



# Environmental Report 2011

Abridged Edition



**Kobe University**



## Message from the President (Abridged)

Kobe University adopted its “Charter on the Environment” in 2006 based on the Environmental Philosophy and the Environmental Principle, we are making efforts to implement these policies as follows:

### 1. To foster ecological-minded students

I consider the fostering of people who are environmental consciousness to be a universal activity. Therefore, it is important to foster young people who are constantly aware of and capable of sustaining the global environment on a daily basis. Environmental studies constitute a very wide-ranging field, in order to give our students a broader perspective, we plan to organize interdisciplinary environmental courses in which arts and sciences will be combined. I also envision a support system which will allow students to go beyond their graduate schools and, take courses that cross over several departments.

### 2. To promote research that sustains the global environment

Recently, it is nearly impossible to produce an item for practical use from a single academic field. Take for example the solar photovoltaic facility. When we look at the origin of each component, we find that many of the components are manufactured by different Japanese companies. In comparison to the world standard, Japanese technology is by no means inferior, however, technology can only be put to practical use when these components are integrated together and coordinated systematically.

Likewise, there are many academic fields involved in “environmental” studies; what we need is the ability to put them all together. I believe that Kobe University, as a multi-faceted institution, is capable of achieving this. And for this reason, the Integrated Research Center was established on Port Island. I would like to promote interdisciplinary research integration not only in the fields of natural sciences, but also those in humanities and human development, social sciences, and bio-medical sciences. In addition to the contributions from individual fields involved in the environment, I would also like to disseminate information to the world through the interdisciplinary research integration.

### 3. To promote environmental preservation activities that set an example for others

We adopted the environmental management policies for the second term of the mid-term plan in fiscal year 2010. In my opinion, the promotion of environmental preservation must first start with the heightening of one’s awareness toward the environment.

The “Promotion of the 3R (Reduce, Reuse, Recycle) activities” requires the awareness and the efforts of all members of the university - students, faculty, and other employees. “Reduce” and “Reuse” especially require efforts. Trying not to produce solid waste, or finding ways to reuse materials, are already

common practice among some members; however, it cannot be totally achieved without the concerted efforts of all members. “Recycle” is, of course, important; but the most important is “Reduce”.

Our goal for the second term of the mid-term plan ( by fiscal 2015) is to reduce CO<sub>2</sub> emissions by 15%. The current use of air conditioning is a major factor in the production of emissions. Although it may be costly, we need to replace the older types with highly efficient new types. However, the goal cannot be achieved by merely investing in equipment; here again, it is important to increase environmental awareness among our university members. I welcome all creative ideas, particularly from students, on ways to promote the 3R activities or the reduction of CO<sub>2</sub> emissions.

The PDCA (Plan, Do, Check, Act) cycle plays an important role in environmental preservation activities. The key lies in the way we approach one of the policies, “to practice and continue the environmental management cycle”.

We have evaluated our 3R and energy-saving activities and the amount of energy used calculated. These results have been made public within the university. Consequently, we have proceeded from “PLAN” to “DO” and then to “CHECK”; but there is as yet almost no corrective “ACTION”. From now on, we are going to put more weight on improving the inspection results, and on reviewing the plan.

### To university members

Until now, universities have had a tendency to place more importance on research activities than on environment preservation or energy saving activities. However, in our current situation, we can no longer afford to be so selective. Kobe University will continue to guarantee the basic support, such as research fund and space, for all academic fields. However, we cannot provide equally for all in regards to environment and energy-saving. I plan to devise a system of incentives and support to those who make the most efforts. I’m relying on all of you, as members of our university, to put your best effort to work.



福田秀樹 FUKUDA, Hideki  
President of Kobe University

Visit the URL below for the president's message in an interview  
<http://www.kobe-u.ac.jp/report/environmental/2011/>

## Kobe University Charter on the Environment

### Environmental Philosophy

As a world-class research and education institution, Kobe University pledges itself, through all of the university's activities, to the preservation of the global environment and to the creation of a sustainable society, which are the two most important challenges the world faces today.

