

# Energy Conservation

(anti-global-warming measures)

## Targets

[Greenhouse gas emissions]

- Reduction in annual emissions per net sales of at least 3%, compared to levels for fiscal 2002.



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.

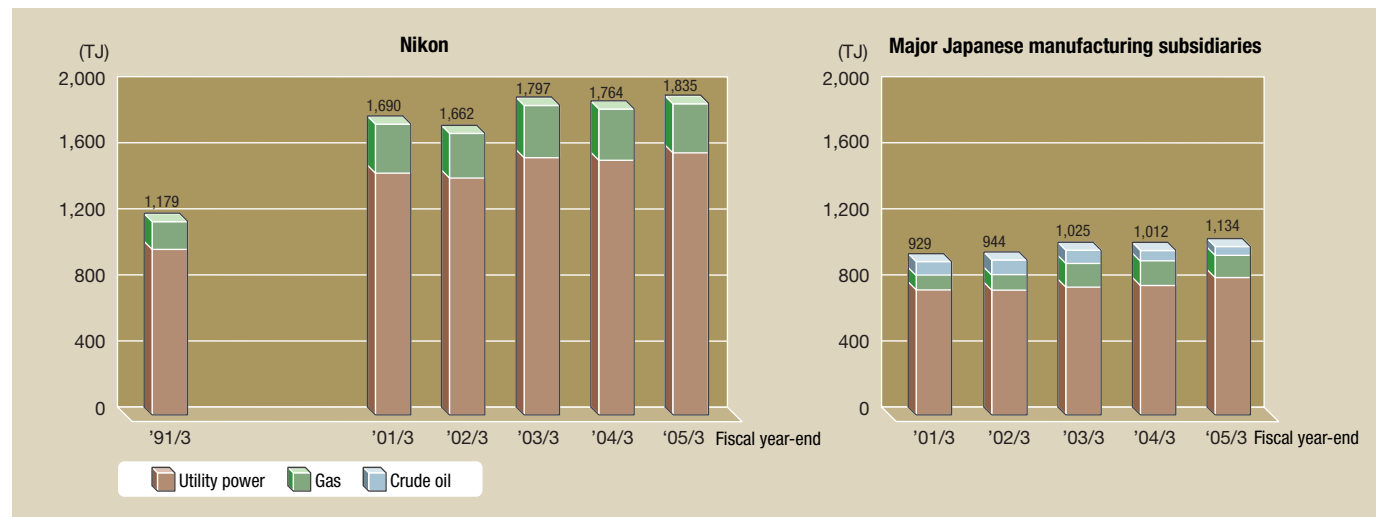
Nikon has established a target for reduction in energy use, including electricity — a major source of CO<sub>2</sub> emission. In fiscal 2005, we intend to reduce the average annual emissions of greenhouse

gases by at least 3% per net sales compared with fiscal 2002.

