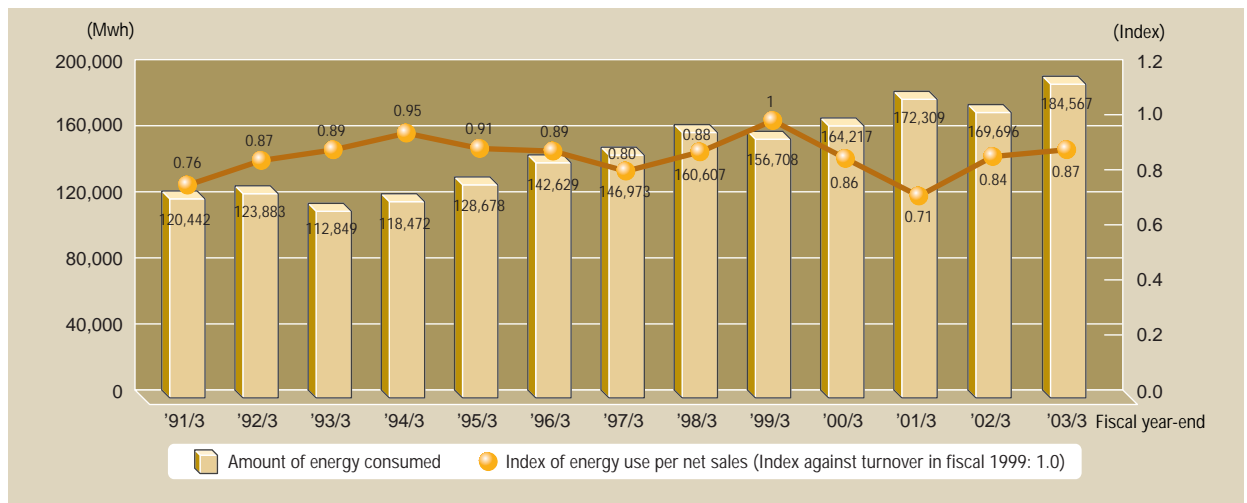


Carbon dioxide (CO<sub>2</sub>), which is released into the atmosphere when fossil fuels are burned, is the main cause of global warming. The Third Conference of the Parties (COP 3) to the United Nations Framework Convention on Climate Change in December 1997 stressed the need for a reduction in greenhouse gas emissions. The control of CO<sub>2</sub> emissions through savings in energy use is one way in which global warming may be slowed.

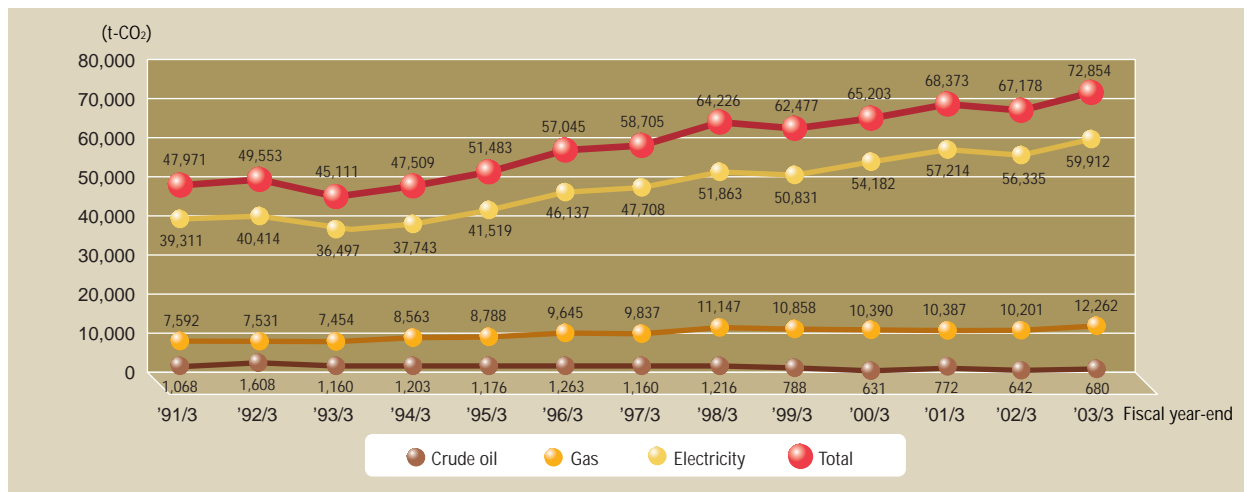
Nikon has established a target for savings in energy use including electricity, which is a major source of CO<sub>2</sub> emission, of a 20% or better reduction (compared with fiscal 1999 levels per net

sales) by fiscal 2003. We improved the efficiency of our air conditioning system and switched to a lighting system that uses energy more efficiently. We have also implemented and promoted various energy-saving measures such as improvements in the manufacturing process and conscientious use of lighting and office equipment. However, due to a slowdown in the semiconductor market and the subsequent drop in net sales, we could not reach our goal of a 20% savings in energy (reduction of only 13% compared with fiscal 1999).

## Energy Use (calculated for electricity)/Energy Use per Net Sales



## CO<sub>2</sub> Emission



\*Standard figures for calculating CO<sub>2</sub> emissions are taken from the "Environmental Activities Evaluation Program" (published April 2002 by the Ministry of the Environment).

## Future Energy-saving Strategies

We intend to implement the following strategies as we head into fiscal 2004.

- Reduction in harmful emissions from air conditioning
- Highly efficient operation of utilities facilities
- Highly efficient operation of manufacturing facilities
- Renewal of aging facilities/equipment
- Standardisation of electrical load
- Integration of electrical facilities
- Improvements in quality control efficiency

# Promotion of Reduction and Recycling of Waste

The manufacturing industry, which evolved as part of the mass production/mass consumption system, is currently at a crossroads in terms of the way things are done.

Economic expansion has brought with it yearly increases in the amount of waste produced. Waste was for too long classified as “refuse”, and simply discarded. As a result, waste has grown in amount and diversity, and there is a great deal of pressure on end-

## Production, Disposal and Recycling of Waste

We implemented programmes to reduce both general and plastic waste, and strictly enforced refuse separation guidelines for this period, which enabled us to control our waste output (including that to be recycled). We also actively promoted the recycling of materials. As a result, the amount of waste disposed of during fiscal 2003 represented a 75% (1,005-ton) reduction against the amount recorded for fiscal 1999, and our recycling rate was 89% (up from 59% for fiscal 1999). We also achieved our goal of implementing

