



Environmental  
Report  
2023  
Abridged Version



**KOBE UNIVERSITY**

# Message from the President



## FUJISAWA Masato, President

April 2005: Professor, Graduate School of Medicine, Kobe University  
February 2014: Director, Kobe University Hospital  
February 2018: Executive Assistant to the President, Kobe University  
April 2019: Dean, School and Graduate School of Medicine, Kobe University  
April 2021: President of Kobe University

This year marks the 120th anniversary of Kobe University since its establishment in 1902 as Kobe Commercial High School, the first institution of higher education in Hyogo Prefecture. Since its opening, Kobe University has been committed to its mission of creating “knowledge” with universal values and fostering human resources with a strong sense of humanity under the spirit of “sincerity, freedom, and cooperation” in accordance with its philosophy of “harmony between academic principles and practical application”.

Today, the world is facing countless challenges such as the COVID-19 pandemic, natural disasters, climate change, issues relating to the environment and energy, poverty, gender inequality, international conflicts, health and welfare issues, and many others, which pose increasingly serious threats to the sustainability of the Earth and humanity. Therefore, based on the latest information and cutting-edge technology, we must always be aware of the global challenges we face today and work together with people of all generations and with diverse values to raise awareness of these issues, find solutions, and pave the way for a future society 10 to 20 years from now with a view to achieving the SDGs.

Accordingly, to promote initiatives aimed at achieving the SDGs in a wide range of fields across the university based on achievements made through the interdisciplinary and new academic fields that transcend the boundaries of the humanities and sciences, our university will strive to share the philosophy behind the SDGs in partnership with local communities and industry and to widely disseminate the results of these initiatives both domestically and internationally. Following a declaration in 2019 and the establishment of the SDGs Promotion Office in February 2020, our university is striving to create new values and implement knowledge to solve societal issues.

Moreover, environmental issues such as global warming and climate change caused by greenhouse gases have been attracting worldwide attention for a considerable time, prompting research and development of various measures and fundamental technologies, including low-carbon, decarbonization, carbon neutral, zero-carbon, and carbon offsetting technologies, as well as the design and introduction of systems at various levels to resolve these issues. While global efforts are obviously necessary to address these environmental issues, it is also essential that each of us takes a proactive stance in doing what we can to address them. To this end, it is important to first have an accurate understanding of these issues and concepts. Against this backdrop, Kobe University decided to establish a Carbon Neutrality Promotion Division in October 2022, and has agreed to conclude a “Comprehensive Collaborative Agreement on the Promotion of a Decarbonized Society” with Hyogo Prefecture, *Kobe Shimbun* newspaper, the Institute for Global Environmental Strategies, and Sumitomo Mitsui Banking Corporation. Under the agreement, the signatories will work together to utilize their knowledge and technologies to build momentum for decarbonization among businesses and residents of the prefecture, which will contribute to revitalize the local economy and go strengthen competitiveness.

In the future, we will continue to deepen our cross-boundary interactions with various stakeholders, collaborate with everyone who is attached to and cares about Kobe University, and unite as ONE KOBE FAMILY to be a world-class advanced research university that can become a center of knowledge that co-creates with global society and moves toward a bright future. We look forward to your continued support and cooperation.

# Message from the Director of the Center for Environmental Management

## Courage to do two things at the same time

### MORI Atsunori, Director of the Center for Environmental Management

The Center for Environmental Management of Kobe University was established in 1976 as the Kobe University Water Quality Control Center, a university-wide joint facility. It was reorganized in 1994, before adopting its current structure in 2004. The Center has been involved in supporting Kobe University’s research infrastructure, including the disposal of chemicals, collection and treatment of liquid waste, and wastewater management, as well as promoting environmental awareness in various fields through on-campus environment-related education and the promotion of energy conservation within the university. In recent years, we have also been involved in the activities of the Kobe University Carbon Neutral Promotion Headquarters, which was established in 2022 to help Kobe University achieve a 46% reduction in greenhouse gas emissions by 2030 and carbon neutrality by 2050, as specified by the

Japanese government.

