

# 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.



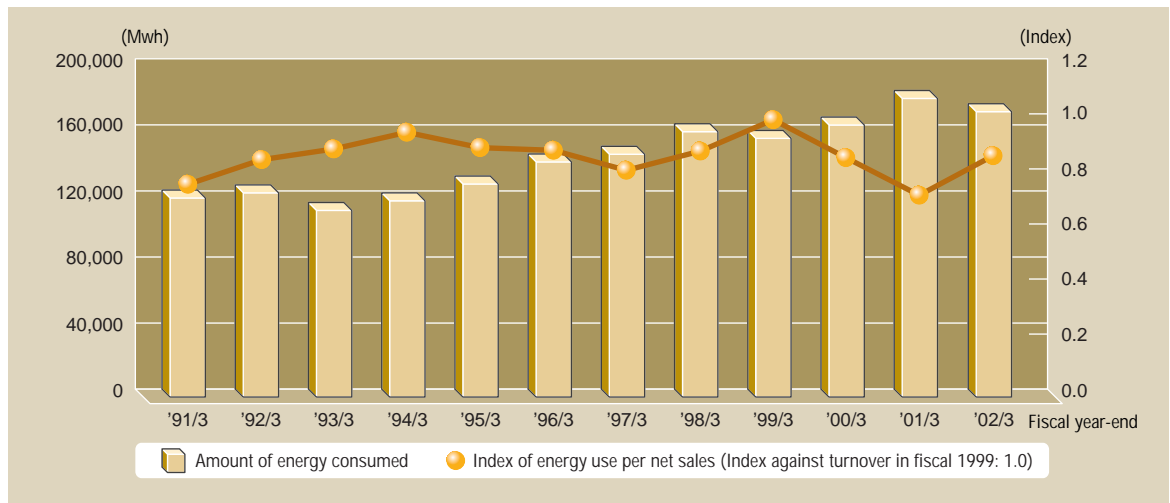
Carbon dioxide (CO<sub>2</sub>), which is released into the atmosphere when fossil fuels are burned, is the main cause of global warming. The Third Conference of the Parties (COP 3) to the United Nations Framework Convention on Climate Change in December 1997 stressed the need for a reduction in greenhouse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

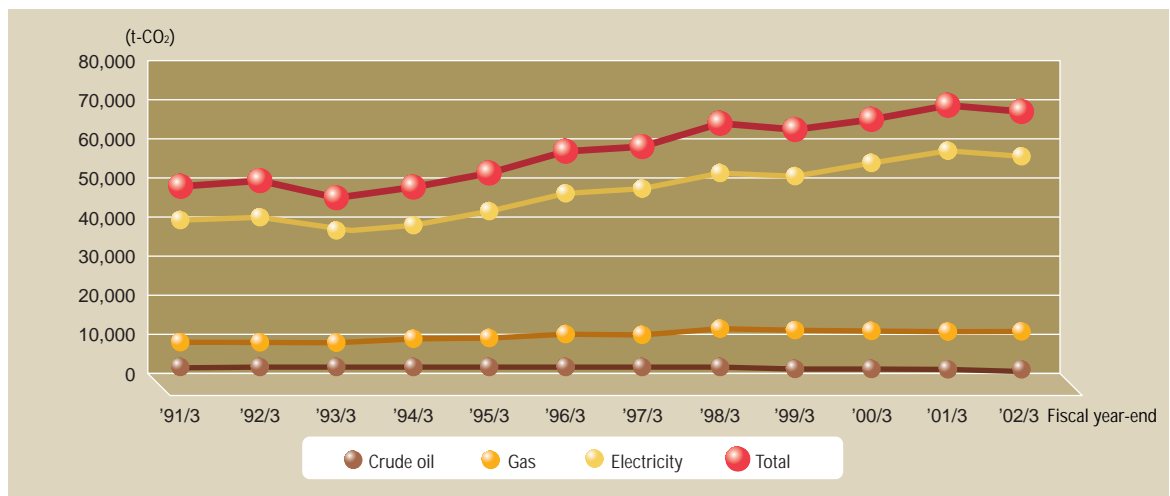
sales) by fiscal 2003.

During fiscal 2002, 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. These measures enabled a 1.5% energy saving over the previous year. Furthermore, compared with fiscal 1999, energy savings per net sales for the year were an impressive 16%.

## 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 September 1999 by the Environment Agency, now known as Ministry of the Environment).

## Future Energy-saving Strategies

We intend to implement the following strategies as we head into fiscal 2003.

- Reduction in harmful emissions from air conditioning
- Highly efficient operations 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.

