

# Environmental Report 2015

Abridged Edition



**KOBE UNIVERSITY**

# Message from the President

Nishiyama, Director of the Center for Environmental Management, interviewed President Takeda to ask for his views on the University's environmental strategy.

## (Nishiyama, Director of the Center for Environmental Management)

Today, I would like to hear your thoughts on Kobe University's environmental activities based on the Kobe University Charter on the Environment that was established in 2006.

First, what do you think about Basic Policy No.1: 'To foster and support environmentally-conscious students'? What points of this policy are unique to Kobe University?

## (President Takeda)

I would like to talk about environmental issues from the viewpoint of physics, which is my field. Modern Japan faces a variety of environmental and energy-related issues, including nuclear issues resulting from the 2011 Fukushima Nuclear Accident. While the energy that a human can physically handle is limited to several electron volts at most, a nuclear power plant produces energy in terms of megaelectron volts, on a far larger scale. Furthermore, it takes an extraordinarily long time, over a hundred years, to detoxify nuclear waste completely to the point where it does not produce any radiation.

How we control such high levels of energy and how we handle such nuclear products over generations is an extremely difficult question. Climate change, due to increasing concentrations of CO<sub>2</sub>, is occurring on a global scale, affecting the climate all over the world. This is unlike environmental pollution in the past, which was usually limited to specific regions.

The issues facing human beings today are on an extremely large scale in terms of the length of time the issue persists and the area affected. In the face of such problems, it is essential that we develop human resources who can understand, analyze, and handle such large-scale phenomena in an appropriate manner. Taking a technological approach is not enough; areas such as the social sciences, the humanities, economics, and political science must be included as well. I believe that Kobe University can use its strengths as a multidisciplinary university to offer this ecomprehensive education which can combat environmental issues.

## (Nishiyama)

I agree that Kobe University needs to utilize its strengths in this matter. What are your thoughts about Basic Principle No.2: 'To promote research for the sustainability of the global environment'? Projects which integrate the humanities, social and natural sciences are an essential part of advanced research aimed at solving environmental issues. I think that taking global collaborative action, especially across the

Asia-Pacific region, is important in addressing environmental and energy issues. I saw on the Kobe University website that you mentioned taking 'action from a global viewpoint' in a student interview.

## (President Takeda)

We should put more effort in to creating new projects that promote environmental conservation, in addition to the Kobe University Flagship Projects (which include Integrated Bio-refinery Research and the Research Project for Membrane Technology). As you say, today's environmental preservation issues require a broader vision, and one example of this would be the East Asia viewpoint. I cannot stress enough the importance of building a joint international research network.

## (Nishiyama)

Next, what are your thoughts regarding Kobe University's environmental conservation activities in general? Basic Principle No.3 is 'To promote environmental conservation activities that set an example for others'. It sounds like Kobe University is committed to setting an example that will lead society, in addition to the faculty and students.

## (President Takeda)

I believe that as a center of knowledge which maintains a high standard of ethics, as well as providing advanced research and education, Kobe University also has a moral obligation to carry out environmental conservation activities. Therefore, all members of the Kobe University community are required to be an example to the region and become moral leaders by taking the initiative in being environmentally friendly. This includes activities, such as controlling CO<sub>2</sub> emissions, practicing efficient energy use, and reducing the university's environmental footprint.

## (Nishiyama)

Thank you for sharing your thoughts. Lastly, could you give a message to the faculty, administration, and students of the Kobe University?

## (President Takeda)

Environmental conservation cannot be achieved over a short time span. Waste reduction, energy preservation, and especially the development of environmentally-conscious students, all take a long time to realize. A long-term effort has to be made in terms of research projects as well. I would like to ask for your support in our research, education, and environmental conservation activities.



**TAKEDA Hiroshi**  
14th President of Kobe University

Specializes in high-energy physics.  
From 2003, Director of the Faculty of Physics, Kobe University  
From 2007, Director of the Kobe University Library  
From 2009, Administrative Director of Kobe University  
From 2015, assumed current position as University President

## **NISHIYAMA Satoru**

Director of the Center for Environmental Management since 2014  
Professor in the Graduate School of Engineering



# Kobe University Charter on the Environment

## Environmental Philosophy

As a world-class research and educational institution, Kobe University pledges, through all of the University's activities, to preserve the global environment and to create a sustainable society, the two most important challenges the world faces today.