At first glance, achieving energy savings and promoting aggressive research activities seem contradictory. Energy conservation means living a modest life with as little energy emissions as possible, whereas the more advanced the research, the more energy is required for its development. Of course, curtailing research activities due to the reduction of energy consumption would lead directly to the decline of the university and is not a viable option. I would like to see both sides achieve significant progress, not through compromises and minor achievements, but through innovative, breakthrough approaches.

I believe there are many ambitious people in the university community. Although there is a saying that “Those who chase two hares will catch none,” let’s try to catch both hares by combining the wisdom and ingenuity of the university.

Kobe University established a Charter on Environment on September 26, 2006 and carries out various environmental conservation activities based on its basic philosophy and policies. The environmental and energy-saving efforts of the university are summarized in an annually publicized environmental report.

## ●Basic Philosophy

As a world-class center for research and education, Kobe University endeavors to advance initiatives that address two crucial issues of our time: environmental conservation and the creation of a sustainable society.

This university is committed to building pathways towards the realization of a sustainable society, something that remains a shared goal for humanity. To do this, we are utilizing the local environment enclosed by mountains and oceans to cultivate capable, environmentally-aware individuals. We regularly publicize academic information from the cosmopolitan city of Kobe to the rest of the world, and we are leading the way in environmental conservation efforts.

## ●Basic Policies

### 1. Cultivation and support of individuals with a strong environmental awareness

A university's greatest obligation is the cultivation of people. We continuously revise our educational programs in order to foster the development of individuals who are always conscious of the global environment and the impact of their behavior. By combining knowledge of the humanities, social sciences, and natural sciences, and collaborating with global and local society, we strive to cultivate highly compassionate individuals who possess a thorough understanding of the environment.

### 2. Promotion of research to preserve and manage the global environment

It is necessary to consolidate the results of numerous research studies in order to overcome the various challenges facing the world, conserve the Earth's environment and create sustainable societies. We promote research into environmental problems in individual fields as well as interdisciplinary research that combines related fields, and strive to disseminate the results both locally and globally.

We also support efforts to produce research results that are strongly connected to advancing international society and local communities.

### 3. Taking a leading role in the promotion of environmental conservation activities

Each individual's behavior is crucial for conserving the Earth's environment. Through our daily activities, we protect the environment, make efficient use of energy and natural resources, and rigorously manage dangerous substances, thus setting an example as an environmentally-conscious campus.

Furthermore, we disclose information about our environmental conservation activities, continuing to make improvements through communication with those involved.

## Environment-related Education, Research and Topics

### Topics

FULL P.8

#### Environmental education based on the Environmental Report

To raise awareness of the Environmental Reports of this university among the campus community, and to gather opinions and feedback from students to guide the creation of future environmental reports and environmental conservation activities, we have been holding these events since the 2011 academic year. Since 2014, some coursework such as report assignments and short tests has been based on environmental reports during classes in the subject "introductory environmental studies."

An Environmental Management Guidebook, featuring details about the Charter on Environment of Kobe University and efforts and rules for environmental management, has been released to the public.

#### "Introductory environmental studies" subject

Global environmental issues represent one of the largest global challenges of this century. The Center for Environmental Management offers classes on "introductory environmental studies A/B" as university-wide common subjects.

This year, KAMIO Eiji, Deputy Director of the Center for Environmental Management, has been assigned as a new instructor to teach the subject "Efforts to reduce greenhouse gas emissions," which covers global warming-related issues and efforts to control the increase in atmospheric CO<sub>2</sub> concentrations.



### Topics

FULL P.10

#### Reports of Carbon Neutral Promotion Headquarters

TAMAKI Hisashi, Director, Carbon Neutral Promotion Headquarters

##### (1) Signing "Comprehensive Cooperative Agreement for Advancing a Decarbonized Society"

Kobe University, in partnership with Hyogo Prefecture, *Kobe Shimbun* newspaper, IGES, and Sumitomo Mitsui Banking Corporation, has signed the "Comprehensive Cooperative Agreement for Advancing a Decarbonized Society." Under this agreement, these five key parties will collaborate to contribute to the revitalization of the local economy and enhancement of competitiveness.