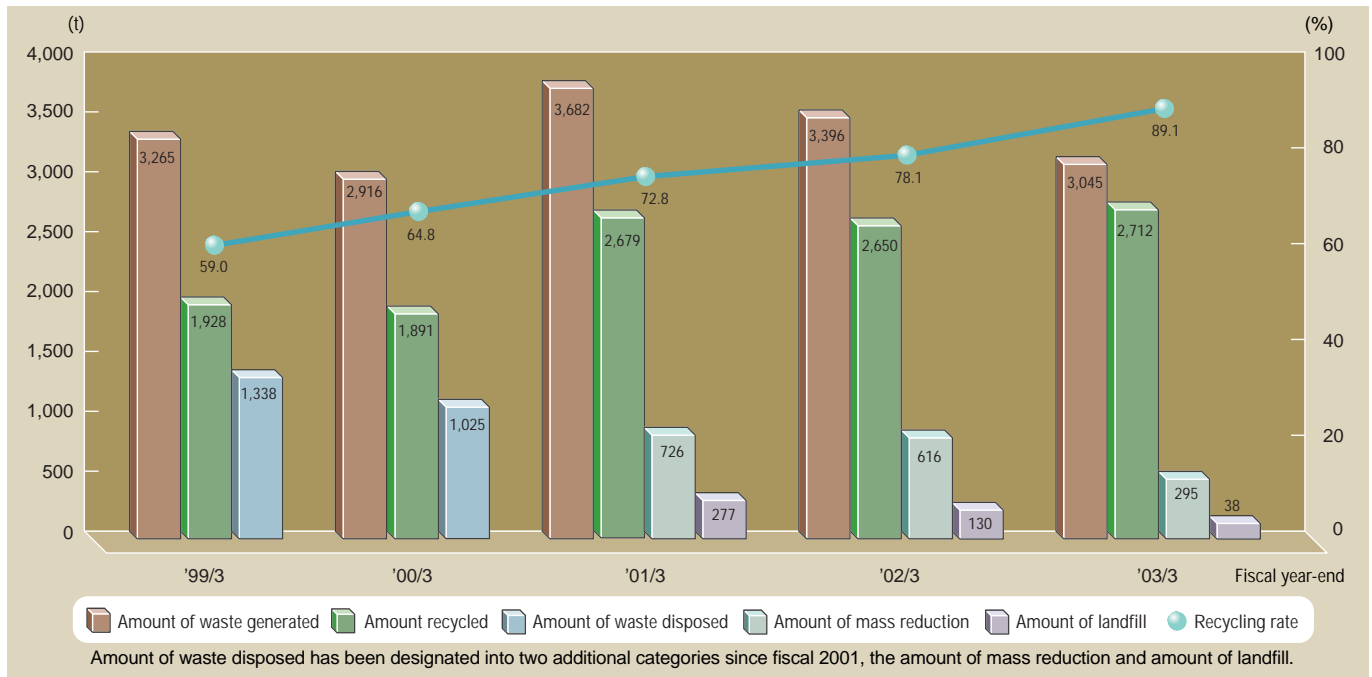
of-line disposal agencies to devise more efficient methods for disposing of waste.

Nikon is committed to the concept of a “Resource Recycling Society”, in which the world’s valuable resources are used as effectively as possible. Through our activities, we are headed in the right direction in pursuit of this objective.

zero emission systems at all plants.

These results were achieved through utilising waste in RDF (Refuse Derived Fuel), raw material for furnaces and thermal recycling\*1, all of which contribute to the process of recycling.

From this point forth, we will maintain our zero emission systems with emphasis on the 3R\*2 principle, and we will work to develop more recycling technologies and foster relationships with recycling agencies.

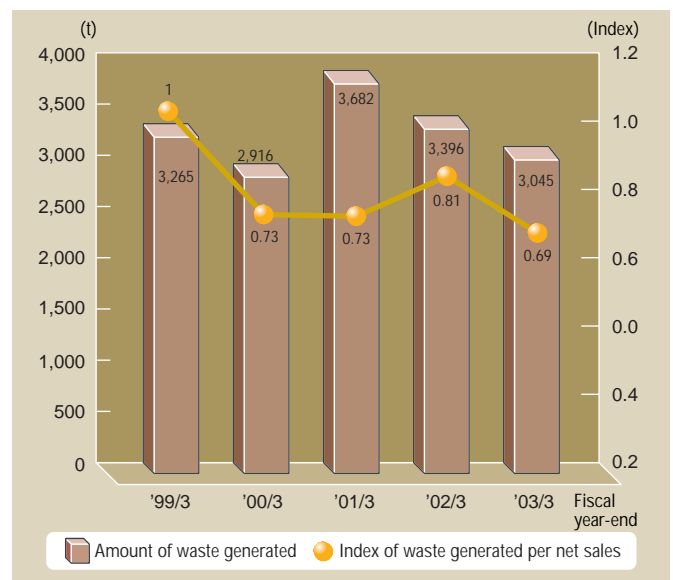


\*1 The practice of using waste as solid fuel. The waste is ground and separated, and then compressed and shaped and can be used as burnable fuel. Ground waste may be used as raw material in furnaces in place of coke. Certain waste may be burned and the heat released used as an energy source. This contributes both to the reduction of waste and to recycling.  
 \*2 3Rs: Reduce, Reuse and Recycle

## Amount of Waste Generated/Amount of Waste Generated per Net Sales

Nikon has set a target to reduce waste generation by fiscal 2003 by at least 40% (compared with fiscal 1999 level per net sales) propelled by the momentum created by the 3R principle.

In fiscal 2003 we reduced the tonnage of generated waste by 10% from the level of the prior year, but because the semiconductor market slumped, corporate net sales also dropped. As a result, the index of waste generated per net sales dropped 31% from fiscal 1999, shy of our target of 40%.



### Targets

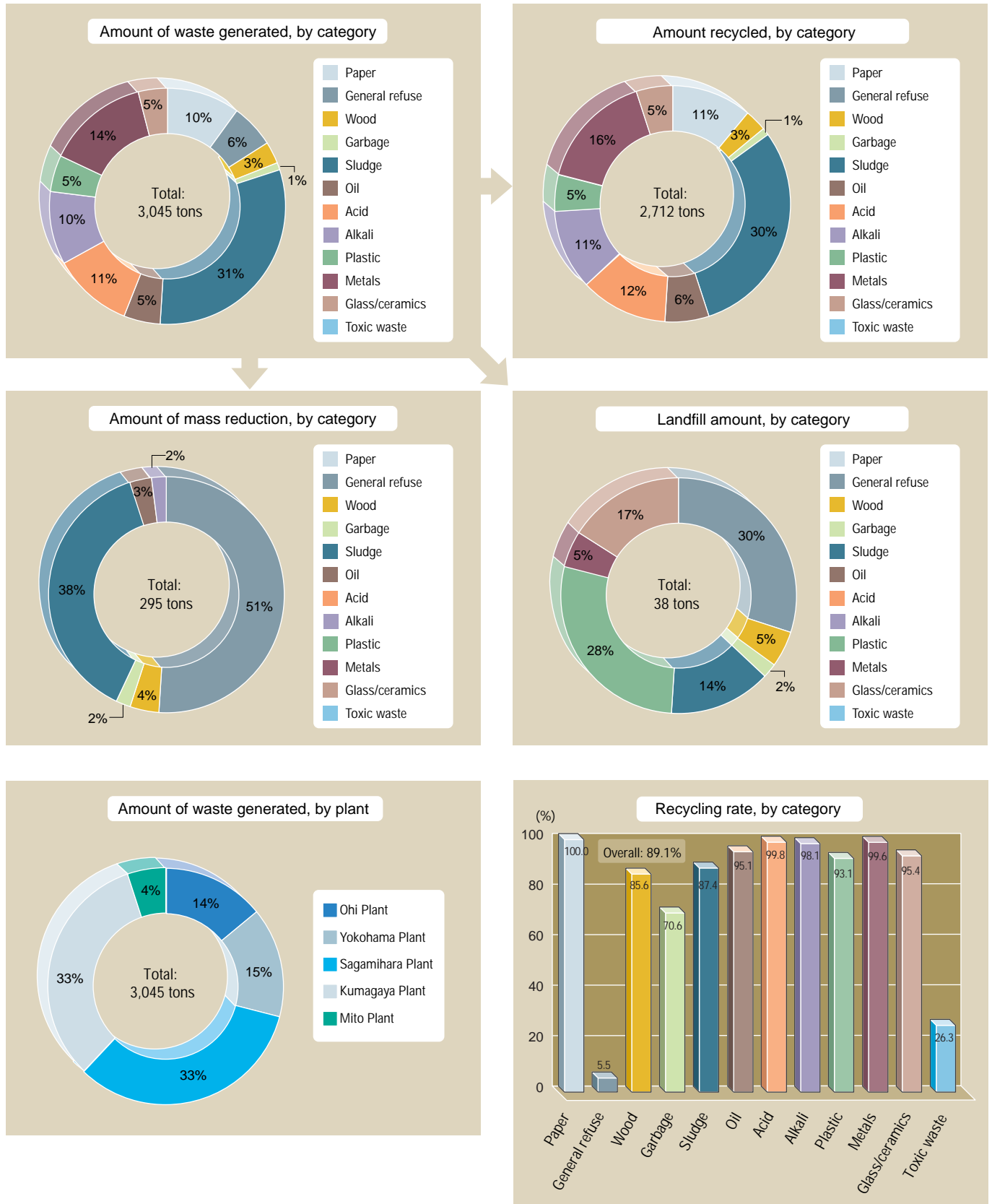
- Boost waste recycling rate to at least 85% in fiscal 2003.
- Reduce amount of waste generation per net sales by at least 40% in fiscal 2003 compared with figures for fiscal 1999.