Sandwiched between the Rokko Mountains to the north and the Seto Inland Sea to the south, Kobe University enjoys a rare natural diversity in its surroundings. The University uses this to increase the number of environmentally-conscious students and to disseminate knowledge gained from academic research from the international city of Kobe to the world. Through these efforts, and by setting an example in the preservation and conservation of the environment, Kobe University pledges to pave the way for a sustainable global society, a common goal of humanity.

## Environmental Principles

1. To educate and support environmentally-conscious students.
2. To promote research on sustainability of the global environment.
3. To promote environmental preservation and conservation activities that set an example for others to follow.

Enacted on September 26, 2006

## Third-party Review

Kobe University has focused on practical studies of economics and business management since the foundation of the Kobe Commercial High School in 1902, and this still holds firm today in the University vision of 'a harmony of theory and practice'. The Kobe University Environmental Report 2015 presents figures and trends based on current conditions in a clear manner. As mentioned in the Message from the President, the necessity of an integrated approach to solving various environmental issues reflects the University's long-held traditions in addition to its environmental management policy.

The Environmental Report 2015 offers comprehensive information on the University's environmental performance as in previous years. One notable point of this year's report is the inclusion in the "Related Topics" section of NPO Gomi Japan's activities in reducing packaging waste, especially considering that students' names are attached. I think this is a very positive reflect on the social contributions made by Kobe University students. Additionally, the Conserving Resources and Recycling section reported on water usage, non-industrial waste emissions and paper usage. Though Japan's recycling systems for these materials do not include any strong regulations or strict guidance for businesses, the university's handling of related issues, including food recycling systems and appliance recycling laws, applies to

these areas as well. Kobe University seems to approach such issues as a challenge.

Regarding CO<sub>2</sub> emissions, as Mr. Ueta pointed out in last year's report, I have high expectations for further improvements in performance and measures to attain the goal of reducing CO<sub>2</sub> emissions by 15% in basic units during the second midterm (FY2010-FY2015). With other universities facing the same challenge, I will be keeping an eye on Kobe University's actions.

The environment and sustainability issues, the main theme of this Report, is a problem issue that affects the future of humanity, the Earth, and the University. The Report, which includes substantial content and outlines specific actions, is valuable reading material. Kobe University has adopted a good PDCA cycle, including meetings to read the Environmental Report, in order to encourage feedback from students taking the Introduction to Environmental Studies course.

The Report's cover page presents a wide variety of Kobe University's attractions every year. The green featured in each picture provides an especially favorable image. I expect that Kobe University will continue in its efforts to provide high quality environmental management and a thorough environmental report.



### SAKAI Shinichi

Professor and Director of the Environmental Science Center,  
Agency for Health, Safety and Environment, Kyoto University

#### Profile

Professor of Environmental Engineering. He completed his Ph.D. at the Graduate School of Engineering, Kyoto University in 1984. After working as an assistant professor at Kyoto University, he became Director of the Circulating Society Promotion and Waste Research Center at the National Institute for Environmental Studies in 2001. He became a professor at Kyoto University in 2005, and Director of Kyoto University Environment Preservation Research Center in 2010. He has served in his current position since 2011. Former President of the Japan Society of Material Cycles and Waste Management. Editor in Chief of the Journal of Material Cycles and Waste Management. He currently serves as the President of the Circulating Society Department of the Central Environment Council. Author of 'Waste and Chemical Substances' (Iwanami Shoten, Publishers)

## 2014 Report on the Activities of the Kobe University Seikyo Gakusei linkai (GI)

KANDORI Akiko (2nd year, Faculty of Intercultural Studies)

The Kobe University Seikyo Gakusei linkai (GI) implemented various environmental activities in FY2014.

### 1. Waste Paper Collection

We started the Waste Paper Collection Campaign in 2009 with the aim of reducing the massive amount of brochures distributed to freshmen and subsequently thrown away when a new academic year starts. This project was carried out as one of the student committee projects. We asked all university members to put waste paper into one of the five boxes installed on the university campus (one at the Faculty of Engineering, four at the Faculty of Intercultural Studies), and GI members would collect the disposed paper once a week. We had a vendor recycle this discarded paper into toilet paper for use by the university. The amount of collected and recycled paper reached approximately 1.1 tons for the latter half of FY2014 alone. This is an ongoing activity and we hope to involve more students in the future.



