

## Environmental conservation measures in our office

The environment-friendly office building was completed.

The Hanshin office of Hanshin branch of Head office was completed in Amagasaki, Hyogo in October 2002.

This office consists of the business building in which about 1,000 employees can work, the environmental engineering business-related research facilities and so on. The office is the environment-friendly building, adopting a photovoltaic system, a micro-gas-turbine-cogeneration system, an energy efficiency design of the well-hole style structure and so on.



## Green procurement and purchasing

We at Kubota joined the Green Procurement Network in 1996.

And we have been promoting green procurement in which the environment-friendly products should take priority over other products.

We decided green procurement guideline regarding raw materials and parts in April 2001, in order to reduce the environmental load with the cooperation of our vendors by conducting the investigation of their tackling environment and so on.

In November 2001, we decided green procurement promotion standards regarding specific procurement items in the Law on Promoting Green Purchasing, and now are intend to purchase the products which meet the judging standards in the law. We have installed the system in which we can calculate the amount and the ratio of green purchasing in our all plants. The amount of green purchasing was 11.21 million yen, the ratio of green purchasing was 62.8 % in fiscal 2002. We will make an effort to increase the ratio from now on.

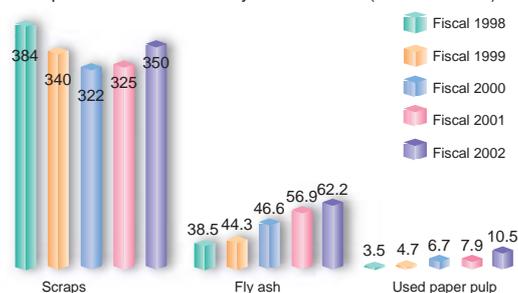
Our green procurement guideline can be seen on our home page of materials procurement.  
<http://www.procure.kubota.co.jp/housin/index01.html>



Benri-net



The procured amount of recycled materials ( thousand ton )



## Environmental conservation measures at the distribution stage

Tackling the reduction of carbon dioxide emission by rationalizing distribution

In order to reduce the emission of carbon dioxide and air pollutants in transportation, we are tackling the promotion of modal shifts in which we change our transportation means from trucks to railways and ships, the cooperative transportation and distribution, use of returning trucks, the improvement of transportation efficiency and so no. We are also tackling the waste reduction by reducing packing material, and the carbon dioxide reduction when producing and discarding packing materials.

The rate of modal shifts increased by 6%, to 40% compared with fiscal 2002. We reduced about 2,135 tons of carbon dioxide emission annually, including the improvement of distribution system, and packing and crating system.

( The reduction of costs totaled to 489 million yen. )

Reduced amount of carbon dioxide



## Coping with the Law for Promotion of Sorting and Recycling of Containers and Packaging

We sell a various kind of products to the companies and consumers. The packing of these products is various.

Almost all products are shipped with the packing that has no relation to the law.

We grasped the total amount of the packing, relating to the law, for our products in fiscal 2001 in the wake of the previous year.

As a result, the amount of plastic packing and paper packing used were approximately 280 ton and approximately 830 ton respectively.

An example of the reduction of carbon dioxide emission by modal shift



Loading Duc-frame in the ship

Effect: We reduced 767 tons of carbon dioxide emission by the modal shifts in the shipments from Okajima plant.

An example of crate improvement for tractors ( engines ) exported



Effect: We reduced the amount of waste in our customers, and made unpacking easy, by changing crate from wood to steel. ( We reduced nine tons of carbon dioxide annually, and 5.49 million yen in cost annually. )

However the discharged amount of wastes as municipal solid wastes was extremely small, because almost all products were shipped to the dealers, or were unpacked at the distribution stage.

We positively and continuously promote our activities changing to recyclable materials in order to construct recycling-oriented society, and reducing containers and packaging in order to prevent global warming.

## Local environmental conservation

### Air and water quality conservation

Each of our plants has its own regulation standards regarding the emission to environment. These self-imposed standards are stricter than those of municipal regulations. In this way, we prevent air pollution and water pollution.

#### An example of air quality

Equipment	Plant	Regulated substance	Unit	National standard	Local standard or agreement standard	In-house standard	Measured value
Cupola	Hanshin plant ( Mukogawa )	Dust	g/m <sup>3</sup> N	0.1	0.1	0.05	0.0025
Cupola	Keiyo plant ( Funabashi )	Dust	g/m <sup>3</sup> N	0.1	0.1	0.05	0.0001
Waste incinerator No.1	Shin-yodogawa environment plant center	Dioxins	ng-TEQ/m <sup>3</sup> N	10	10	1	Incinerators No2 to No4 did not be operated during fiscal 2002.
Waste incinerator No.2		Dioxins					
Waste incinerator No.3		Dioxins					
Waste incinerator No.4		Dioxins					

Equipment	Plant	Abolished in
Waste incinerator	Shin-yodogawa factory in Hanshin plant	November 2002
Waste incinerator	Odawara plant	May 2002
Waste incinerator	Ohama plant	November 2002
Waste incinerator	Shiga plant	September 2001

The waste incinerators were abolished on an unconsolidated basis in fiscal 2002 except for part of experimental plants.