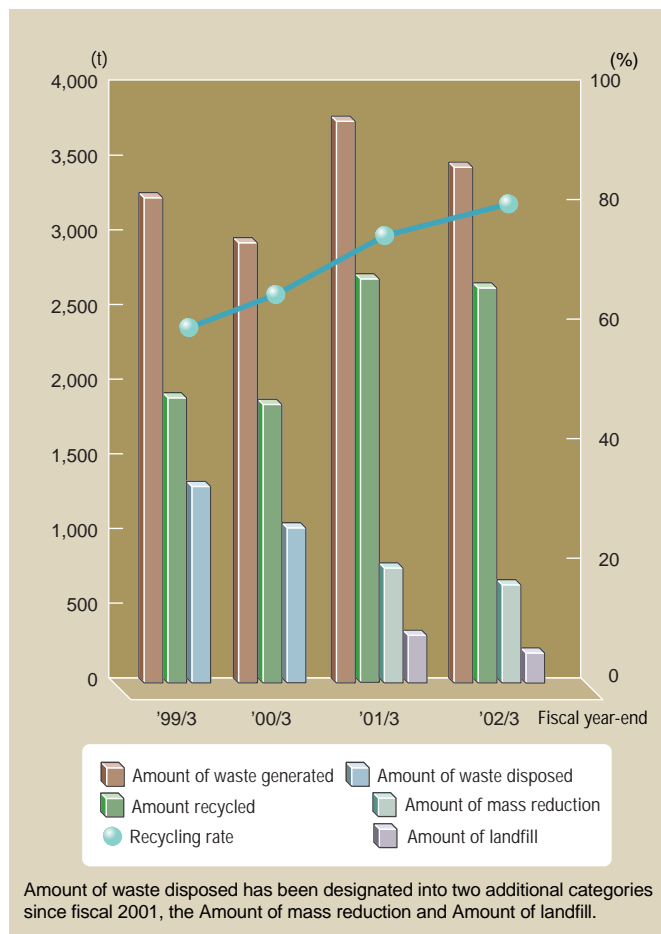
Economic expansion has brought with it yearly increases in the amount of waste produced. Waste was for too long classified as “refuse”, and simply discarded. As a result, waste has grown in amount and diversity, and there is a great deal of pressure on end-

## 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 2002 represented a 44% (592-ton) reduction against the amount recorded for fiscal 1999, and our recycling rate was 78% (up from 59% for fiscal 1999).

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.

In the coming period, we will continue to achieve reductions in the amount of waste through continued emphasis on the 3R\*2 principle, and developing further recycling technologies and links with recycling agencies, in order to achieve a recycling rate of 85% for fiscal 2003.



Amount of waste disposed has been designated into two additional categories since fiscal 2001, the Amount of mass reduction and Amount of landfill.

\*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

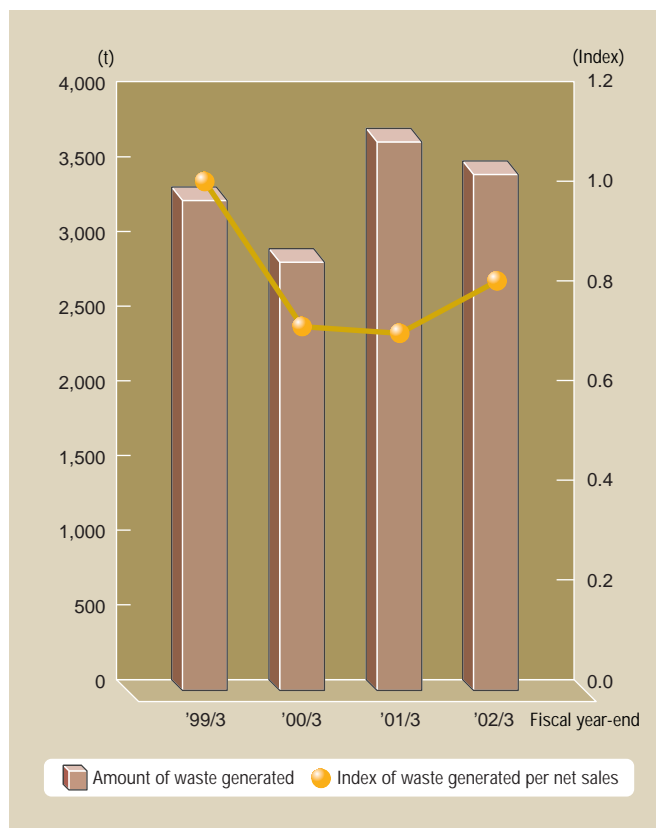
of-line disposal agencies to devise more efficient methods for disposing of waste.

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.

## 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).

In fiscal 2002 we reduced the tonnage of generated waste by 8% from the level of the prior year, but because the semiconductor market suffered the largest slump in history, corporate net sales also dropped. As a result, the index of waste generated per net sales dropped 19% from fiscal 1999.