Waste paper collection

Waste paper collection box at the Faculty of Intercultural Studies

### 2. Hokkaru Bento Box Recycling

Hokkaru Bento Box is a hand-made warm boxed lunch available at the Seikyo cafeterias. The paper container is recyclable by removing the cellophane sealed inside the container. In 2014, we installed additional collection boxes and added more colorful decorations to improve the collection ratio of Hokkaru Bento Boxes. While students hesitated to use collection boxes installed outside the building, the installation of three new boxes inside the building and the subsequent PR campaign we ran encouraging their use is expected to improve the collection ratio.

Hokkaru Bento collection box with new decorations



Newly installed Hokkaru Bento collection box

### 3. Raising Environmental Awareness

We installed posters and eye-catching sign boards to raise awareness of the value of environmental conservation activities and invite more people to participate in those activities. For example, we put up posters that illustrate the recycling process for pet bottles and cans on trash boxes and campus bulletin boards. We believe that providing information about the recycling of each item will help people understand the benefits of recycling and realize the potential in their daily lives for environmental conservation.



Eye-catching sign illustrating the recycling of pet bottles

Poster illustrating the recycling of cans



## NPO Gomi Japan and Herasou (Package Reduction) Shopping 2014

KAWATA Hikari, FURUYA Minami (4th years, Faculty of Economics)  
KUROKI Satoshi (3rd years, Faculty of Economics)

The NPO Gomi Japan focuses on reduction activities, especially of packaging waste. We began working ten years ago to reduce packaging waste, which accounts for as much as 60% of household waste in Japan (volume ratio). 'Herasou Shopping' is a campaign that we are working on which allows consumers to easily reduce waste from the point of purchase. In promoting this campaign, we apply the perspectives of both companies and consumers to serve as a bridge between them. We want to introduce two actual cases from our activities.



We participated in the 'Leaf Eco Festa', an environmental event hosted at Leaf Walk Inazawa in Aichi Prefecture on March 21 and 22, 2015, where we carried out several tests on packaging and package design. For example, we prepared bacon, sausage, and ham in different packages, and executed a survey. We collected answers from more than 200 consumers. This project was conducted in collaboration with Nipponham Ltd. and Sumitomo Bakelite Co., Ltd.



Another collaborative campaign was held with 14 Starbucks branches located around Nagoya City, and it lasted for two weeks from March 30, 2015. In this campaign, we encouraged customers to use their own tumblers instead of paper cups. We asked customers who brought their own tumblers to put stickers on a special board, which allowed onlookers to visualize their environmental efforts in a tangible way.



For these activities, we were awarded the Minister of the Environment Gold Award (regional activity section) at the Low Carbon Championship 2015 on February 13, 2015.

FY2015 marks the 10th anniversary of the creation of NPO Gomi Japan. We would like to promote further collaboration with the private sector and conduct more communication with consumers. NPO Gomi Japan pledges to continue our activities and spread the 'Herasou Shopping' concept to more people.



NPO Gomi Japan (Please see our facebook and twitter pages.)

<http://gomi-jp.jimdo.com>

<http://blog.gomi-jp.com/>

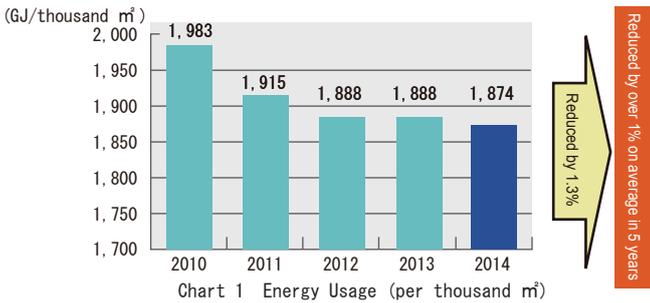
# Environmental Performance at Kobe University