Flanked between the Pacific Ocean and the Rokko Mountains, Kobe University utilizes this regional locality to its advantage for the fostering of ecological-minded students and the dissemination of knowledge gained from academic researches to the world. Kobe University pledges to build a path toward the realization of a sustainable society as a common goal of humanity, through these efforts and by setting an example in the preservation of the environment.

### Environmental Principle

1. To foster and support ecological-minded students.
2. To promote research that sustains the global environment.
3. To promote environmental preservation activities that set an example for others.

## A Review from the Outside

I read the Environmental Report 2011 which is the sixth annual report published by Kobe University.

The contents of the Report have improved every year, and the graphs and tables in the Environmental Activity section are much easier to read and understand now. With the sixth year under way and the environmental management policies for the second term of the mid-term plan set, the university is about to take a big step forward into the practical stage from the preparatory stage of the first term. From now on, I think the university will be required to promote as well as effectively implementing the environmental preservation activities; and show the results to all stakeholders.

It is with those considerations in mind that I'm going to mention the points in the Report that drew my attention.

### ■ Environmental management: The level of permeation

It is apparent that the organizations promoting environmental preservation activities are enhanced year by year.

A recent major improvement in environmental preservation activities is the clear statement of environmental management policies: (1) the promotion of 3R activities among all members of the university; (2) the setting of a goal for the greater reduction of CO<sub>2</sub>; and (3) the ongoing practice of the environmental management cycle.

Under the system as it stands now, the activities of the Environmental Caravan play a leading role in transmitting environmental policies to each department. However, it is hard to know, under the present organizational system, if and how each member (faculty, other employees, and students) is structured to be actively involved.

The competition of registering eco points using cell phones\*, which started in fiscal year 2011, is an interesting example of environmental efforts to involve students. For the ongoing promotion of such efforts, and for an increase in the effectiveness of environmental management policies, I look forward to further improvement in the organization system.

### ■ Toward a Report that clearly delineates achievements

The following characteristic measures were used to organize this year's Environmental Report. First, a meeting was held to read the previous year's Environmental Report. The targets were its primary readers, the university's students and staff. Then, the Report was written based on the feedbacks received from the meeting. The president's message, was also featured as an interview\* with him, directly conveying his thoughts about the environment. Moreover, the University's advanced efforts in education and research, and environmental management activities, were shown in concrete detail. In particular, achievements in the reduction of CO<sub>2</sub> were shown in a way that was easy to understand.

Yet, I find it difficult to evaluate whether, "the efforts of the university have progressed, on the whole, this year over last," or whether "it is getting closer to achieving its goal."

This may be partially due to the composition of the Report, and because it does not address any concrete goal specified in the Environment Principles of the Environmental Charter. I agree that items such as 1. To foster ecological-minded students and 2. To promote research that sustains the global environment are difficult to show in terms of numerical objectives, however, by announcing concrete aims correspond to a specific goal, achievements could be shown in a way that is easy to understand.

I also sense from the Environmental Charter that the university values its relationships with both the international and the local communities; thus, organizing personnel training and research activities through these relationships might be another solution.

Currently, the Report only targets university members as its readers. In the future, I hope that it will be written with readers outside the university (including local communities) in mind.

Making more effective report would also lead to a re-examination of the contents of activities. By undertaking that task, and by allowing environmental management permeate to all levels of the university, I hope that Kobe University, as a world-class institution of research and education, would also establish itself as the most advanced university in matters regarding the environment.

\*Only in the original Japanese version.



**Name :** MUREI, Emiko

**Present occupation :** Associate Professor, Graduate School of Accountancy, University of Hyogo (2009 - present); Certified Public Accountant

#### Profile :

Graduated from the Accounting Division of the School of Business Administration, Kobe University with a bachelor's degree in Business Administration. She joined a major auditing firm where she was first engaged in legal auditing, and later in environmental report certification and consultation, as well as environmental accounting. She became a Limited Term Associate Professor of the University of Hyogo in 2007, and has held her current position since 2009. She is currently a member of the Japanese Institute of Certified Public Accountants KINKI Chapter, a member of the committee for school/CSR, and the Chairperson of FD committee of Japan Association of Graduate Schools for Professional Accountancy.