## Breakdown of Waste during Fiscal 2003

The breakdown of Nikon's waste during fiscal 2003 is as shown in the graphs below.

(Figures in the graphs have been rounded up or down to the nearest whole number, so some of the graphs do not total 100%).



## Activities in the Workplace Environment

# Zero Emissions

### Targets

- Develop zero-emission system for at least two plants by the end of fiscal 2003, and for all plants by the end of fiscal 2005.



The Nikon Group defines “zero emissions” as the condition in which no more than 1% of total waste output is disposed of as landfill. In the Nikon Environmental Action Plan, we established as a priority goal the achievement of zero-emission systems at all manufacturing sites for fiscal 2005, and have been working to reduce wastes and promote recycling through a variety of programmes. These efforts allowed us to attain our goal during fiscal 2003.

Nikon’s total waste output is about 3,000 tons per year, and the tonnage that becomes landfill has been reduced to under 1%, or less than 30 tons. Even with this reduction, though, industrial waste landfills serving the Tokyo metropolitan area are expected to be filled in about a year, making it clear that we are dangerously close to the limits of waste disposal through landfill.

Waste tonnage can also be disposed of by incineration, but combustion can produce extremely dangerous toxins such as dioxin. Japan has employed incineration as a disposal method for decades, and is now known as the country with the highest dioxin content in

its environment.

Dioxin, which passes through the food chain and accumulates in the fatty tissues of organisms, is said to function as an endocrine disrupter and carcinogen. It is also passed to infants through breast feeding, and this capability of harming other individuals through indirect exposure has led to widespread restrictions on waste incineration. With the increasing regulations on landfills and incineration, reducing waste generation has become a crucial issue.

We fully recognise the importance of reducing the tonnage of wastes generated and sorting them effectively, to preserve our irreplaceable environment for our descendants. Nikon pledges to redouble its efforts to reduce wastes.

**Definition of zero emissions:** No more than 1% of total waste output is disposed of as landfill. Note that this excludes sewerage, household effluent and industrial waste water.

### Examples of recycling

Paper	Recycled paper Paper materials (toilet paper) Solid fuel
Wood	Return to vendors Chips (raw material/compost) Particle boards Thermal recycling
Garbage	Return to vendors Automated garbage disposal machine Animal feed
Sludge	Fertilizer Cement material Thermal recycling
Plastic	Raw material Reducing agent for blast furnace Thermal recycling
Metals	Metal materials
Glass	Materials Roadbed materials



Sorting (Sagamihara Plant)

The keys to achieving our goal of zero emissions are reduction of waste emissions and efficient sorting.

Nikon plant name	Target to develop zero-emission system
Ohi Plant	Fiscal 2003 (completed)
Yokohama Plant	Fiscal 2003 (completed)
Sagamihara Plant	Fiscal 2003 (completed)
Kumagaya Plant	Fiscal 2003 (completed)
Mito Plant	Fiscal 2003 (completed)

Major manufacturing subsidiaries	Target to develop zero-emission system
Sendai Nikon Corporation	Fiscal 2002 (completed)
Tochigi Nikon Corporation	Fiscal 2005
Mito Nikon Corporation	Fiscal 2006
Zao Nikon Co., Ltd.	Fiscal 2004
Kurobane Nikon Co., Ltd.	Fiscal 2006

# Activities in the Workplace Environment

## Control of Chemical Substances

### Targets

- Reduce use of chlorinated organic solvents in wash by at least 70% in fiscal 2003, with goal of elimination of these solvents by the end of fiscal 2006.



Chemical substances have the potential to improve our lives in many ways, but at the same time can cause many serious problems such as ozone layer depletion, dioxin poisoning and the environmental endocrine effect — the spread of harmful elements throughout nature. In order to forestall this sort of damage, it is vital

that the use of chemical substances be carefully controlled, that the amount of chemicals used is reduced, and that safer substances are substituted wherever possible.

Nikon is currently devising a management system that will enable us to effectively take all of these actions.

### Substance Control Procedures

Nikon performs chemical substance control at every phase of the product life cycle, from purchase through use and disposal, in order to stop pollution caused by these substances. When first purchasing a new chemical substance, we obtain a Material Safety Data Sheet (MSDS) for the item, and carry out an assessment of the potential dangers of its use in the workplace. Based on the results of this

assessment, our Environment, Safety and Hygienics section performs a review and confirmation of actions taken.

In addition to these measures, our Data Centre, located at the Ohi Plant, carries out intensive management of registration, updates and storage of MSDS.

### Nikon's PRTR

The Pollutant Release and Transfer Register (PRTR) Law has been enacted in Japan as well, and daily management of chemical substances and diligent risk management are key factors in promoting business.

The "Nikon PRTR Guide" was released in March 2000, and management activity for the specified chemical substances is underway at each plant. This guide serves as a safety management standard which clearly outlines handling and disposal according to MSDS, for all product phases from procurement to use and disposal.

In March 2002, Nikon established a company system for legal notification, adding to and revising existing procedures for filling out such notifications.

In accordance with applicable laws, the fiscal 2003 report required reporting of quantities of five tons or more. No such reporting was necessary for any of our plants.



Nikon PRTR Guide

### PRTR Survey Results for fiscal 2003

Facility	Substance No.	Substance name	Volume handled	Amount released			Amount transferred		Amount in on-site landfill	Amount removed for processing	Amount shipped in product
				Air	Public water	Soil	Sewage	Waste			
Yokohama Plant	145	Dichloromethane	3,597	3,519	0	0	0	78	0	0	0
Sagamihara Plant	145	Dichloromethane	1,600	1,386	0	0	0	214	0	0	0
	230	Lead and lead compounds	1,648	1	0	0	0	674	0	0	973
	304	Boron and boron compounds	1,916	1	0	0	0	782	0	0	1,133
Kumagaya Plant	227	Toluene	1,285	711	0	0	0	574	0	0	0
Total	145	Dichloromethane	5,197	4,905	0	0	0	292	0	0	0
	227	Toluene	1,285	711	0	0	0	574	0	0	0
	230	Lead and lead compounds	1,648	1	0	0	0	674	0	0	973
	304	Boron and boron compounds	1,916	1	0	0	0	782	0	0	1,133

Unit: kg/year

\* The above table includes data only for specified substances of which one or more tons are handled per year per facility. No such substances exist at the Ohi and Mito Plants.