## Saving Energy and Preventing Global Warming

### 1. Energy Usage

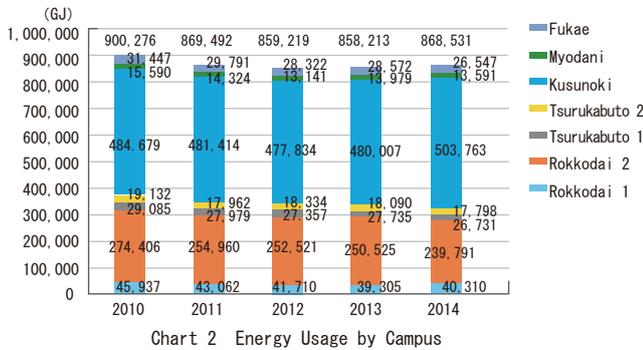
The total amount of energy used at Kobe University, including electricity, gas, and fuel oil, reached approx. 870,000 GJ in FY2014(\*1).  
 (\*1 This is a calorific value that was converted based on Article 4L 'Regulations for the Enforcement of the Law Concerning the Rationalization of Energy Usage')

**(1) The reduction of energy usage throughout Kobe University**  
 Our efforts to reduce energy usage by more than the annual average 1%, a non-binding target set in the 'Regulations for the Enforcement of the Law Concerning the Rationalization of Energy Usage', included the replacement of older models with high-efficiency air conditioners and lighting; the removal, replacement, and integration of refrigerators; and the promotion of environmental awareness among the faculty, administration, and students (through distribution of thermometer-equipped magnets, the environmental caravan initiative, and the environmental improvement caravan initiative). As a result, the energy use per total floor area saw an approximate 1.3% reduction rate on average over the past five years. (Chart 1)



### (2) Changes in Energy Usage by Campus

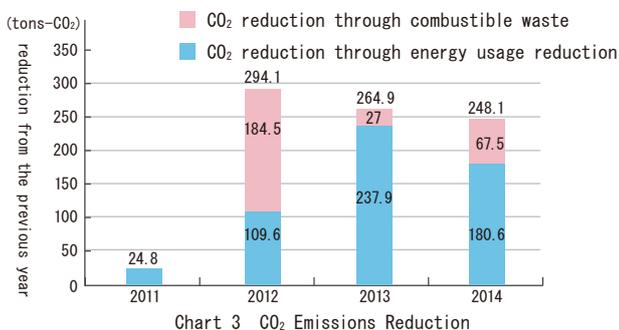
While the amount of energy usage at Kobe University has been decreasing every year since 2010, it showed a slight increase in 2014 due to the opening of a comprehensive hospital with a total floor area 9,603 m<sup>2</sup> in the Kusunoki area. Energy use in other areas has been decreasing almost every year. (Chart 2)



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

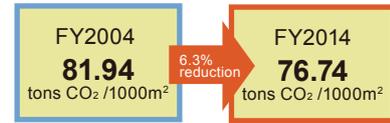
#### (1) Initiatives to reduce CO<sub>2</sub> emissions

Kobe University has successfully reduced annual average CO<sub>2</sub> emissions by 210 tons CO<sub>2</sub>. This was achieved through implementing initiatives that are closely connected to CO<sub>2</sub> emissions reduction, such as installing high-efficiency air conditioners and lighting; the removal, replacement and integration of refrigerators; and raising awareness of environmental issues among faculty, administration, and students (environmental caravan initiative, environmental improvement caravan initiative, introduction of energy visualization equipment, distribution of thermometer-equipped magnets) as well as promoting the 3R activities (Reduce, Reuse, Recycle) since 2011. (Chart 3)



#### (2) CO<sub>2</sub> emissions reduction through Kobe University

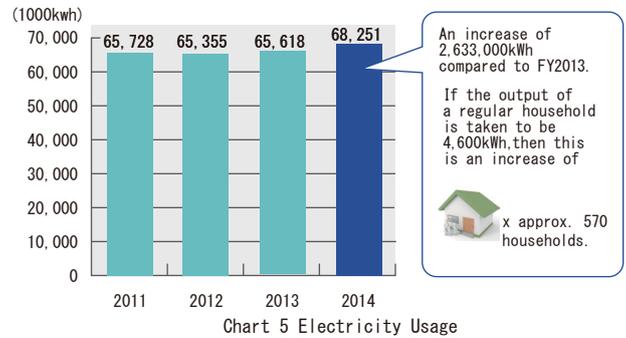
Using FY2004 emissions as the base measurement, faculty, administration, and students have made a concerted effort to achieve a 15% CO<sub>2</sub> emissions reduction per total floor area. The reduction rate in 2014 per total floor area, however, was just 6.3% (5.2 tons CO<sub>2</sub> /1000 m<sup>2</sup>). We must implement environmental conservation initiatives to further encourage CO<sub>2</sub> emissions reduction. (Chart 4)