Thesis: Development of the environmental report and the role of environmental accounting (Research Materials, Research Institute for Economics and Business Administration, University of Hyogo)

# Environmental Education and Research

## Development and Promotion of an ESD Sub-course

TAKAO, Chiaki, ESD coordinator, Graduate School of Human Development and Environment

The collaborative ESD (Education for Sustainable Development) course was selected to be one of the Ministry of Education, Culture, Sports, Science and Technology (MEXT) funded program, "Support Program for Contemporary Educational Needs" (also known as "Contemporary Good Practice" ) from fiscal years 2007 to 2009. The initial collaboration was between the Faculties of Human Development, Letters, and Economics, however in fiscal year 2011, the Faculty of Agriculture joined the three faculties. The curriculum has since been expanded and the four Faculties are now coordinating their efforts together.

The Brundtland Commission, formally known as the World Commission on Environment and Development (WCED) defined Sustainable Development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" in 1987. The Johannesburg Summit 2002, also known as the World Summit on Sustainable Development, placed special emphasis on education: "Education is crucial in the promotion of sustainability" . In order to realize a world in which society, economy, and environment are all in harmony, we need to foster citizens who possess a global perspective and are capable of using their own ideas to create a new social order. ESD was developed from such a need. Following an initiative filed by the Japanese government, the United Nations adopted a resolution to designate the ten years beginning with 2005 "the United Nations Decade of ESD;" various efforts are taking place worldwide.

ESD sub-course displays three major characteristics:  
First, in order to expand the traditional range of

environmental education, the curriculum is organized to cover broad areas corresponding to the diverse disciplines required for ESD. The sub-course incorporates learning from wide-ranging fields utilizing the resources offered by the four departments. Courses offered include "Forming New Ethics" and "Risk Management and Disaster Prevention" from the Faculty of Letters, "Sustainable Economic Activities" from the Faculty of Economics, "Practicing Food and Agriculture" from the Faculty of Agriculture, and "Transformability of Human" from the Faculty of Human Development. Next, the sub-course takes an in-depth look at problems inherent in an unsustainable society or system, and searches for keys to the solution of those problems by sending students to centers of activity within the local community, and by having them participate in practical activities that involve working together with people outside the university ( "action research" ). Emphasis is placed on participation and experience in the field outside the university such as hands-on learning and workshops. Finally, by earning a total of 14 credits in four years, the student will receive a certificate identifying him or her as an "ESD Practitioner" in addition to the university degree at graduation. Under this unique system, then, the sub-course aims at training personnel who sees the world from various points of view, capable of coordinating within an organization or group to solve the problem, and possesses both will and skills to solve the problem.

Currently, the work group for promotion and review of the ESD sub-course has its headquarters in the Institute for Promotion of Higher Education. Ultimately, the work group is thinking of extending the sub-course to all university departments.