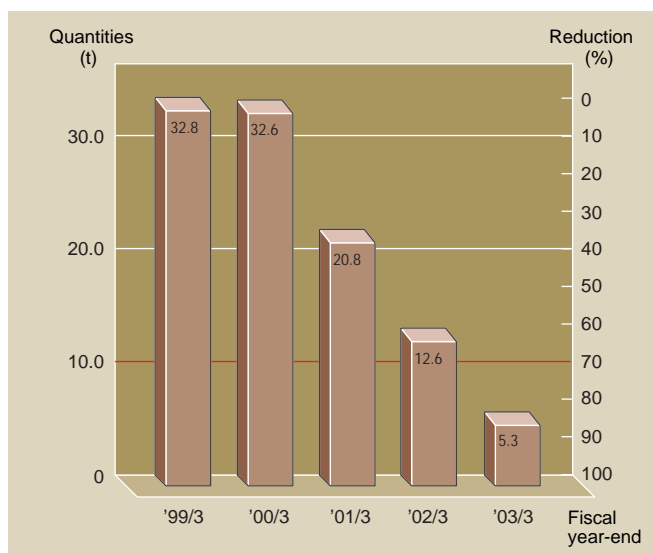
### Reduction in Chemical Substances

The key question is how to best reduce the amount of chemical substances used. This is more than merely avoiding the risk of environmental pollution, and in fact signifies an improvement in Nikon's design and production systems. We are constantly working to reduce the volume of chemical substances used which have the most adverse effects on the environment, searching for alternatives, and making every effort to achieve zero chemical pollution.

### Efforts to eliminate chlorinated organic solvents

We have established a target for total elimination of chlorinated organic solvents in wash applications by the end of fiscal 2006, and are now switching over to hydrocarbon wash agents and similar substances that have minimal effect on the environment.

The graph at right shows amounts used since fiscal 1999. The amount used in fiscal 2003 was 84% less than in fiscal 1999 — we achieved our goal of a reduction of no less than 70%.



# Prevention of Pollution and Protection of Air and Water

To help preserve air and water quality, Nikon not only observes applicable laws and regulations, but has also established its own independent plant standards for management.

Each plant regularly measures pollutants released into the air and water, and inspects equipment such as boilers and waste water processing systems periodically to ensure safety.

## Air and Water Quality Environmental Data for Fiscal 2003

### Ohi Plant

1-6-3, Nishi-Ohi, Shinagawa-ku, Tokyo 140-8601  
+81-3-3773-1307

#### Air (Air Pollution Control Law, Metropolitan Regulations)

Unit: Dust: g/Nm<sup>3</sup>,  
NOx (nitrous oxides): ppm

Item	Regulatory standard	Plant standard	Actual (max.)	
Boiler	Dust	0.15	0.12	0.003
	NOx	45	45	39

\*1 Occurred August 2002 (exceeded pH and SS regulatory standards)  
Cause: An error in the drainage switching operation resulted in the draining of water contaminated with polishing components.  
Corrective action: Drained through treatment plant, bypassing drain switching operations.

\*2 Occurred March 2003 (exceeded regulatory standard)  
Cause: Kitchen-implement cleansers used in kitchen melted oil and fats.  
Corrective action: 1. Improve gas burner to prevent burning.  
2. When kitchen-implement cleansers are used, they must be drained through a treatment plant.

#### Water Quality (Sewerage Law, Metropolitan Regulations)

Unit: mg/l, except for pH

Item	Regulatory standard	Plant standard	Actual (max.)	
Living environment	pH	5.8-8.6	5.9-8.5	6.2~9.1 *1
	BOD	300.0	240.0	55.2
	SS	300.0	240.0	586 *1
	n-hexane (animal/vegetable)	30.0	24.0	35.8 *2
	Iodine demand	220.0	176.0	46.1
	Copper	3.0	2.4	0.1
	Zinc	5.0	4.0	0.6
	Soluble iron	10.0	8.0	0.5
	Total chrome	2.0	1.6	0.0
	Fluorine	15.0	12.0	3.6
	Nitrogen	120.0	96.0	19
	Phosphorous	16.0	12.8	0.73
	Health	Lead	0.1	0.08
Dichloromethane		0.2	0.16	0.0

### Yokohama Plant

471 Nagaodai-cho, Sakae-ku, Yokohama, Kanagawa 244-8533  
+81-45-852-2111

#### Air (Air Pollution Control Law, Prefectural Regulations)

Unit: NOx (nitrous oxides): ppm

Item	Regulatory standard	Plant standard	Actual (max.)	
Boiler	NOx	65	60	38
		65	60	43
		65	60	38
		46	42	27
		46	42	40
		46	42	31

\*1 Occurred November 2002 (exceeded regulatory standard)  
Cause: Oil and fats were mixed while refilling high-polymer coagulant.  
Corrective action: Ensured proper procedure followed when refilling coagulant, and changed to different coagulant.

\*2 Occurred August 2002 (exceeded regulatory standard)  
Cause: More waste water was drained in the hydrofluoric acid flush process via high-density draining than was intended.  
Corrective action: Installed preliminary water tank before the hydrofluoric acid flush process, and outsourced disposal of waste water from the tank.

#### Water Quality (Sewerage Law, Prefectural Regulations, City Regulations)

Unit: mg/l, except for pH

Item	Regulatory standard	Plant standard	Actual (max.)	
Living environment	pH	5.0-9.0	5.5-8.5	5.8 ~ 7.5
	BOD	600.0	540.0	17.5
	SS	600.0	540.0	26.0
	n-hexane (mineral)	5.0	4.5	7.2 *1
	Iodine demand	220.0	200.0	56.3
	Copper	1.0	0.9	0.0
	Zinc	1.0	0.9	0.0
	Soluble iron	3.0	2.7	0.1
	Soluble manganese	1.0	0.9	0.0
	Total chrome	2.0	1.0	0.0
	Nickel	1.0	0.9	0.0
	Fluorine	8.0	7.0	8.9 *2
	Boron	10.0	8.0	0.3
Health	Lead	0.1	0.1	0.02
	Arsenic	0.1	0.1	0.00
	Hexavalent chrome	0.5	0.4	0.00
	Trichloroethylene	0.3	0.2	0.00
	Tetrachloroethylene	0.1	0.1	0.00
Dichloromethane	0.2	0.1	0.00	

\* For explanations of terms such as ppm and pH, see glossary on page 24.

## Sagamihara Plant

1-10-1 Asamizodai, Sagamihara, Kanagawa 228-0828  
+81-42-740-6300

### Air (Air Pollution Control Law, Prefectural Regulations)

Unit: Dust: g/Nm<sup>3</sup>,  
NOx (nitrous oxides): ppm

Item	Regulatory standard	Plant standard	Actual (max.)	
Boiler	Dust	0.15	0.1	0.0026
		0.15	0.1	0.0023
		0.15	0.1	0.0012
		0.15	0.1	0.0022
		0.15	0.1	0.0023
		0.15	0.1	0.005
	NOx	105	100	51
		105	100	75
		105	100	84
		105	100	8
		105	100	10
		105	100	5

### Water Quality (Sewerage Law, Prefectural Regulations)

Unit: mg/l, except for pH

Item	Regulatory standard	Plant standard	Actual (max.)	
Living environment	pH	5.7 ~ 8.7	6.0 ~ 8.0	6.4 ~ 7.5
	BOD	300.0	60.0	9
	SS	300.0	90.0	< 10
	Zinc	3.0	0.5	0.07
	Fluorine	12.0	10.0	6.9
	Boron	10.0	5.0	0.02
	Ammoniac nitrogen	100.0	100.0	14
	Health	Lead	0.1	0.08
Arsenic		0.1	0.05	< 0.01
Dichloromethane		0.2	0.1	0.007

\*1 Occurred November 2002 (exceeded plant standard)

Cause: Chemical (coagulant of lead) was not constantly provided due to a technical malfunction in the chemical pump.

Corrective action: Replaced the chemical pump.