(The 2004 electric utility coefficient was used for the electricity emission coefficient)  
 Chart 4 CO<sub>2</sub> Emissions (per 1000m<sup>2</sup>)

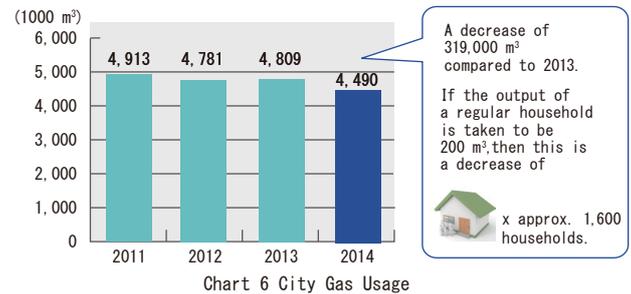
### 3. Electricity Usage

The total amount of electricity used in FY2014 increased by 2,633kWh (4%) from the previous fiscal year. This was mainly due to the opening of a new medical building in the Kusunoki area at the end of FY2013. All departments will make a concerted effort to save energy and promote conservation. Future building renovations will continue to include the introduction of more efficient equipment, with the goal of further reducing energy consumption.



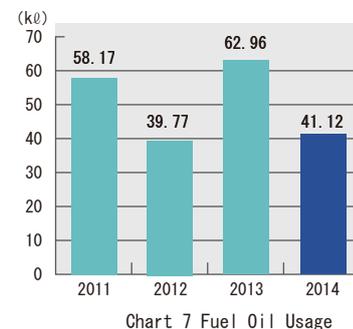
### 4. City Gas Usage

Total gas usage in FY2014 decreased by 319,000 m<sup>3</sup> (7%) from the previous fiscal year. All departments will make a concerted effort to save energy and promote conservation activities. Future building renovation will continue to include the introduction of more efficient equipment, with the goal of further reducing energy consumption.



### 5. Fuel Oil Usage

Total fuel oil usage in FY2014 decreased by 21.8kl (35%) from the previous fiscal year. The Fukae area uses fuel oil for the heating boilers.



# Conserving Resources and Recycling

## Water Usage

Total water usage in FY2014 decreased by 7,000 m<sup>3</sup> (1.5%) over the previous fiscal year.

In the Rokkodai area, water resources were conserved by using Rokko Mountain river water as reclaimed wastewater for flushing toilets, in laboratories, and elsewhere. In addition, the Kusunoki area started using well water in February 2012. Efforts toward the efficient use of water resources will continue.