**Targets**

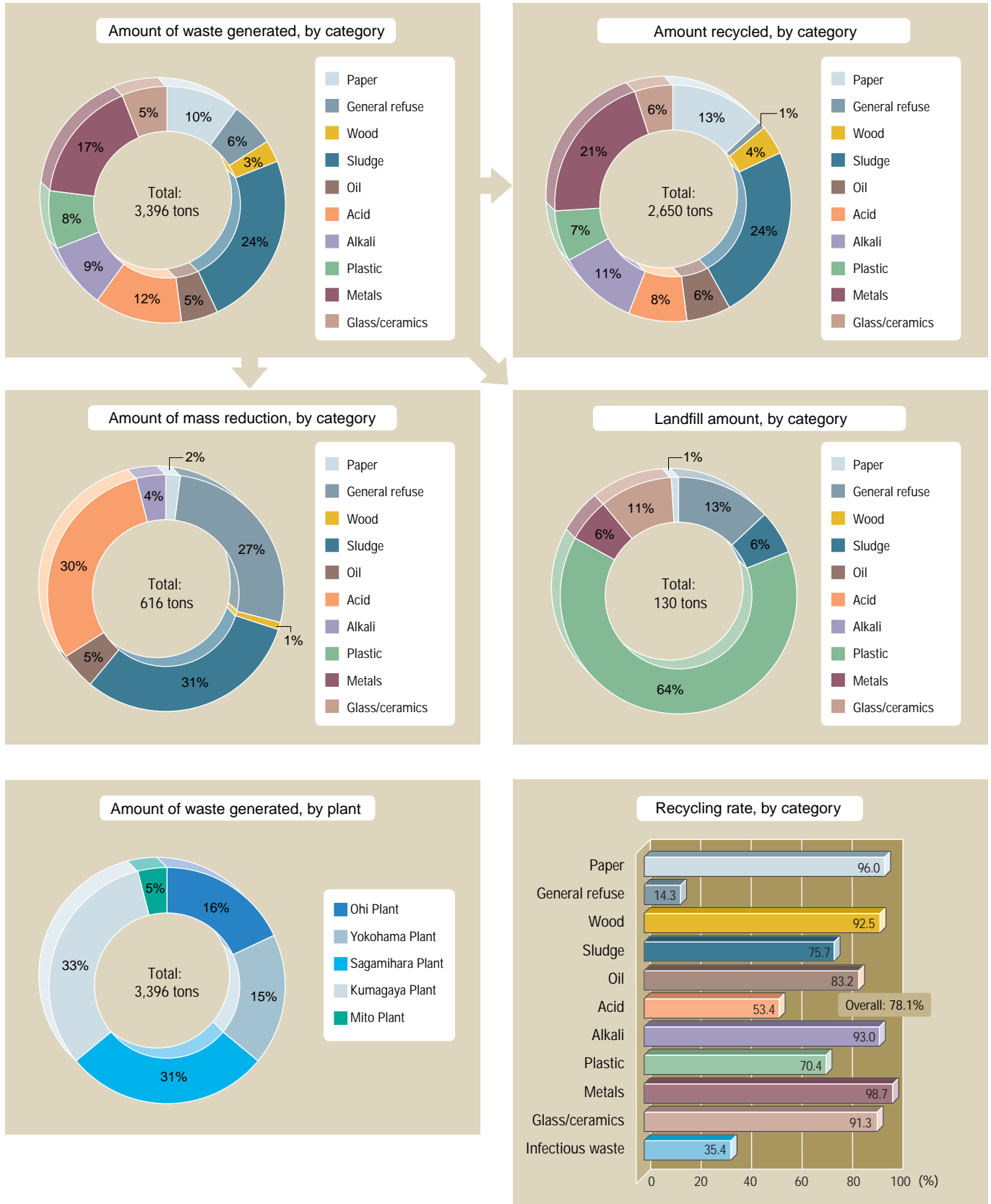
- Boost waste recycling rate to at least 85% in fiscal 2003.
- Reduce amount of waste generation per net sales by at least 40% in fiscal 2003 compared with figures for fiscal 1999.



**Breakdown of Waste during Fiscal 2002**

The breakdown of Nikon's waste during fiscal 2002 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.



Nikon is actively pursuing a corporate goal of zero emissions — the reduction of waste generated by our operations and effective utilisation of all waste. Examples of recycling waste materials include reusing and recycling paper; use of wood chips in paper-

making pulp or as fuel; use of PET bottles in Refuse Derived Fuel (RDF) or as material for new bottles; use of glass as a roadbed material; and use of waste oils as auxiliary combustion agents. Our goal is to minimise landfill volumes.