##### (2) Carbon Neutral Promotion Headquarters Hosted Kickoff Meeting "Fun and Easy Carbon Neutrality"

We held its kickoff meeting on March 17, 2023, at V.School in the Cho-bo-kan of Kobe University, using a hybrid format of both in-person and online participation.

The meeting aimed to facilitate open discussion on various topics related to carbon neutrality, including envisioning a future beyond carbon neutrality, as well as activities and research for coexisting with global warming. It served as a platform to deepen understanding about carbon neutrality.



### Topics

FULL P.9

#### The activities of the Kobe University Environment Club Ecofuru

Creating posters for environment month and developing environmental learning content, etc.

ONO Takashi, Environmental Planning Coordinator, Office of Safety and Health/Environmental Management

##### 1. Poster production for Environment Month

For Environment Month (June), the club created a poster with the message that the environment includes not only natural beauty but also places that have been polluted by human activities. The poster was sent to all departments at Kobe University.



##### 2. Creation of environmental learning resources

The club developed e-learning content entitled "Reduce Food Loss!" and is planning to create more content with various themes in the future for more people to view based on points requiring improvement.

##### 3. Participation in events related to SDGs

Members of the Ecofuru group took part as panelists in a corporate lecture on SDGs. As members of the Environment Club, they actively asked questions and engaged in discussions about the lecture content, and felt that they were able to deepen their knowledge of environmental issues from a corporate perspective.



### Education

FULL P.11

#### Student Projects for Creating Value

TAMAKI Hisashi, Dean, Value School

##### Eco-Friendly Veggie Initiative

The students visited JA (Japan Agricultural Cooperative) stores selling organic vegetables and conducted surveys on the perceived value of these products.

The results revealed differences in the awareness and appreciation of organic vegetables between the sellers and the farmers. To Address this, the students organized an event aimed at communicating the value of organic vegetables to the younger generation, who are generally less interested in this topic.

##### Sweet Rescue: Zero-Waste Confectionery Project

The students addressed the issue of food loss by focusing on food products nearing their expiration dates. Through engaging with individuals working in the field of food loss, they gained insights into various unrecognized consumer issues and reflected on the potential value derived from reducing food waste.



Students at 078KOBEO Assess the Potential of Soon-to-Expire Sweets to Help Reduce Food Waste

## Education

FULL P.12

### Project-based learning“Future and Energy”

GION Keiko, Associate Professor, Value School  
TSURUTA Hiroki, Associate Professor, Value School  
FUJII Nobutada, Professor, Value School

The Japanese government has declared “Net-zero Greenhouse Gas Emissions by 2050” and is accelerating the introduction of renewable energy. Similarly, the U.S. state of Hawaii passed a bill in 2015 to reach 100% renewable energy generation by 2045, reducing its reliance on imported fossil fuels and actively promoting renewable energy initiatives. In response to these developments, we are conducting an educational program to identify and analyze various emerging challenges. Our goal is to collaboratively envision a sustainable future, and to design and execute energy projects and strategies that align with this vision.



Students at the Future Foresight Workshop



Touring the Waste-to-Energy Plant

## Research

FULL P.15

### Study on classification methods of electricity consumption in university buildings by temporal characteristics

TAKEBAYASHI Hideki, Associate Professor, Graduate School of Engineering

It is important to understand the actual state of energy consumption to assess energy conservation measures during building operation. In this study, we analyzed the measured power consumption of each Kobe University building and examined methods to statistically classify the existing power consumption at different times of day. As a result, we identified the following clusters at many measurement locations: weekday cluster that includes many weekdays, holiday cluster that includes many weekends and national holidays, and a cluster that includes many weather conditions that cause large heating and cooling loads, such as daily average temperatures of 27°C or higher or 10°C or lower. Our future task is to select the appropriate energy conservation measures based on the electricity consumption characteristics of each building.