Figure 1 Sustainable development

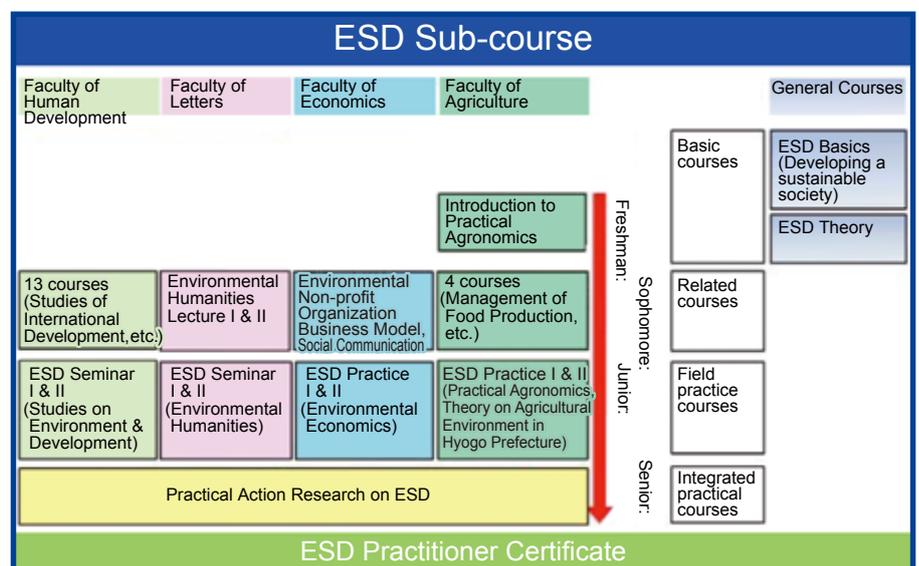


Figure 2

# Related Topics on Environmental Education and Research

## Meeting 'To read the Environmental Report'

On June 2, 2011, a meeting 'To read the university's Environmental Report' took place on the Rokkodai #1 campus at the third floor presentation hall of Frontier Hall. The purpose of the meeting was to disseminate information about the annually published Environmental Report throughout the campus and to obtain feedbacks from students for use in future publications as well as environmental preservation activities.

The meeting was chaired by Professor Katsuhiko Kokubu of the Graduate School of Business Administration and the Chairperson of the Environmental Reporting Work Group. Participating in the lively discussion were 27 students, a co-op staff member, and 17 faculty members including Executive Vice President in charge of General Affairs and Facilities, Masami Shimobayashi; Associate Professor Takeshi Shimamura of the Graduate School of Law and the Chairperson of the Environmental Management Review Work Group; and Associate Professor Akihiko Kajinami and the Deputy Director of the Center for Environmental Management.

Main feedbacks are as follows:

### ■ Regarding environmental education, research, and management

- Results of environmental education and research should be more visible.
- Long-term and concrete objectives should be set.
- Kobe University should specify what it considers important.

### ■ Regarding future environmental activities

- Consider decreasing the number of vending machines.
- Consider using LED and ESCO\* services.
- Consider making an Environmental Report from students' feedbacks.
- Consider making activities that would automatically lead to environmental practices.

Every effort will be made to see that those feedbacks are reflected when putting together the Environmental Report and in future environmental preservation activities.

Related URL:

<http://www.kobe-u.ac.jp/info/database/report/environmental.htm>

\* ESCO: Energy Service Company. It is an environmental business that makes energy saving proposals for factories, office buildings, and commercial facilities to improve their energy efficiency; guarantees cost reduction; and receives its fee based on the cost reduction.



Scene from the Meeting "to read the Environmental Report"



Students expressing their opinion

# Environmental Activity at Kobe University

## Saving energy and preventing global warming

### 1. Environmental goal

Kobe University adopted a university-wide initiative to reduce CO<sub>2</sub> emissions by 15%\* (in basic units, by total floor area) during the second term of the mid-term plan (FY2010 to 2015).

\*The measurement for fiscal year (FY) 2004, set to be the base year

### 2. Reducing the total amount of CO<sub>2</sub> emissions

Our efforts to save energy have concentrated on educational activities toward staff and students, and the replacement of outdated equipment with more efficient versions. In regards to boilers used for heating in the Kusunoki area, we changed from ones that use heavy crude oil to city gas, which emit less CO<sub>2</sub>.

As a result, the total amount of CO<sub>2</sub> emitted in FY2010 decreased by 0.1% (49t-CO<sub>2</sub>) compared to that of FY2009.\* With the exception of FY2008, the amount of CO<sub>2</sub> emissions has been generally on a downward trend. It has decreased by 4.1% compared to the base year (FY2004). The amount of CO<sub>2</sub> emissions by total floor area decreased by 6.6% (5.428t-CO<sub>2</sub>/1000m<sup>2</sup>) from that of the base year (FY2004).