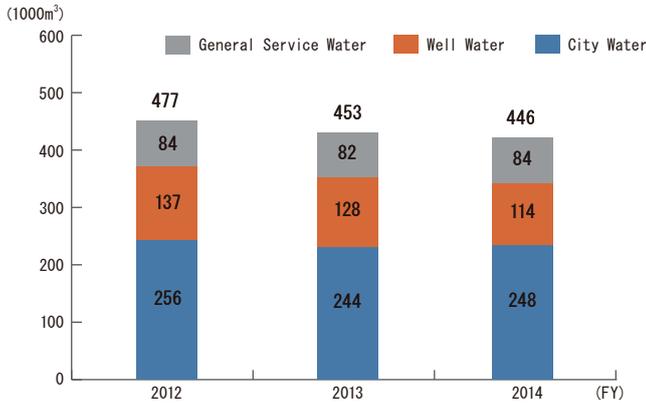


Chart 8 Water Usage

		FY2011		FY2012		FY2013	
			Total		Total		Total
Rokkodai 1 campus	City water	13,429	28,614	10,971	26,621	11,617	26,563
	General service water	15,185		15,650		14,946	
Rokkodai 2 campus	City water	43,458	93,766	45,937	93,595	41,738	92,509
	General service water	50,308		47,658		50,771	
Tsurukabuto 1 campus	City water	11,651	21,813	10,338	20,194	11,119	21,096
	General service water	10,162		9,856		9,977	
Tsurukabuto 2 campus	City water	6,523	15,333	5,928	14,709	6,850	15,380
	General service water	8,810		8,781		8,530	
Kusunoki area	City water	152,921	289,517	143,131	270,920	153,229	267,155
	Well water	136,596		127,789		113,926	
Myodani area	City water	6,796	6,796	7,112	7,112	6,000	6,000
	General service water	0		0		0	
Fukae area	City water	21,157	21,157	20,093	20,093	17,709	17,709
	General service water	0		0		0	
Total	City water	255,935	476,996	243,510	453,244	248,262	446,412
	Well water	136,596		127,789		113,926	
	General service water	84,465		81,945		84,224	

Table Water Usage ( m<sup>3</sup> )

## Non-Industrial Waste

Chart 9 shows the amount of non-industrial waste produced from FY2011 to FY2014. The volume recycled indicates the volume of waste converted back into resources, and the numbers in the chart itself show exact values for FY2014. While bulk waste had seen slight decreases up until FY2011, FY2012 saw an increase of roughly 15% due to building renovations and the relocation of laboratories within the University. In FY2013 it decreased again as the renovations and the relocation were nearly complete, and in FY2014 reached FY2011 levels once more.

The amount of office paper waste, which makes up the largest portion of paper waste, has been reduced successfully since FY2013 thanks to efforts to reduce paper usage and the promotion of digital documents. Other paper waste, including wrappings and advertisements, is decreasing, but this is still an issue. The collection of used paper should be considered.

Chart 10 shows the total amount of non-industrial waste, including that of the university hospital. It decreased by approximately 13% in FY2014 from the previous fiscal year thanks to efforts to reduce difficult-to-recycle waste, such as bulk waste and combustible waste, at the hospital. The recycling rate increased to 12.7% from the previous year. We will make further efforts to keep improving recycling rates.

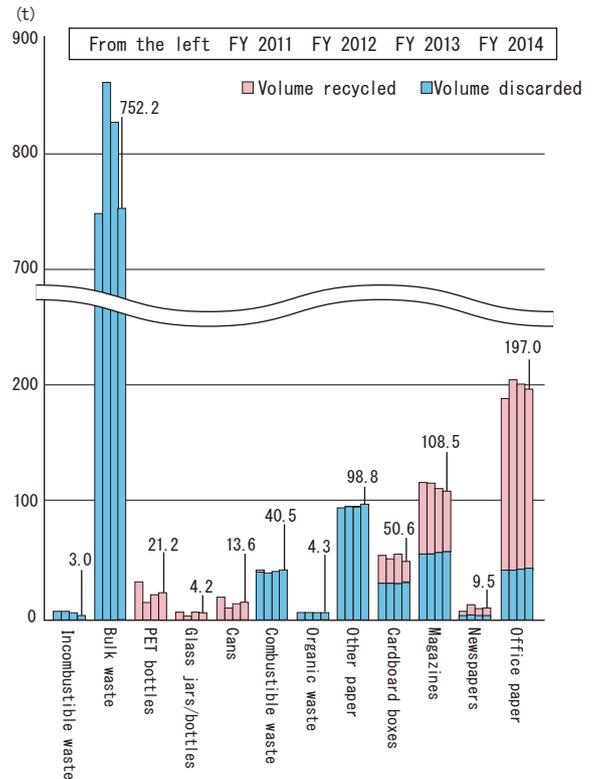


Chart 9 Non-Industrial Waste Production by Waste for FY 2011 - FY 2014

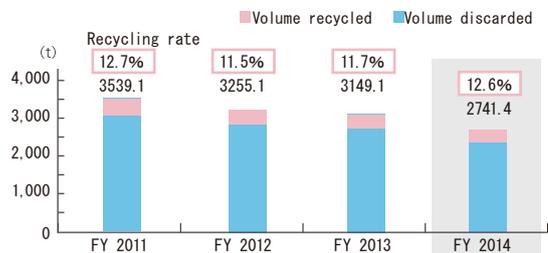


Chart 10 Change in Total Non-Industrial Waste Produced from FY2011 through FY 2014

## Trends of Paper Usage Across the University

Chart 11 shows trends in the amount of office paper used from FY2012 to FY2014. The volume of office paper used increased by 3.4% (approx. 6.8 tons) from the previous fiscal year. We need to continue our efforts to reduce office paper usage by making it common practice to have paperless meetings and lectures, to make copies using both sides of the paper, to practice consolidated printing, and to use the blank side of paper where only one side of a paper has been used.