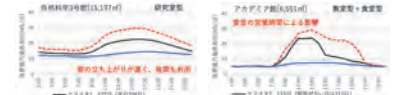


Figure 1: Cluster classification result for the Science and Technology Research Building 3

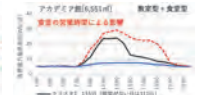


Figure 2: Cluster classification result for the Academia Hall

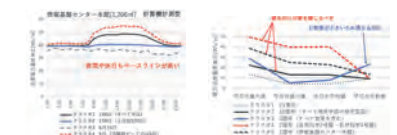


Figure 3: Cluster classification result for the Information Science and Technology Center (Main Building)



Figure 4: Cluster classification results for measured locations

## Education

FULL P.13

### Kelp forests and blue carbon

KAWAI Hiroshi, Project Professor, Research Center for Inland Seas

In the past few years, kelp forests have attracted attention not only as a component of coastal ecosystems, but also as a place to absorb, fix, and store greenhouse gases (CO<sub>2</sub>) that cause global climate change. In other words, it is important to conserve and utilize mangroves and coastal wetlands as sinks for greenhouse gases, along with forests and other terrestrial ecosystems. However, topics related to carbon credits, which lead to the greenhouse gas emission rights industry, have taken the lead, and not enough information is available on the characteristics of coastal ecosystems and their relationship to CO<sub>2</sub> absorption mechanisms and biodiversity, which are the basis for understanding the issue. Therefore, I was requested by the Environmental Innovation Information Center (EIC) to contribute a web article explaining topics and trends in environmental issues, and I published a commentary titled “Blue carbon and the roles of kelp forest ecosystems” in the section titled “Environmental Wind”.



Schematic diagram of blue carbon in a temperate coastal zone

## Other

FULL P.16

### Kobe University Ranked 101-200th in the World and 3rd in Japan in THE Impact Ranking 2022

Office for Promoting SDGs

In THE Impact Ranking 2022, Kobe University was ranked 101-200 out of 1,406 institutions worldwide in the overall ranking. In Japan, Kobe University ranked third among four other universities. Kobe University will continue to promote measures to achieve the SDGs through collaboration with the local community and industry.



Details of Kobe University's rank and score in THE Impact Ranking 2022

SDGs item	world ranking	score
Overall	101-200	88
2. Zero hunger	25	79.8
3. Good health and well-being	201-300	64.3
8. Decent work and economic growth	201-300	64.3
9. Industry, innovation and infrastructure	101-200	80.8
11. Sustainable cities and communities	101-200	74.1
12. Responsible consumption and production	73	78.8
14. Life below water	71	73.5
16. Peace, justice and strong institutions	8	88.9
17. Partnership for the goals	101-200	90.2

Entry item, rank, score

## Research

FULL P.14

### Research related to environment issues in the Kobe Project

Secondary School attached to Kobe University 10th grade students  
INAOKA Keiichiro and WATANABE Rin  
Teacher: TAKAGI Suguru

Students of Secondary School attached to Kobe University participate in the Kobe Port Intelligence Project (Kobe Project) as part of Period for Inquiry-Based Cross-Disciplinary Study. In this project, each student from their 3rd to their 6th year is assigned a theme and spends a year developing and writing a report using a variety of inquiry methods. In the “cooperative seminar,” which consists of more than a dozen students from years 3 to 6, students deepen their research mainly through discussions with their peers.



Lecture by SHIBATA Nobuo, Project Leader of the Office for Promoting SDGs



Students in charge of research

### On creating the environmental report

This Environmental Report summarizes the results of environment-related activities at this university between April 2022 and March 2023, and is published as the Kobe University Environmental Report 2023.