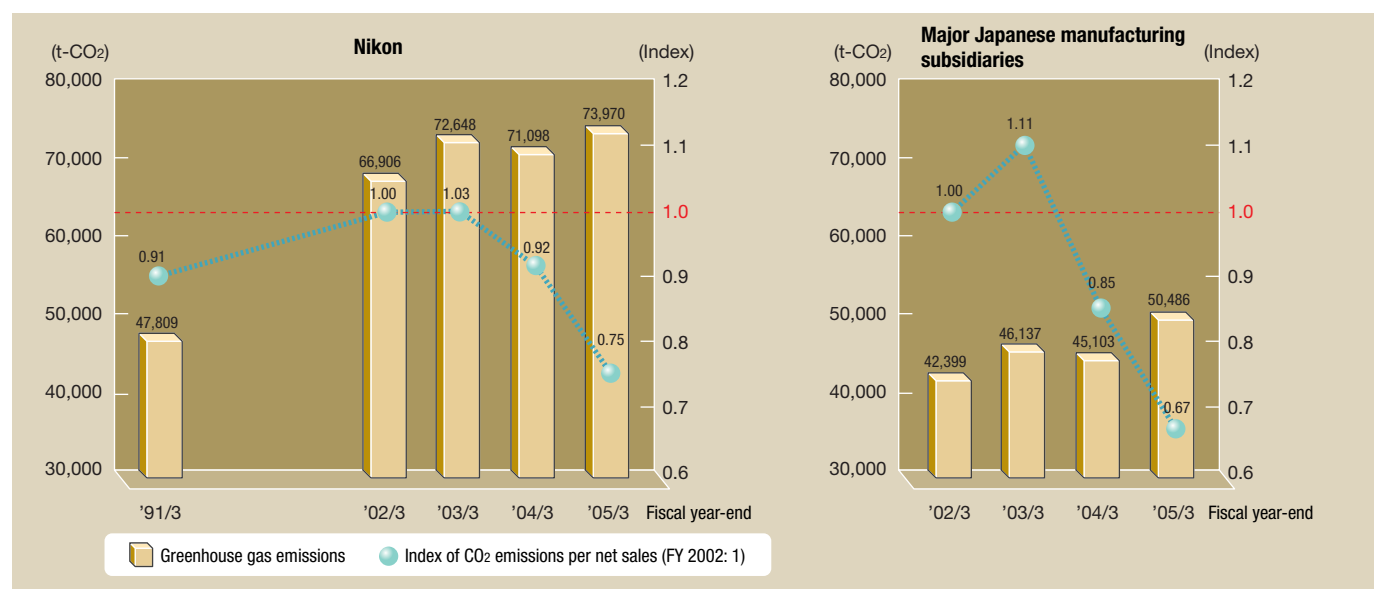
In fiscal 2005, we improved the efficiency of our air conditioning system and switched to a lighting system that uses energy more efficiently. We have also implemented and promoted various energy-saving measures such as improvements in the manufacturing process and conscientious use of lighting and office equipment. As a result, we were able to achieve a 24.7% reduction in energy use, and major Japanese manufacturing subsidiaries\* were able to achieve a reduction of 32.8%, well beyond our target.

\* Tochigi Nikon, Mito Nikon, Sendai Nikon, Zao Nikon, Kurobane Nikon

## Energy Use (heat quantity: TJ) TJ: 10<sup>12</sup> joules



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



\*Standard figures for calculating CO<sub>2</sub> emissions are taken from the "Environmental Activities Evaluation Programme 2004" (published by the Japanese Ministry of the Environment).

## Future Energy-saving Strategies

We intend to implement the following strategies as we head into fiscal 2006.

- 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-

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

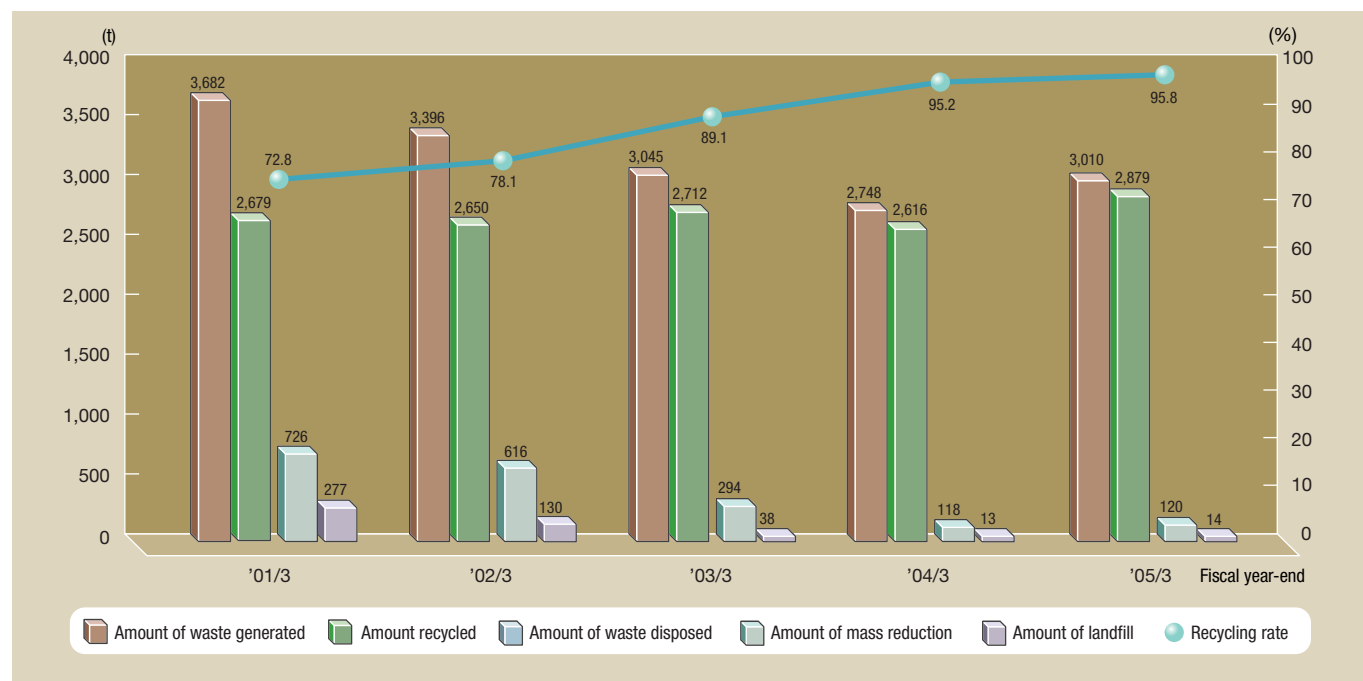
Nikon is committed to the concept of a “Resource Recycling Society”, in which the world’s valuable resources are used as effectively as possible. Through our activities, we are headed in the right direction in pursuit of this objective.