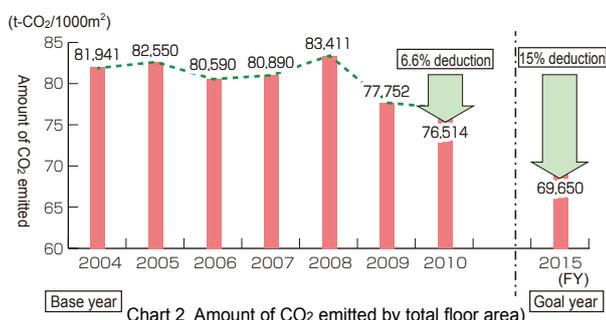
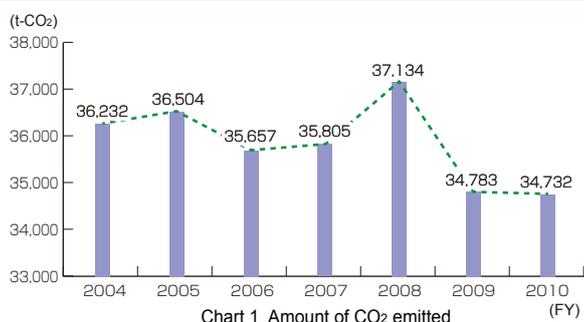
In terms of energy used, there is an increase in the use of electricity and gas, and a decrease in the amount of heavy crude oil used, compared to that of FY2009.

Our university will continue the effort to achieve the environmental goal, "to reduce CO<sub>2</sub> emissions by 15% in basic units", during the second term of the mid-term plan (FY2010 to FY2015).

\*The decrease in the amount of CO<sub>2</sub> emitted is due to the CO<sub>2</sub> conversion coefficient of the electricity purchased (officially published figure).

Table 1 Amount of CO<sub>2</sub> emitted (t-CO<sub>2</sub>)

	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010
Rokkodai 1 campus	2,029	2,211	2,168	2,207	2,074	1,906	2,026
Rokkodai 2 campus	12,318	11,856	11,513	11,914	11,338	11,623	12,155
Tsurukabuto 1 campus	1,426	1,297	1,372	1,199	1,302	1,244	1,270
Tsurukabuto 2 campus	482	667	657	614	702	561	519
Kusunoki area	18,494	18,575	18,202	18,169	19,862	17,928	17,220
Myodani area	479	587	569	587	627	523	521
Fukae area	1,004	1,311	1,176	1,115	1,229	998	1,021
Total	36,232	36,504	35,657	35,805	37,134	34,783	34,732

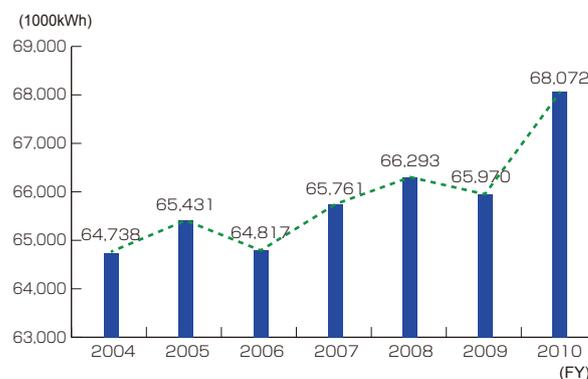


### 3. Amount of electricity used

The total amount of electricity used in FY2010 increased by 2,102,000kWh (3.2%) compared to that of FY2009.