The Environmental Report is predominately aimed at our students and faculties, with the objective of promoting communication about the environment both within and outside Kobe University. We introduce education, research, and projects carried out at the university, in addition to highlighting efforts to promote environmental management, etc. as a way of measuring our environmental performance.

### Guidelines used as references

“Environmental Report Guidelines, 2018 Edition”  
(Published in June 2018 by the Ministry of the Environment)

“Manual for Writing Environmental Reports: For the Environmental Report Guidelines, 2018 Edition”  
(Published in March 2019 by the Ministry of the Environment)

## Environmental Management

### Environmental Management Policy

Conservation of the global environment and the creation of sustainable societies are the most important issues of our time. In working toward the “Kobe University Vision”, we will do our utmost, as an institute for education and research which meets the highest international standards, to tackle these issues through all our activities at the university. In March 2022, we established the Basic Policy to Encourage Environmental Management During the Fourth Mid-Term Goal Period (FY2022 to FY2027), which was based on the Kobe University Environmental Charter and the Kobe University Basic Policy on Environmental and Facility Management. Our environmental conservation activities are based on this policy.

### Initiatives for paper waste reduction

The results of an investigation into waste bin garbage and garbage collection sites by a group of environment surveyors found that the amount of recyclable paper mixed in with trash had decreased, and garbage was being sorted appropriately for the most part. We are continuing our activities to encourage environmental management. Posters on garbage separation and recycling are put up in each department in order to spread awareness on proper separation and disposal of recyclables (cans, glass, PET bottles), combustible and non-combustible waste, recyclable paper, and confidential documents, etc. In addition, we designed standardized stickers for garbage bins. These stickers are attached to separated bins in areas such as hallways to promote the three Rs with regards to paper usage and waste.



Containers for recyclable paper (indoors)



Separate garbage bins (corridor)



Garbage investigation (indoors)



Garbage investigation (outdoors)

Basic policy to encourage environmental management during the fourth mid-term goal period

#### I. Promoting the three Rs

By promoting the three Rs (reduce, reuse, and recycle) among all university members, we will take assertive action to reduce waste while simultaneously reducing consumption of resources.

#### II. Initiatives for rationalization of energy usage

We aim to reduce greenhouse gas emissions by 46% from 2013 levels by 2030, as set by the government, by promoting more efficient use of energy, and we are committed to reducing university-wide greenhouse gas emissions to become carbon neutral by 2050.

#### III. Implementation and continuation of environmental management cycles

To encourage environmental management, we will continue to develop an ongoing action plan and implement our PDCA cycle.

#### IV. Strengthening environmental activities during Environmental Month (June)

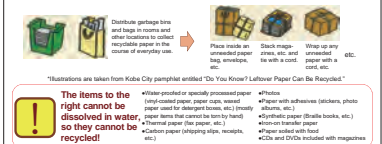
We will conduct environment-related educational activities that focus on energy conservation as we enter the summer season when air conditioning is used more frequently.

### Please cooperate in recycling leftover paper

#### Recyclable paper



#### Collection Methods



Center for Environmental Management Created November, 2016

## Material balance

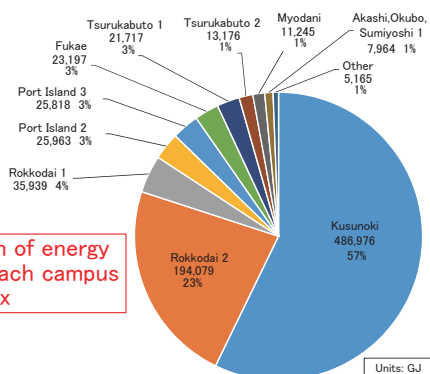
Material balance is the amount of energy and resources used for conducting business activities (“input”) and the environmental load generated by those activities (“output”).

As our basic policy for environmental management, Kobe University promotes activities related to the three Rs (reduce, reuse, recycle) activities, the streamlining of energy usage, and the continued implementation of the environmental management cycle. We are actively working to conserve the environment based on this policy.