## Generation, Disposal and Recycling of Waste (Nikon Corporation)

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, our rate of resource recycling reached 95.8%, while we reduced landfill rate by 0.47%. We were also able to maintain zero-emission systems at all plants.

These results were achieved through utilising waste in RPF (Refuse Paper and Plastic Fuel)\*<sup>1</sup>, raw material for furnaces and thermal recycling, all of which contribute to the process of recycling.

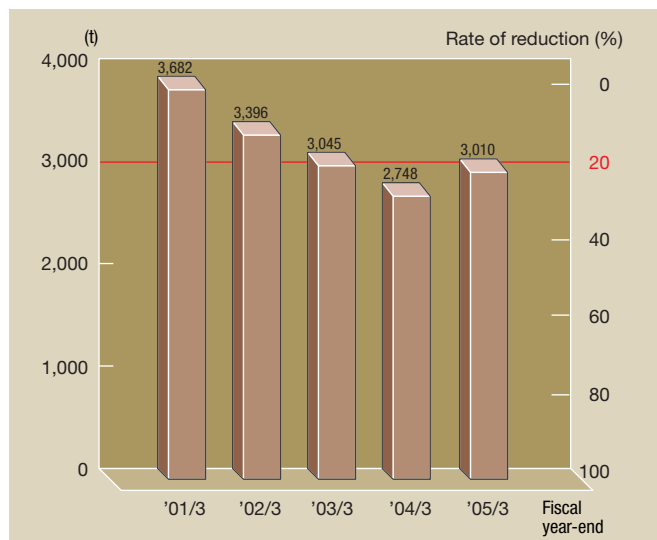
From this point forth, we will maintain our zero emission systems with emphasis on the 3R\*<sup>2</sup> principle, and we will work to develop more recycling technologies and foster relationships with recycling agencies.



\*1 Solid fuel created using refuse paper and plastic. 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

Nikon set a target to reduce waste generation by fiscal 2005 by at least 20% (compared with fiscal 2001 level per net sales) propelled by the momentum created by the 3R principle. However, following our 18.2% reduction in waste generation in fiscal 2004, we were unable to achieve that goal. The main reason was that disposal of optical glass and industry sludge increased due to increased production of precision equipment.

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



**Targets**

[Waste generation]