This was mainly due to:

- The construction of a new natural science building
- The increased use of air conditioning due to a 2°C increase in the average temperature for August and September of 2010 compared to those in FY2009

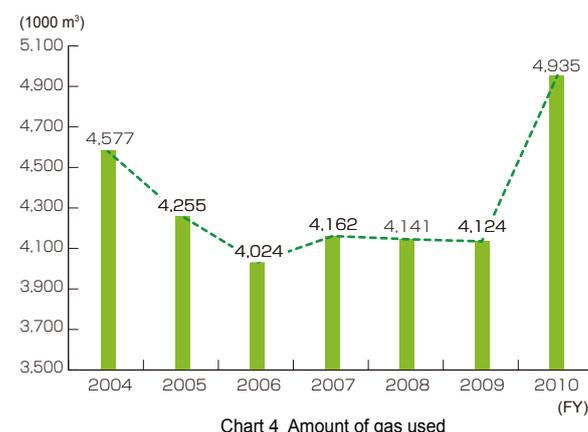


### 4. Amount of gas used

The total amount of gas used in FY2010 increased by 811,000m<sup>3</sup> (19.7%) compared to that of FY2009.

This was mainly due to:

- The shift from heavy crude oil boilers to ones using city gas in the Kusunoki area reduced CO<sub>2</sub> emission
- construction of a building for natural science
- increased use of gas heat pump air conditioning because the average temperatures in August and September of 2010 were about 2°C higher than those in FY2009



### 5. Amount of heavy crude oil used

The total amount of fuel oil used in FY2010 decreased by 446kl (66.2%) compared to that of FY2009.

This was mainly due to:

- The shift from heavy crude oil (used to heat boilers in the Kusunoki area) to city gas that emits less CO<sub>2</sub>

The Rokkodai 1 and Tsurukabuto 1 campuses stopped using boilers for heating, so the amount of use dropped to zero. The Rokkodai 2 campus uses negligible amount of fuel oil for emergency generators. Heavy crude oil is not used in the Tsurukabuto 2 campus.

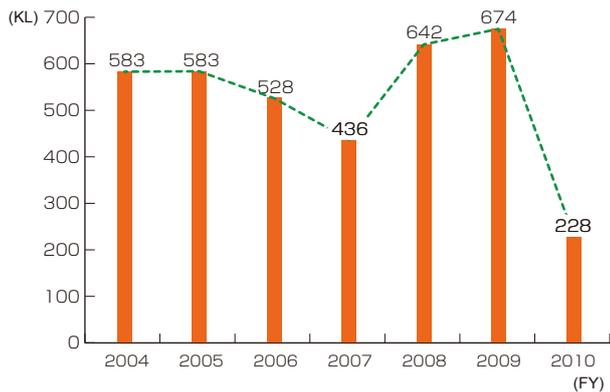


Chart 5 Amount of heavy crude oil used

## Conserving resources and recycling

### 1. City water / General service water

#### City water

Decreased by 3.2% compared to that of FY2009

The total amount of city water used in FY2010 decreased by 14,000 m<sup>3</sup> (3.2%) compared to that of FY2009.

This was mainly due to:

- Our efforts to save water by opting for automatic faucets when we renovated buildings.

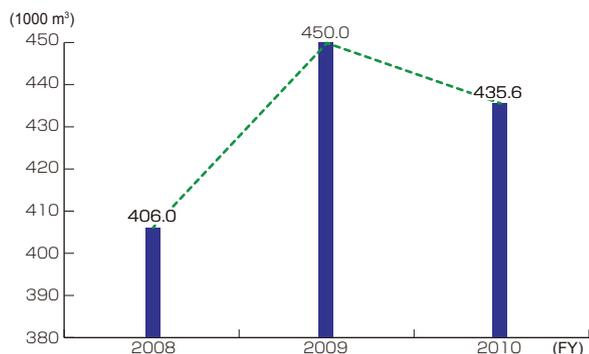


Chart 6 Amount of city water used

#### General service water

For the conservation of resources in the Rokkodai area, we use the Rokko Mountain river water as general service water in toilet tanks, laboratories, etc.

The use of general service water is on a downward trend. The amount used in FY2010 decreased by 15,300 m<sup>3</sup> (15.6%) from the figure in FY2009.

This was mainly due to:

- Our efforts to conserve water by opting for water-saving toilets when we renovated buildings.