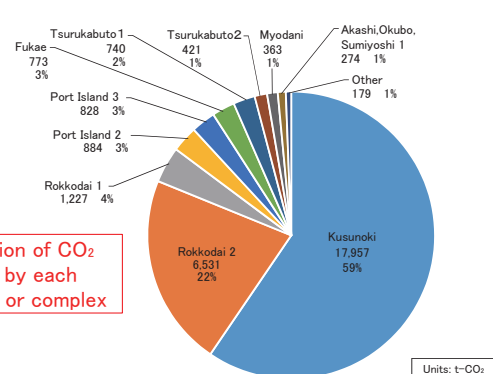
INPUT		FY 2022
Total energy	GJ	851,239
Electricity consumption	MWh	70,313
Gas consumption	1,000m <sup>3</sup>	3,681
Heavy oil consumption	kL	0.600
City and other water usage	1,000m <sup>3</sup>	317.1
Miscellaneous water usage	1,000m <sup>3</sup>	59.0
Paper usage	t	127.29

University Overview		FY 2022
Student body (undergraduate)	People	11,425
Student body (graduate)	People	4,444
Study body (affiliated institutions)	People	1,296
Foreign student body	People	1,229
Students on academic scholarships	People	4,072
Teaching faculty	People	5,740
Foreign exchange programs with overseas universities	Institutions	375

OUTPUT		FY 2022
CO <sub>2</sub> output volume	t-CO <sub>2</sub>	30,177
Wastewater	1,000m <sup>3</sup>	342.0
Waste material (printer paper, newspaper, cardboard, confidential documents, etc.)	t	289.8
Waste material (raw garbage)	t	4.3
Waste material (combustible waste)	t	525.0
Waste material (large items)	t	118.2
Waste material (non-combustible waste)	t	0.0



Proportion of energy used by each campus or complex



Proportion of CO2 emitted by each campus or complex

## Energy Conservation and climate change prevention

### ●Energy consumption

In FY 2022, energy consumption from electricity, gas, and heavy oil totaled approximately 851,000 gigajoules (\*1). Energy consumption decreased by 1.2% compared to FY 2021, and the energy consumption per unit area (calculated by dividing the energy consumption by the total floor area of all buildings) also decreased by 2.5% compared to FY 2021 and by 5.1% per unit area compared to the pre-pandemic level in FY 2019.

We believe one of the factors was changing the air conditioning system from gas to electric in the Rokkodai area. We will continue to promote energy conservation.

\*1: Converted calorific values for electricity, heavy oil, gas, etc. based on Article 4 of Regulations on Rationalization of Energy Use, etc.

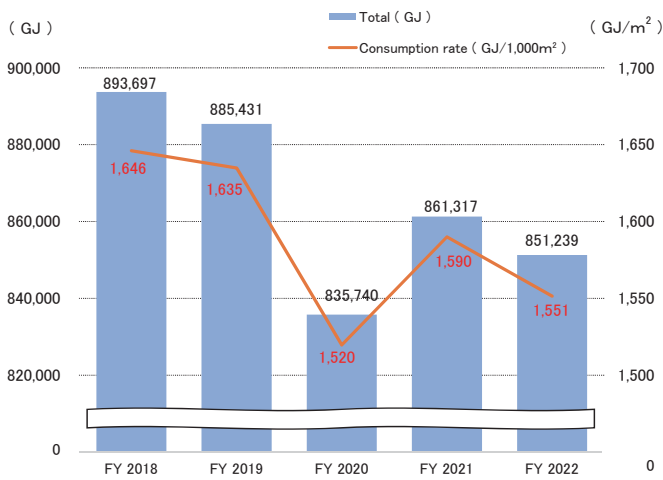


Figure 1: Energy consumption



### ●CO<sub>2</sub> Emissions

CO<sub>2</sub> emissions per total floor area (548,677 m<sup>2</sup>) in FY 2022 (30,177 tCO<sub>2</sub>) decreased by 28.3% from the previous year. This was due, in part, to an approximately 34.4% decrease in the CO<sub>2</sub> emission coefficient (a value indicating CO<sub>2</sub> emissions per kWh of electricity supply) of the main electricity supplier (from 0.000474 to 0.000311 tCO<sub>2</sub>/kWh) for electricity consumption, which accounts for approximately 80% of the university's energy consumption.