## Kumagaya Plant

201-9 Oaza-miizugahara, Kumagaya, Saitama 360-8559  
+81-48-533-2111

### Air (Air Pollution Control Law, Prefectural Regulations)

Unit: Dust: g/Nm<sup>3</sup>,  
NOx (nitrous oxides): ppm

Item	Regulatory standard	Plant standard	Actual (max.)	
Boiler	Dust	0.1	0.05	0.003
		0.1	0.05	0.001
		0.1	0.05	0.001
		0.1	0.05	0.001
		0.1	0.05	0.001
		0.1	0.05	0.001
		0.1	0.05	0.001
		0.1	0.05	0.001
		0.1	0.05	0.001
		0.1	0.05	0.001
		0.1	0.05	0.001
		0.1	0.05	0.003
	NOx	150	100	46
		150	100	37
		150	100	36
		150	100	48
		150	100	45
		150	100	64
		150	100	75
		150	100	49
150	100	114 *1		
150	100	52		
150	100	58		

### Water Quality (Sewerage Law, Prefectural Regulations)

Unit: mg/l, except for pH

Item	Regulatory standard	Plant standard	Actual (max.)	
Living environment	pH	5.1 ~ 8.9	5.9 ~ 8.2	6.2 ~ 7.3
	BOD	600.0	150.0	32.0
	SS	600.0	50.0	13.0
	n-hexane (mineral)	5.0	4.0	< 1.0
	n-hexane (animal/vegetable)	30.0	20.0	4.0
	Iodine demand	220.0	170.0	13.0
	Copper	3.0	0.5	< 0.2
	Zinc	5.0	0.5	< 0.05
	Soluble iron	10.0	3.0	< 0.3
	Total chrome	2.0	1.0	< 0.2
	Fluorine	8.0	2.5	< 0.5
	Boron	10.0	4.0	1.2
	Nitrogen	240.0	60.0	28.0
	Ammoniac nitrogen	100.0	30.0	22.0
	Phosphorous	32.0	15.0	5.3
	Health	Cyanide	1.0	0.2
Lead		0.1	0.1	< 0.01
Hexavalent chrome		0.5	0.1	< 0.05

\*1 Occurred March 2003 (exceeded plant standard)

Cause: Improper combustion adjustment.

Corrective action: Task will be postponed until the middle of November 2003. Prior to beginning the corrective action, the machine will be dismantled and the necessary re-adjustment made.

## Mito Plant

276-6 Motoishikawa-cho, Mito, Ibaraki 310-0843  
+81-29-240-1112

Unit: Dust: g/Nm<sup>3</sup>, NOx (nitrous oxides): ppm, SOx (sulfurous oxides): Nm<sup>3</sup>/h

Air (Air Pollution Control Law, Prefectural Regulations)				
Item		Regulatory standard	Plant standard	Actual (max.)
Boiler	Dust	0.3	0.27	0.010
		0.3	0.27	0.021
		0.3	0.27	0.009
	NOx	180	162	78
		180	162	78
		180	162	93
SOx	3.25	0.67	0.074	
	3.25	0.67	0.077	
	3.25	0.67	0.059	

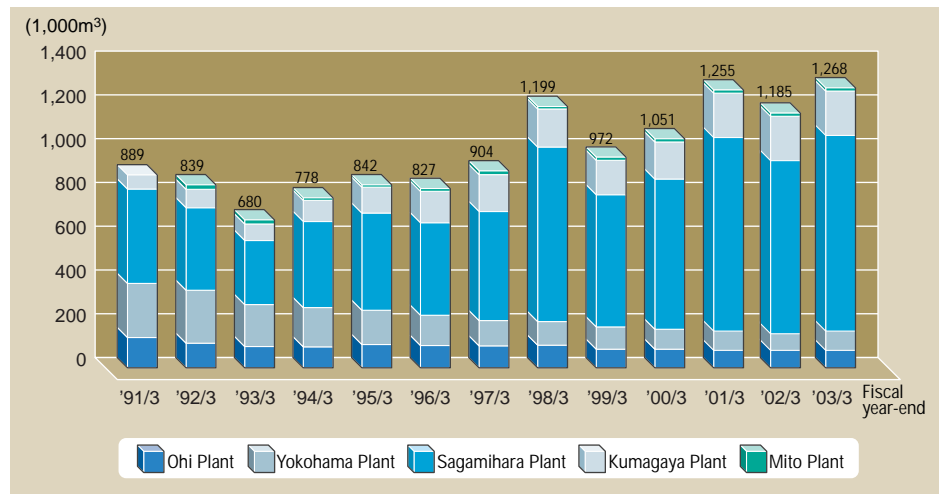
Unit: mg/l, except for pH and E. coli (colonies/ml)

Water Quality (Water Pollution Control Law, Prefectural Regulations)				
Item		Regulatory standard	Plant standard	Actual (max.)
Living environment	pH	5.8 ~ 8.6	6.0 ~ 8.2	6.9 ~ 7.3
	BOD	20.0	20.0	15.0
	SS	30.0	30.0	27.0
	n-hexane (animal/vegetable)	10.0	10.0	1.3
	E. coli (daily average)	3,000.0	2,700.0	17
	Nitrogen	60.0	60.0	52.7
	Phosphorous	8.0	8.0	5.22

## Water Usage

Plants engaged in manufacturing continuously expand and evolve structurally, but since the introduction of the “Environmental Management System” in fiscal 1999, efforts have been made to promote reuse of process waste water, and reduce water usage by involving all employees in water-saving activities.

However, the Sagami-hara plant saw an increase in water usage in fiscal 2003 due to a change in the manufacturing process. To counter this, the draining of indirect coolant (180km<sup>3</sup>) was re-routed to rivers with the permission of a local self-governing agency, to reduce the load on the sewer system.



## Glossary

**ppm:** Parts per million

**pH:** Hydrogen ion concentration

Indicates the acidity or alkalinity of a substance, where a solution of pH 0 to 7 is acid, pH of 7 is neutral, and a pH over 7 is alkaline. A change of one pH number indicates a 10-fold change in the concentration of hydrogen ions.

**BOD:** Biochemical oxygen demand

The amount of oxygen required for microorganisms to oxidise and consume organic pollutants in water. Used to gauge the degree of pollution of rivers.

**SS:** Suspended solids

Also referred to as substances that cause water clouding, they include small particles, plankton, organism carcasses and detritus, excretions and other organic materials, as well as sand, mud and inorganics and a range of man-made pollutants.

**n-hexane (mineral or animal/vegetable):** Normal hexane mass

Used to measure the total content of oils and hydrocarbons in waste water, it indicates the amount of materials extracted to normal hexane and which do not volatilise at about 100°C. Covers animal and vegetable oils, fatty acids, petroleum-based hydrocarbons, wax and grease.

**Iodine demand**

The amount of iodine used by the reducing substances (sulphide, etc.) in waste water during iodine oxidation. It is an index of the presence of the reducing substances in waste water.



- Increase suppliers' average environmental conservation evaluation by 20 points by the end of fiscal 2003, compared with fiscal 2000.
- Increase the number of new or replacement ecological office supplies by at least 300 over fiscal 2001 level, by the end of fiscal 2003.



Nikon has begun a programme of green procurement, which features a host of activities geared toward reducing the environmental impact of our products.

The Green Procurement Sub-Committee was established within the Environmental Committee in May 1998, and in August of the same year, issued the "Nikon Basic Policy for Green Procurement".

- To give priority to the purchase of items that have been produced by taking environmental issues into consideration.
- To give priority to suppliers who are proactive in conserving the environment.