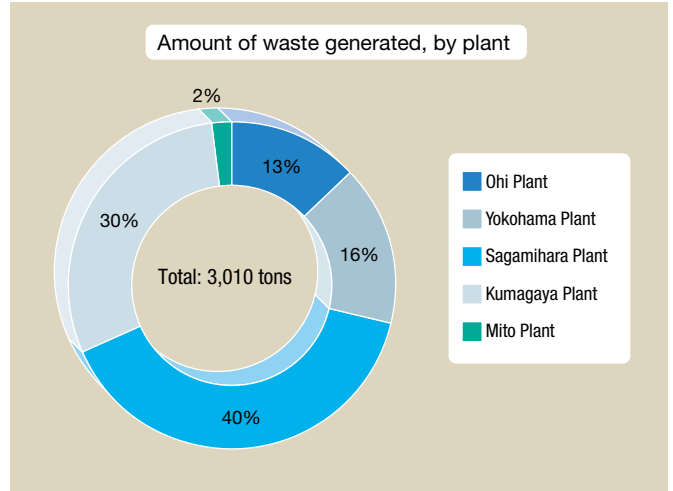
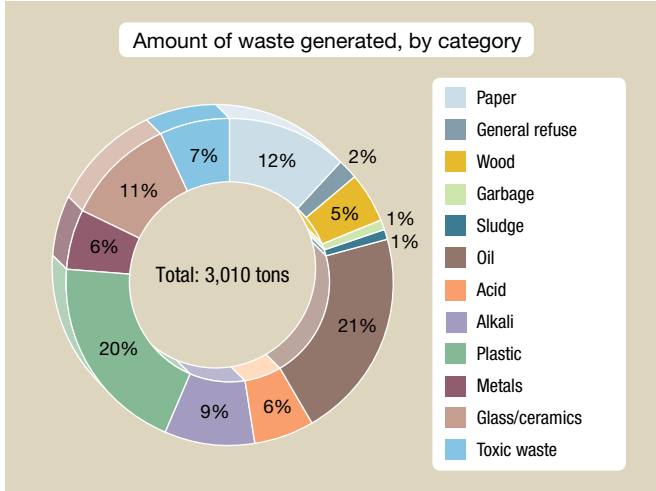
- Reduction in amount of waste generation of at least 20%, compared with figures from fiscal 2001.



**Breakdown of Waste during Fiscal 2005**

The breakdown of Nikon's waste during fiscal 2005 is as shown in the graphs below.

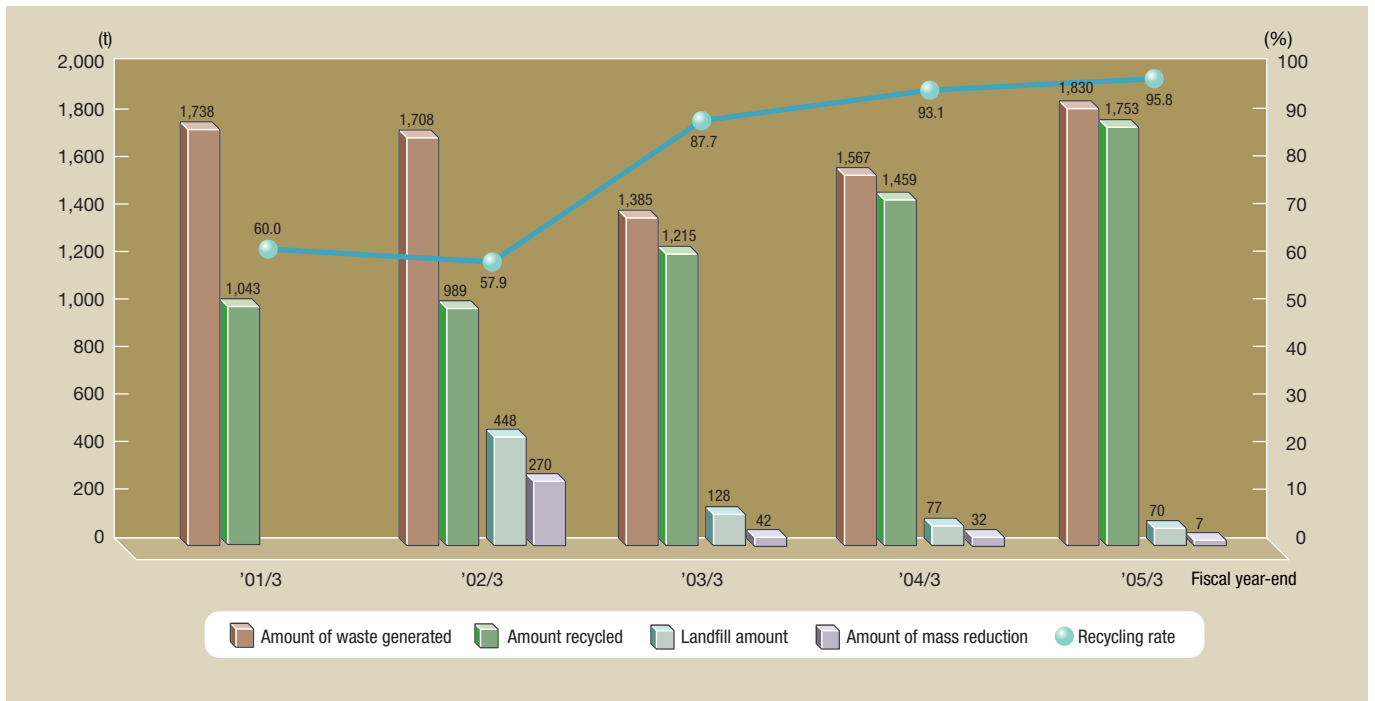
(Figures in the graphs have been rounded up or down to the nearest whole number, so some of the graphs do not total 100%).