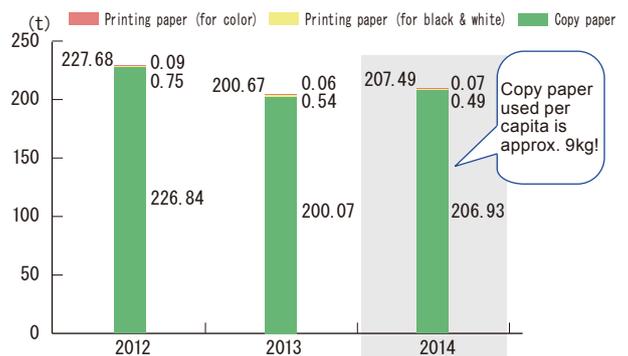


Chart 11 Volume of Office Paper Used

Copy paper used per capita is approx. 9kg!

## How this Environmental Report was compiled

This environmental report summarizes the work accomplished by our environmental activities over the past year (April 2014 to March 2015) on the main campuses of our university. It is published under the title Kobe University Environmental Report 2015.

While the intended readers of this report are the members of our university, including students, faculty and administrative staff members, thereport also serves as a tool for stimulating discussion regarding the environment both on and off campus. In addition to introducing readers to the related environmental topics, education and research conducted throughout the university, the report also features our efforts in promoting an environmental management system to further enhance environmental performance.

<b>Guidelines Referenced</b>	Environmental Reporting Guidelines, Fiscal Year 2012 Version (Ministry of the Environment, April 2012) Guidelines for Items to be Mentioned in Environmental Reports, Third Edition (Ministry of the Environment, May 2014)
<b>Survey locations</b>	<p>Rokkodai area:</p> <p>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, Research Institute for Economics &amp; Business Administration</p> <p>Rokkodai 2 Campus      Main departments:Administrative offices, Faculty of Letters, Faculty of Science, Faculty of Engineering, Faculty of Agriculture, Graduate School of Humanities, Graduate School of Science, Graduate School of Engineering, Graduate School of System Informatics, Graduate School of Agricultural Science, Organization of Advanced Science and Technology</p> <p>Tsurukabuto 1 Campus      Main departments:Faculty of Intercultural Studies, Graduate School of Intercultural Studies, and Institute for Promotion of Higher Education</p> <p>Tsurukabuto 2 Campus      Main departments: Faculty of Human Development, Graduate School of Human Development and Environment</p> <p>Kusunoki area              Main departments: School of Medicine, Graduate School of Medicine, and University Hospital</p> <p>Myodani area                Main departments: Faculty of Health Sciences, and Graduate School of Health Sciences</p> <p>Fukae area                    Main departments: Faculty of Maritime Sciences, and Graduate School of Maritime Sciences</p>
<b>Fiscal year of operation</b>	Fiscal year 2014(April 2014 to March 2015)
<b>Date of issue</b>	September 30, 2015
<b>Planned date of next issue</b>	September 30, 2016
<b>Department in charge of publication</b>	Center for Environmental Management
<b>Contact</b>	Environmental Management Group, Safety and Health/Environmental Management Division, Facilities Department, Kobe University 1-1 Rokkodai-cho, Nada-ku, Kobe, Hyogo 657-8501    TEL:078-803-6654 E-mail:shis-kankyo@office.kobe-u.ac.jp
<b>URL</b>	<a href="http://www.kobe-u.ac.jp/en/about-kobe-university/introduction/environmental-report/index.html">http://www.kobe-u.ac.jp/en/about-kobe-university/introduction/environmental-report/index.html</a>

## Cover:

It was requested that the students of Kobe University and its affiliated schools submit cover images in an effort to spread awareness of the report. The Environmental Planning and Evaluation Committee reviewed the entries and selected the best one, which was then used for the report' s cover page.

Thank you to all who made submissions.



### Wisteria Flowers

Kobe University,  
Freshman, Faculty of Letters  
HIGASHI Takahisa

Location: Faculty of Engineering