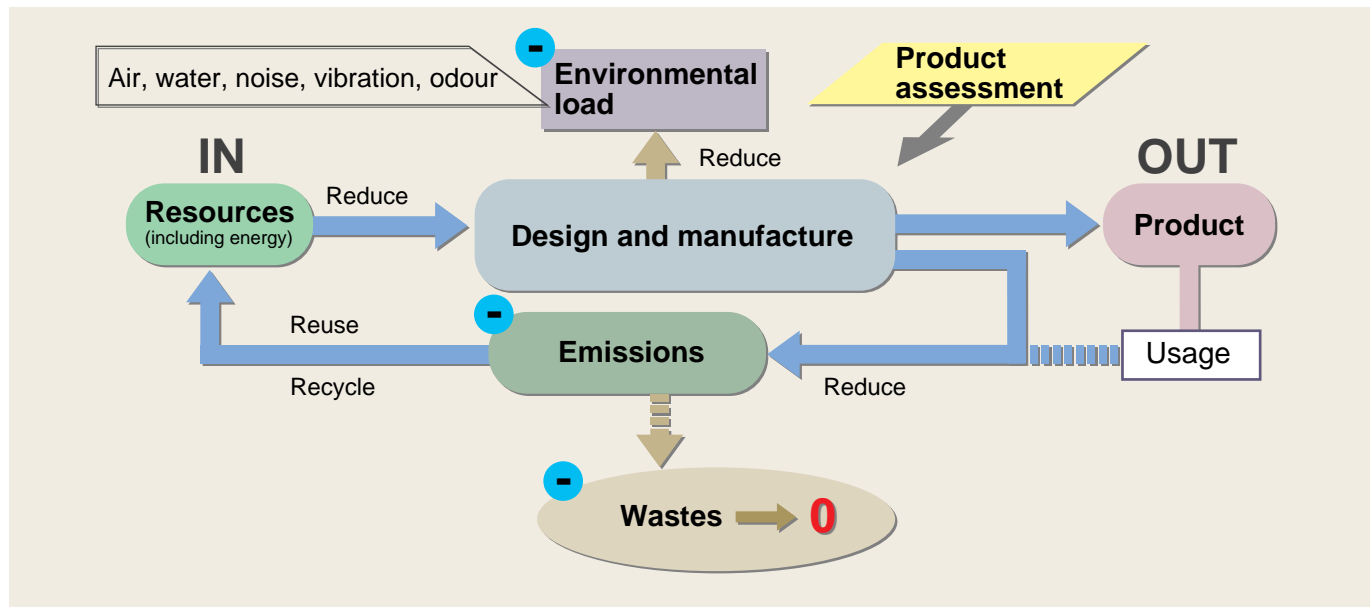
### What Is Zero Emission?

The concept of “zero emission” was first developed by the United Nations University in 1994 in order to transform our society of mass production, mass consumption and mass waste into a sustainable, recycling-oriented society. It is defined as a society having total waste emissions of zero.

### Priorities under the Law for Promotion of Effective Utilisation of Resources

1. Reduce
2. Reuse
3. Material Recycle
4. Thermal Recycle
5. Appropriate Processing

### The zero emission concept



### Zero-Emission Kick-Off Convention and Progress

The Zero-Emission Kick-Off Convention was held on September 18, 2001. It opened with the reading of the Kick-Off Declaration by Executive Vice President, Member of the Board, Yasujiro Hara (Chairman of the Environmental Committee), which marked the start of Nikon’s full-fledged efforts to achieve zero emissions.

With consideration for the fact that many landfills have exceeded their capacity, Nikon defines zero emissions as follows.

**No more than 1% of total emissions will be sent to landfills**  
Excluding sewage, domestic wastewater, industrial wastewater, etc.

In February 2002, Sendai Nikon Corporation became the first Nikon Group firm to develop a zero-emission system. Other group companies are continuing in their efforts to complete their own zero-emission projects.



Waste compressor (Sendai Nikon Corporation)



Crusher (Mito Plant)



Sorting (Sagami-hara Plant)

Nikon plant name	Target to develop zero-emission system	Major manufacturing subsidiaries	Target to develop zero-emission system
Mito Plant	1st half of fiscal 2003	Sendai Nikon Corporation	Fiscal 2002 (completed)
Sagami-hara Plant	Fiscal 2003	Tochigi Nikon Corporation	Fiscal 2005
Ohi Plant	Fiscal 2003	Mito Nikon Corporation	Fiscal 2006
Kumagaya Plant	Fiscal 2004	Zao Nikon Co., Ltd.	Fiscal 2006
Yokohama Plant	Fiscal 2003	Kurobane Nikon Co., Ltd.	Fiscal 2007

The keys to achieving the zero-emission goal are reduction of waste emissions and improvement of transport efficiency (including sorting and reduction of volume).