## Product Environment

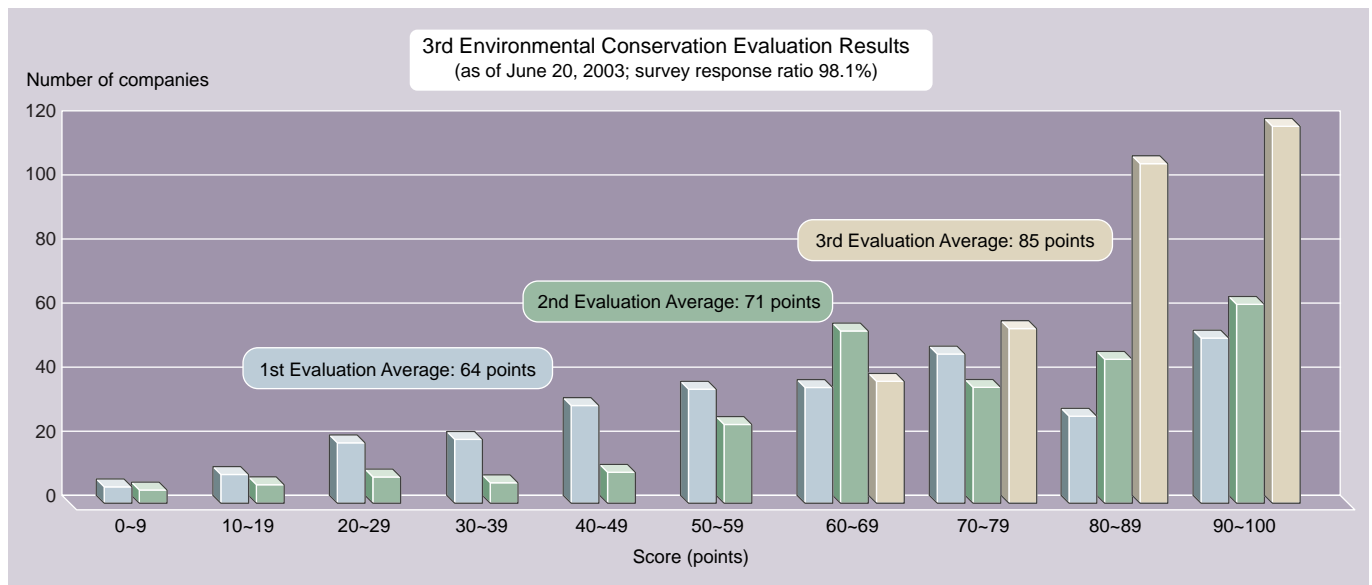
### (1) Stricter Standards for Green Procurement, Based on Results of Supplier Survey

The first survey, taken in fiscal 1999 to evaluate environmental efforts by companies involved in the manufacture of Nikon products, showed an average score of 64 points. Three seminars on improving environmental protection performance were conducted for suppliers with low scores, and as a result the average score rose seven points in fiscal 2001 to 71. Fiscal 2003 was established as the

In July 1999, the Nikon Green Procurement Guide was issued and distributed to about 500 major Japanese suppliers. After seeking and receiving their agreement to participate in a survey, we collected their ideas and approaches to environmental preservation.

Our procurement department supports suppliers in their attempts to raise their assessment levels — particularly suppliers that are making an exceptionally diligent effort.

deadline for our original target of a 20-point increase over the fiscal 1999 score. As of June 20, 2003 (survey response ratio 98.1%), all related firms have met Nikon standards, thanks to in-house efforts and support by the Nikon Procurement Department. The average score climbed to 85 points, representing a 21-point increase over fiscal 1999 and the attainment of our objective.



### 2) Reduction of Hazardous Substances, Creation of Hazardous Substance Survey

In addition to ongoing efforts to reduce or eliminate the use of hazardous substances in accordance with the RoHS directive (Restriction of Hazardous Substances) and EU regulations, such as switching to lead-free solder and further increasing the usage of

eco-glass in lenses, we are working to eliminate a wide range of hazardous substances. The first step is the generation of a thorough survey to query our suppliers on their use of hazardous substances and see clearly where they stand.

## Workplace Environment

Major firms handling procured items that are not supplied to our customers as products or services were also covered in the Environmental Conservation Evaluation survey. Of these companies, all met the minimum criteria, and the average score was 87 points.

The shift to the use of ecological office supplies (writing instruments, binders, etc.) by Nikon has progressed rapidly. With 99 new items in fiscal 2001, 160 in fiscal 2002 and 93 in fiscal 2003, there were 352 new ecological office supply items introduced over a three-year period, taking the total to 519 items.

# Environmental Education/Awareness Activities

We believe it is vital that all employees improve their knowledge of environmental matters, and to this end, related manuals, regulations and procedure must be put in place, and we must attain the necessary specialised knowledge and techniques, in order that environmental conservation activities can be rolled out effectively.

## General Environmental Education

We are working on improving the overall level of our employees' awareness, with appropriate educational systems implemented at every level, throughout each plant and workplace within the company.

- Executive management education (general environmental management, ISO 14001, management responsibilities, etc.)
- Education of new employees (general environmental awareness, Nikon's environmental activities)
- Environmental seminars for mid-level employees (general environmental management, ISO 14001, product assessment, etc.)
- Education of EMS representatives (environmental policy, environmental objectives, environmental manuals/regulations/procedures, evaluation procedure for environmental aspects)
- Everyday on-the-job education (general environmental management, environmental manuals/regulations/procedures, environmental targets, separation of waste and recycling, energy saving, paper and resources saving, etc.)
- Link between midterm plan and target management, and conducting of seminars

## Awareness Activities

Nikon implements a full programme of awareness activities, with the aim of supplying information, informing employees of new policies and increasing awareness in environmental matters, as well as applying standards for decision-making.

- Publication of "Environmental Report"
- Publication and distribution of "Environment/Product Safety Information", for use in product development
- Publication of environmental awareness journals "Report from the Environmental Administration Section" via the company intranet and display of "Environmental Panels" at all plants
- Publication and distribution of "ISO Update" (Ohi Plant), "EMS News" (Yokohama and Sagami-hara Plants) and "ISO 14001 News" (Mito Plant)
- Sharing of ideas for improvement – mottos, posters and the like promoting environmental conservation, with recognition and prizes for the best ideas
- Organising environment month
- Implementation of an energy-saving patrol
- Distribution of an environmental strategy card showing the environmental policy and objectives to all employees
- Clear posting and notification of all waste-separation categories and provision of waste-disposal areas that encourage recycling
- Notice boards within the workplace, displaying such information as environmental objectives, targets, and management programmes

Nikon is developing the following environmental education and awareness activities, which are to be provided to all employees. Some group companies and suppliers are also required to participate in the education process.

## Specialist Environmental Education

Nikon employees are encouraged to undertake specialist education both within and outside the company, in order to gain the necessary knowledge, skills and technical abilities to carry out their individual responsibilities with consideration for the environment. We are working to develop specialists and increase specialist knowledge within the company.

- Internal environmental auditor development course
- Step-up seminar for internal environmental auditors
- Control of chemical substances (handling procedures, PRTR, etc.)
- Environmental facilities operation management
- Specialised industrial waste management qualification course
- Energy management course
- Pollution control management course
- Course for persons in charge of handling dangerous substances
- Emergency countermeasures (simulation of accidental leak)



Emergency countermeasures (simulation of accidental leak)



Step-up seminar for internal environmental auditors



Internal environmental auditor development course

# Contributing to Society

## Participation in Campaign to Halt Illegal Dumping — Sagamihara Plant

Sagamihara City held a campaign to put a stop to illegal dumping on November 9, 2002. The activity was sponsored by the Sagamihara City Beautification Movement Promotion Council. Beginning with the Shimomizo Koyama Park and Athletic Grounds, the main site of the event, more than 800 volunteers — including a number of employees of the Sagamihara plant — collected about 11 tons of rubbish and other illegally dumped materials from the park and surrounding areas.