#### An example of water quality ( Shiga plant )

Effluent volume: 1560 m<sup>3</sup>/day

Item	National standard	Local standard or agreement standard	In-house standard	Measured value
pH ( hydrogen ion concentration )	5.8 ~ 8.6	6.0 ~ 8.5	6.3 ~ 8.1	7.1
BOD ( biochemical oxygen demand )	160 (mg/ℓ) (daily average 120)	20	15	2.0
COD ( chemical oxygen demand )	160 (mg/ℓ) (daily average 120)	20	15	7.0
SS ( suspended solids )	200 (mg/ℓ) (daily average 150)	20	15	2.4
Zinc	5 (mg/ℓ)	1	0.8	0.06
Dissolved iron	10 (mg/ℓ)	10	8	0.07
Nitrogen	120 (mg/ℓ) (daily average 60)	8	6.5	2.4
Phosphorus	16 (mg/ℓ) (daily average 8)	0.8	0.65	0.16
Boron and its compounds	10 (mg/ℓ)	2	1.5	0.02
Nitrous acid compounds and nitric acid compounds	100 (mg/ℓ)	100	50	1.5

All other items with no mention were under minimum limit of determination. ( not detected )  
 N-hexane ( mineral oil ) / N-hexane ( animal/vegetable oil ) / Phenols / Copper / Zinc / Dissolved manganese / Chrome / Fluorine and its compounds / Coliform group number / Cadmium and its compounds / Cyanides / Organic phosphoric compounds / Lead and its compounds / Hexavalent chromium compounds / Arsenic and its compounds / Total mercury / Alkyl mercury compounds / PCB / Trichloroethylene / Tetrachloroethylene / Dichloromethane / Carbon tetrachloride / 1,2-dichloroethane / 1,1-dichloroethylene / Cis-1,2-dichloroethylene / 1,1,1-trichloroethane / 1,1,2-trichloroethane / 1,3-dichloropropene / Thiram / Simazine / Thiobencarb / Benzene / Selenium and its compounds ( Antimony: regulation substance by Shiga prefectural ordinance )

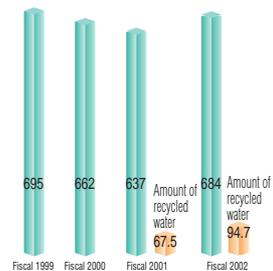
### Reuse of wastewater

We are making efforts to reuse domestic wastewater and process wastewater to keep water resources and reduce environmental load.



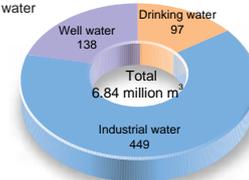
Wastewater recycling equipment 30 m<sup>3</sup> / day ( Hanshin office )

#### Used amount of water ( 10 thousand m<sup>3</sup> )



\* Data is on an unconsolidated basis until fiscal 2000.

#### Breakdown of used amount of water



## Measures for trouble or emergency

In order to improve the current status of environmental pollution prevention, we have been specifying some accidents and emergencies ( leak accident from wastewater treatment facilities, leak accident from oil tanks, etc. ) which are required in the article "4.4.7 the preparations and measures for emergencies" of environmental management system ISO14001

standards, at each workshop in our all plants since 1997.

Pollution accident did not occur, since we have been promoting the measures such as strict maintenance of environment-related facilities, strict control of hazardous chemical substances, installation of pollution prevention facilities, making manual for accident, and the training for accident.

### Examples in Sakai plant



Alarm confirmation on a switchboard on site

The bulletin board of information and instruction route in an emergency on site



#### Training in emergency when heavy oil was accepted ( January 16, 2003 )



Connecting a hose to refuel



- ① Filling up a hole for rainwater with a cap plug in the well hole before starting refuel
- ② Leaked oil is collected in the oil separation tank



Starting refuel  
A hundred liter of heavy oil leaked from the flange connection of the tank truck when accepted.



Rainwater flows in the direction of arrows usually



The leaked oil flowed to the ditch, and was collected in the oil separation tank.



Refuel valve of the tank truck was closed.