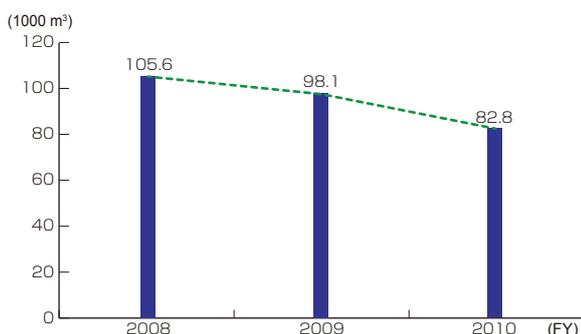


Chart 7 Amount of general service water used

### 2. General waste

Chart 8 shows the amount of solid waste produced from FY2008 to FY2010.

This was mainly due to:

- The near completion of school renovation has reduced the amount of waste produced from construction and moving.

Although the amount of incombustible and combustible waste produced increased slightly, other types of waste were about the same as that of FY2009.

In regards to the volume recycled, there was not a significant change from that of FY2009.

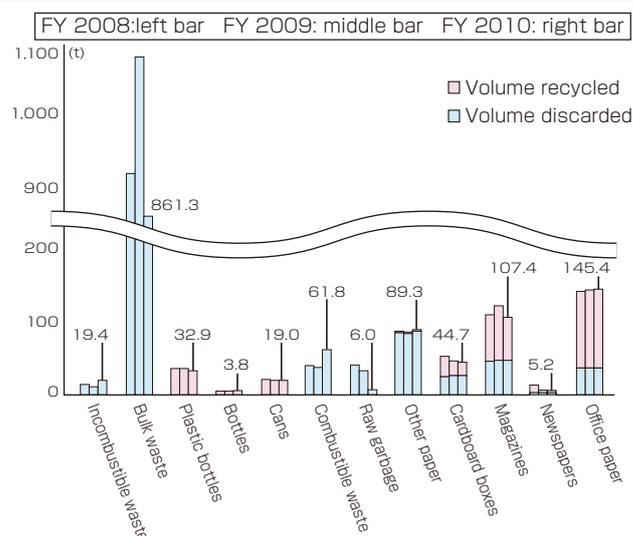


Chart 8 Amount of general waste produced by type of waste

The total amount of solid waste produced in FY2010 decreased about 15% compared to that of FY2009.

This was mainly due to:

- A major decrease in the amount of bulk waste produced.

The recycling rate has been around 17 to 18%.

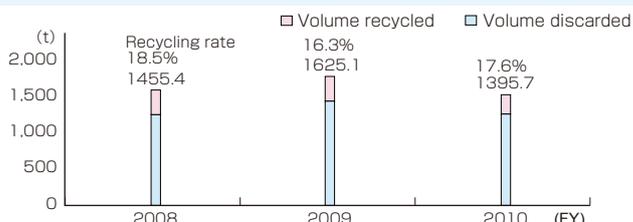


Chart 9 Changes in the total amount of general waste produced from FY2008 to FY2010

### 3. Office paper

Usage decreased by 0.3% compared to that of FY2009

Chart 10 shows the changes in the amount of office paper used from FY2008 to FY2010.

The volume of office paper used decreased slightly, by 0.59 tons (ca. 0.3%), compared to that of FY2009; it has remained almost unchanged for the last three years.

We must keep trying to reduce office paper usage by making it common practice to hold paperless meetings, lectures, etc.; to make copies using both sides of the paper; and to reuse the blank side of paper that has only been copied on one side.