## “Environment Fair” to Promote Awareness of Nikon’s Dedication to Environmental Preservation — Mito Plant

On October 12 and 13, 2002, “Environment Fair 2002” was held at the Kasama Geijutsu-no-Mori Park in Kasama City, sponsored by Ibaraki Prefecture. The Mito Plant participated in the event for the first time, demonstrating Nikon’s dedication to, and efforts towards, preserving the environment. Elementary school students particularly enjoyed the observation corner featuring our “Fabre” Fieldmicroscopes (compact, portable microscopes).



## Lecture on Zero Emissions Held at Tohoku University — Sendai Nikon

On September 11, 2002, Sendai Nikon gave a lecture at Tohoku University describing its efforts in the interest of environmental preservation. The lecture was titled, “Achievement of Zero-Emissions at Sendai Nikon.”

The lecture was at the invitation of the University’s Metals Research Laboratory, under the theme of corporate environmental activities. Interest centred on enhancing sorting efficiency and the economic effects of achieving zero emissions, and the lecture was followed by active discussion.



## Local clean-up and beautification activities

Nikon employees cooperated with local residents in a variety of public clean-up and beautification projects, in addition to taking on the responsibility of policing the areas around Nikon facilities.



Clean-up and beautification around the Mito Plant



Cleaning and beautification around the Yokohama Plant

## Communication with the local community

Clean-up Hinuma Network (Mito Plant)  
Ibaraki Prefecture Managers’ Association Environment Committee (Mito Plant)  
Association to Improve the Sagamihara Environment (Sagamihara Plant)  
Sagamihara Waste Countermeasures Council (Sagamihara Plant)  
Kanagawa Prefecture Environmental Preservation Council (Sagamihara Plant)  
Shinagawa Ward Business Information Exchange Association (Ohi Plant)  
Yokohama City Environmental Preservation Council (Yokohama Plant)

## Cooperative Effort with Ishikawa River Nature Education Association — Mito Plant

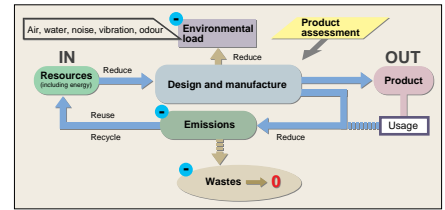
On March 23, 2003, 55 people gathered at the Mito Plant for a session conducted by the Ishikawa river nature education association. Pupils were shown how to make underwater viewing devices out of milk cartons, and used them to observe activity underwater. They also studied the surrounding environment and sampled wild watercress. It was a day for the pupils to truly get in touch with nature.



# Topics

## Zero Emissions Achieved at All Manufacturing Locations

In the first half of fiscal 2003, the Mito Plant became Nikon's first manufacturing facility to achieve zero-emissions status, and it was followed in the second half of fiscal 2003 by the Ohi, Yokohama, Sagamihara and Kumagaya plants. Today, all of our manufacturing facilities are now operating with zero emissions. Note that both the Mito Plant and Sendai Nikon achieved zero emissions for all of fiscal 2003.



The zero emission concept

## Mito Plant Receives Environmentally Friendly Corporation Award

On June 5 (Environment Day), 2002, the plant was presented with the Environmentally Friendly Corporation Award for energy conservation at the Global Environment Forum, hosted by Ibaraki Prefecture. Presented to corporations who have made outstanding contributions to environmental preservation, the award was given in recognition of the efforts of the plant in reducing energy consumption. Mito Plant General Manager Takeo Nishigaki accepted the award from Ibaraki Governor Masaru Hashimoto.



## Sagamihara Plant "Recycling Days" Announced in Prefecture's Environment Bulletin

The Sagamihara Plant has designated the 5th, 15th and 25th of each month as "Recycling Day", and sorts waste materials on those days. The programme has been under way for seven years now, with highly satisfactory results. The activity's success led to coverage in the 100th anniversary edition of "Shinkankyo", a seasonal bulletin published by the Kanagawa Prefecture Environmental Preservation Council. They lauded it for its simplicity, terming it an "environmental activity that anyone can perform."



## Fiscal 2004 Nikon Environmental Action Plan Enacted Groupwide

Nikon established "Vision Nikon 21 — For the Development of Nikon in the 21st Century" in March 2000 as the guiding policy for Groupwide activity. Based on this policy, the Nikon Environmental Action Plan was developed in fiscal 2001 and midterm environmental objectives defined. Most recently, a new 3-year plan — the Fiscal 2004 Nikon Environmental Action Plan — has been announced.



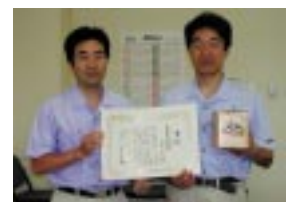
## Participating in the JEITA Japan Green Procurement Survey Standardization Initiative

Nikon joined the Japan Green Procurement Survey Standardization Initiative of JEITA (Japan Electronics and Information Technology Industries Association) in November 2002, and is now creating a survey to determine the types and degree of chemical substances in use.



## Accepting Submissions for "Nikon Eco-Family Plans" during 2nd Annual Environment Month

From the first year of the 21st century, Nikon has celebrated June as a company-wide "Environment Month" with a variety of activities and events. During the 2nd annual Environment Month, June 2002, we invited Nikon employees and their families to submit "Nikon Eco-Family Plans" describing activities that could also be done at home, and received 93 practical ideas.



## Environmentally Friendly Ohi West Building Completed

On March 24, 2003, the new Nikon Ohi West Building was completed at the Ohi Plant. The oldest of all Nikon plants, the Ohi Plant has grown and changed over the years to comply with constantly changing requirements.

The majority of the buildings at the Ohi Plant, however, are now quite old, and maintenance has become difficult from the perspectives of safety, function and comfort. These issues were all addressed in the construction of the Ohi West Building, and bring enhanced overall operational efficiency to the Ohi Plant.

With seven floors above ground and one basement level, the new building has a total floor space of about 15,000 square meters, and incorporates a number of environmental features in its design:



### 1. Window Insulation and Shading from Sunlight

Window glass has been designed to reflect the majority of thermal radiation, providing improved thermal insulation. The windows are also set back from the outer surface of the building by 50cm to minimise direct sunlight and reduce thermal loading.

\*Control of incident solar radiation reduces load on air conditioning

\*Control of exposure to rain



### 2. Rooftop Greenery (area: 441m<sup>2</sup>)

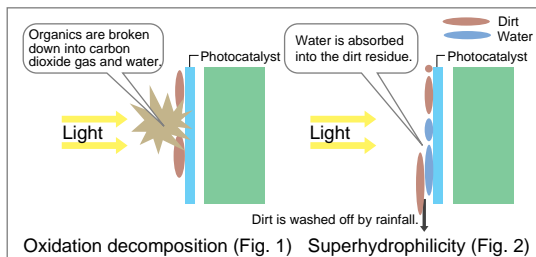
Rooftop greenery reduces thermal loading caused by sunlight, significantly reducing the load on the air conditioning system, and is effective as a measure to help prevent the building from becoming a "heat island".\*1



\*1 Energy consumption in metropolitan areas is high density, and as large portions of such areas are covered with dry materials such as concrete and asphalt, there is little temperature drop due to evaporation. As a result, the heat of sunlight is accumulated and released during the night, preventing significant cooling. Temperatures therefore tend to be higher in the city than in the suburbs, thus the name "heat island".