**Discharge Disposal, Recycling of Waste (major Japanese manufacturing subsidiaries)**

In line with Nikon policies, major manufacturing subsidiaries have also promoted reductions in general and plastic waste by enforcing segment controls in waste recycling.

As a result, they were able to achieve a 95.8% recycling level in fiscal 2005, with 0.38% landfill. They have also taken a pledge to achieve zero emissions.



## Activities in the Workplace Environment

# Zero Emissions

### Targets

[Zero emissions]  
 • Establish zero-emission systems at major manufacturing subsidiaries.



Nikon defines zero emissions as “landfill amounting to less than 1% of the total amount of waste generated”. Under the Nikon Environmental Action Plan, we established as a priority goal the achievement of zero-emission systems at all manufacturing sites in fiscal 2005, and have been working to reduce waste and promote recycling through a variety of programmes. As a result, we were able to achieve our goal well in advance of our original target date. Nikon’s total waste output for fiscal 2005 was about 3,000 tons, with a landfill rate of only 0.47%, representing a significant improvement from fiscal 2001.

In the Nikon Group, a zero-emission system was attained at Nikon Sendai in February 2002, followed by the Mito Plant in September of

### 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 Animal feed
Sludge	Fertiliser Cement material Thermal recycling
Plastic	Raw material Reducing agent for blast furnace Thermal recycling
Metals	Metal materials
Glass	Materials Roadbed materials

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	Fiscal 2002 (completed)
Tochigi Nikon	Fiscal 2004 (completed)
Kurobane Nikon	Fiscal 2004 (completed)
Mito Nikon	Fiscal 2005 (completed)
Zao Nikon	Fiscal 2005 (completed)

### Waste Sorting and Reduction

Until recently, incineration was the most widely employed method of waste disposal in Japan. However, dioxin — a highly toxic chemical produced during incineration — is discharged into the atmosphere. It is believed that dioxin poses a serious threat to organisms at the top of the food chain — including human beings. With mass consumption accepted as the norm and a constant decrease in available landfill sites, it is more important than ever for us to make the wisest possible use of our valuable resources and reduce waste generation as much as possible.

Nikon is fully aware of the danger of dioxin and excess waste generation, and is making a serious and continuing effort to preserve our environment for our descendants through a range of activities including effective sorting and reduction of waste generation.

the same year. By fiscal 2003, the Ohi, Yokohama, Sagamihara and Kumagaya plants had also achieved zero emissions. In fiscal 2004, Tochigi Nikon and Kurobane Nikon completed their zero-emission systems, and Mito Nikon and Zao Nikon also completed in fiscal 2005.

**Definition of zero emissions:** Less than 1% of total waste output is disposed of as landfill. Note that this excludes sewerage, household effluent and industrial waste water.

### Recycling Day (Sagamihara Plant)

The 5<sup>th</sup>, 15<sup>th</sup> and 25<sup>th</sup> of each month are designated as Recycling Days. On these days we actively promote the recycling of unneeded resources such as paper (documents, newspapers, magazines, scrap paper, etc.) and plastic. After 12 years of continued efforts, Recycling Day is recognised as a tradition by the employees.



### Reduction and Recycling Promotion (Activity-examples of major manufacturing subsidiaries)

Sendai Nikon and Tochigi Nikon have already established zero-emission systems, and are improving storage and transport efficiency by reducing waste volume.



Mito Nikon and Zao Nikon also established zero-emission systems in fiscal 2005, and are promoting the enforcement of waste sorting as well as the crushing and composting of wooden pallets.



### Recycling Garden Waste (Mito Plant)

Lawn clippings are pulverised and spread over the grounds to help control weed growth.