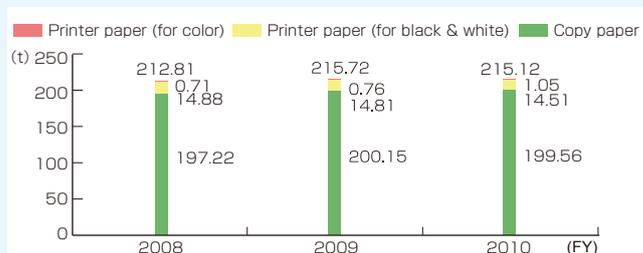


Chart 10 Volume of office paper used

## What Went into This Environmental Report

The purpose of this Report is to provide public access to the Kobe University Environmental Report 2011, which summarizes the environmental activities accomplished on the Kobe University campuses for a one year period from Apr. 1, 2010 until Mar. 31, 2011. Our Environmental Report mainly targets the members of our university - students, faculty, and other employees for the purpose of stimulating environment-related discussion inside and outside the university. In addition to introducing readers to the environmental related topics, education and researches conducted, the Report also features our efforts at strengthening environmental management system.

We also held a meeting "to read the Environmental Report" this year and made the following improvements based on the feedback received:

- (1) The Message from the President took the form of an interview to ensure easy understanding. (Only in the Japanese version)
- (2) "Environmental Activity" listed our objectives and to what extent they had been accomplished.
- (3) Activities characteristic to each individual campus were mentioned under "Environmental Activity."

### Reference guidelines ●

Environmental Reporting Guidelines, Fiscal Year 2007 Version  
(Ministry of the Environment, June 2007)  
Guidelines for items to be mentioned in environmental reports, second edition  
(Ministry of the Environment, Nov. 2007)

### Survey locations ●

Rokkodai area:

Rokkodai 1 campus : main departments: Faculty of Law, Faculty of Economics, School of Business Administration, Graduate School of Law, Graduate School of Economics, Graduate School of Business Administration, Graduate School of International Cooperation Studies

Rokkodai 2 campus : main departments: Administrative offices, Faculty of Letters, Faculty of Science, Faculty of Agriculture, Faculty of Engineering, Graduate School of Humanities, Graduate School of Science, Graduate School of Engineering, Graduate School of Agricultural Science

Tsurukabuto 1 campus : main departments: Faculty of Intercultural Studies, Graduate School of Intercultural Studies, Institute for Promotion of Higher Education

Tsurukabuto 2 campus : main departments: Faculty of Human Development, Graduate School of Human Development and Environment

Kusunoki area : main departments: School of Medicine, Graduate School of Medicine, university hospital

Myodani area : main departments: School of Medicine Faculty of Health Sciences, Graduate School of Health Sciences

Fukae area : main departments: Faculty of Maritime Sciences, Graduate School of Maritime Sciences

### Fiscal year of operations ●

Fiscal 2010 (April, 2010 to March, 2011)

### Date of issue ●

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### Planned date of next issue ●

September 30, 2012

### Department in charge of publication ●

Environment and Facilities Management Committee  
(chairperson: SHIMOBAYASHI, Masami, executive vice president in charge of general affairs and facilities)  
Environmental Management Subcommittee  
(Subcommittee head: SHIMOBAYASHI, Masami, executive vice president in charge of general affairs and facilities)  
Environmental Reporting Work Group  
(chairperson: Prof. KOKUBU, Katsuhiko, Graduate School of Business Administration)

### Contact ●

Facilities Planning Group, Facilities Planning Division, Facilities Department, Kobe University  
1-1 Rokkodai-cho, Nada-ku, Kobe, Hyogo 657-8501  
TEL: 078-803-5173 E-mail: shis-soumu@office.kobe-u.ac.jp

### URL ●

<http://www.kobe-u.ac.jp/report/environmental/2011/>

### Cover ●

Kobe University campuses are located in a flourishing natural landscape nestled between the mountains and the sea. The mountain range and the expanse of sea are visible from the Rokkodai campuses, situated at the foot of the Rokko Mountain range, and anchored vessels can be seen in the port of the Fukae campus. The cover features photos that display this natural environment.



Left:  
A view of the ocean from the Rokkodai 1 campus



Right:  
Tree-lined path on the Rokkodai 2 campus



Left:  
Tsurukabuto 1 campus and the Rokko Mountain range



Right:  
Port in the Fukae campus and the training vessel Fukae-maru