### 3. Exterior Tiles Treated to Resist Dirt (titanium oxide catalytic coating)

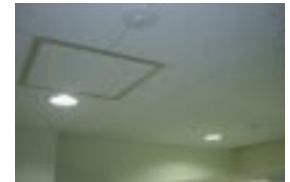
This special coating absorbs the ultraviolet wavelengths of sunlight, and utilises a photocatalytic reaction (Fig. 1) to break down surface dirt and allow it to be easily washed away by rainfall. (superhydrophilicity, Fig. 2). This brings a welcome reduction in cleaning costs.



The photocatalyst coating on the exterior of the building serves two purposes. In addition to breaking down surface dirt, it aids in lowering the temperature of the building — when the water retained during hydrophilic action evaporates, it takes the heat with it.

### 4. Automatic Staircase and Washroom Illumination

Sensors are used to detect the presence of people and automatically turn lights on and off as needed, slashing operating costs.



### 5. Air Conditioning System

Equipment such as heat sources, secondary cooling water and hot water pumps are controlled as required by their specific external loads for optimum energy efficiency. Air conditioner operation is maximised through the use of inverter control and variable-flow louvres. The system can automatically detect changes in room CO<sub>2</sub> concentration and introduce fresh outside air, or lower air conditioning if the outside temperature is sufficiently cool. Heat is recovered from return air using heat exchangers to further reduce energy consumption.

The implementation of magnetic water treatment systems has made possible a significant reduction in the cost of maintaining heat exchangers and other cooling water system piping (prevention of scaling, corrosion and slime\*2).

\*2 A mixture of waterborne microorganisms and sediment.

### 6. Rainwater Reuse

Rainwater falling on the roof is collected, filtered and used in sanitary facilities, reducing the consumption of potable water.

### 7. Water-saving Sanitary Facilities

Sanitary facilities are fitted with water-saving valves, and toilets with "flush noise" simulators, promoting reductions in water consumption.

### 8. Highly Efficient, Self-adjusting Lighting

HF (high-frequency) fluorescent tube lighting is employed in all rooms, improving brightness 1.5 times and reducing power consumption by 34% from the lighting previously used at Ohi. Furthermore, the self-adjusting design provides an 18% savings in energy costs.



## Nikon Logistics the First Non-Manufacturing Group Company to Earn ISO14001 Certification

Nikon Logistics received ISO14001 certification on March 7, 2002. The head office and six business locations were certified, marking the first time ever for a non-manufacturing Nikon Group Company. At the same time, Nikon Logistics was also granted ISO9002 certification, for meeting international quality control system standards.



## Kogaku Swiftly Acquires ISO14001 Certification

Kogaku was certified under the ISO14001 standard on February 28, 2003, acquiring its certification a mere four months after the programme was launched on November 1, 2002. The agency, while focusing primarily on sales activities, constantly works to fulfill its social responsibilities through environmentally related corporate activities and contributions to the development of a recycling society.

# History of Environmental Preservation Activities

	<b>Nikon</b>	<b>Japan/Worldwide</b>
1967		Basic Law for Environmental Pollution Control enacted
1968		Air Pollution Control Law and Noise Regulation Law enacted
1970	First Pollution Response Committee meeting held (September)	Water Pollution Control Law and Waste Disposal and Public Cleaning Law enacted
1971	Pollution Response Committee changed name to Pollution Prevention Committee (October)	Japan Environment Agency established
1972		Club of Rome published its "Limits to Growth" report United Nations Conference on the Human Environment held in Stockholm
1973	Pollution Prevention Committee changed name to Environmental Improvement Committee (November)	
1975		The London Convention on ocean dumping went into effect
1979	Environmental Management Office established within the construction department (July)	
1987		Montreal Protocol on Substances that Deplete the Ozone Layer adopted
1988	First Nikon Group Environmental Communications Committee meeting held (November) First Specialist Committee Meeting on CFC Measures held (December)	Vienna Convention for Protection of the Ozone Layer went into effect Ozone Layer Protection Law enacted
1991		Law for the Promotion of Utilisation of Recycled Resources enacted The Keidanren Global Environment Charter announced
1992	Nikon Basic Environmental Management Policy (April) Restructuring of the Environmental Improvement Committee, establishment of the Environmental Committee (April)	The Basel Convention went into effect "Earth Summit" held in Rio de Janeiro
1993		Basic Environment Law enacted Start of International Energy Star Program
1994	Elimination of specified CFC used in cleaning (May)	United Nations Framework Convention on Climate Change went into effect
1995	Implementation of Nikon Product Assessment (May) Implementation of policy toward attaining ISO 14001 certification (May)	Container and Packaging Recycling Law enacted
1996		Publication of ISO 14001 Standards
1997	Sendai Nikon earns the first ISO 14001 certification among the Nikon Group (March)	Third Conference of the Parties (COP 3) to the United Nations Framework Convention on Climate Change held in Kyoto
1998	Nikon's Environmental Symbol introduced (May) Basic Policy on Packaging Materials (May) Ohi Plant becomes the first Nikon plant to earn ISO 14001 certification (July) Nikon Basic Policy for Green Procurement (August)	Law Concerning the Promotion of Measures to cope with Global Warming enacted
1999	Nikon Green Procurement Guide distributed to suppliers (July) Environmental & Technical Administration Department established (October)	Pollutant Release and Transfer Register (PRTR) Law enacted
2000	Nikon PRTR Guide issued (March) Nikon Environmental Action Plan 21 (for fiscal 2001) issued (June)	Basic Law for Establishment of Recycling-Based Society enacted Law for Promotion of Effective Utilisation of Resources enacted
2001	Zero-Emission Kick-off Convention held (September) Nikon Environmental Report 2001 released (October)	Fluorocarbons Recovery and Destruction Law enacted
2002	Sendai Nikon Corporation became first Nikon Group company to achieve a zero-emission system (February) Mito plant became first Nikon plant to achieve a zero-emission system (September)	Soil Contamination Countermeasures Law enacted

## Questionnaire

Thank you for taking the time to read "Nikon Environmental Report 2003".

We welcome any comments you may have regarding Nikon's environmental preservation activities, as well as the content of the report itself.

Please take a few minutes to fill out the questionnaire below. When you've completed the form, kindly return it to us by fax or mail:

**Fax** Environmental Administration Section  
Environmental & Technical Administration Dept.  
+81-3-3775-9542

**Mail** Environmental Administration Section  
Environmental & Technical Administration Dept.  
NIKON CORPORATION  
1-6-3, Nishiohi, Shinagawa-ku, Tokyo 140-8601 Japan

### Q1: What is your overall impression of "Nikon Environmental Report 2003"?

- Easy to understand    Of average difficulty    Difficult to understand

Comments:

### Q2: How would you rate the contents of "Nikon Environmental Report 2003"?

- Comprehensive    Adequate    Insufficient

Comments:

### Q3: How would you evaluate Nikon's efforts toward environmental preservation?

- Exceptional    Adequate    Insufficient

Comments:

### Q4: In your opinion, which media is/are the most suitable for distribution and presentation of the environmental report?

- Printed material only    Printed material and website    Website only

Comments:

### Q5: Which of the titles/positions below best describes you (please choose only one)?

- Consumer    Shareholder/Investor    Retailer/Supplier    Resident in vicinity of Nikon plant  
 Member of government organisation    Environmental NGO    Education    Public relations  
 Person in charge of your company's environmental policy    Environmental specialist    Student    Employee of Nikon group  
 Other (\_\_\_\_\_)

### Q6: How did you find out about "Nikon Environmental Report 2003"?

- Newspaper    Magazine    Internet    Employee of Nikon group  
 Other (\_\_\_\_\_)

Thank you very much for your cooperation. We would also be grateful if you would provide us with the information requested below (optional):

Name:

Age:

Address:

Telephone:

Fax:

Occupation:



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