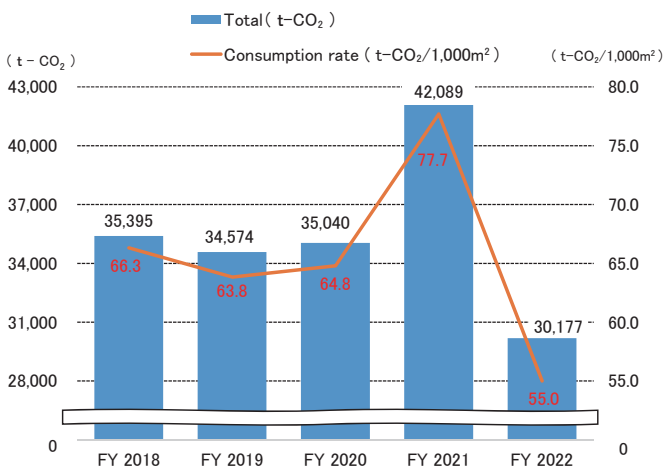


Figure 2: CO<sub>2</sub> emissions



### ●Electricity Consumption

In FY 2022, electricity usage decreased by 1.1% compared to the previous fiscal year.

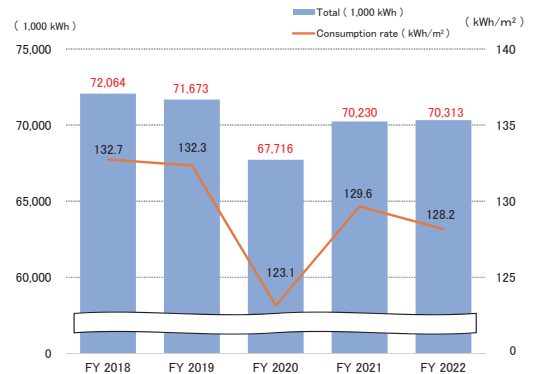


Figure 3: Electricity consumption



### ●City gas consumption

In FY 2022, city gas usage decreased by 7.3% compared to the previous fiscal year.

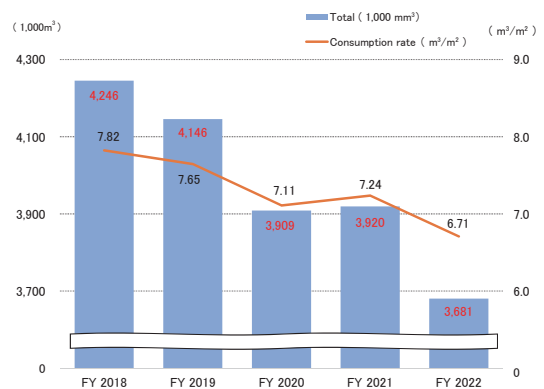


Figure 4: Gas consumption



### ■Heavy oil consumption

In FY 2022, heavy oil usage decreased by 7.6% compared to the previous fiscal year.

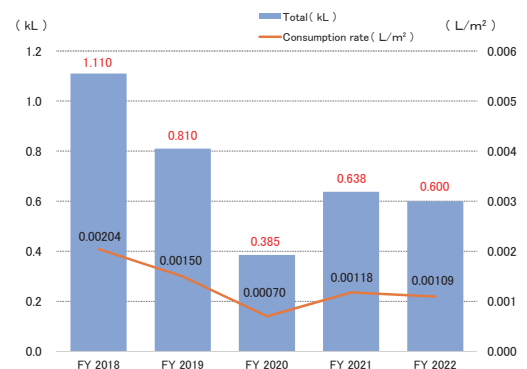


Figure 5: Heavy oil consumption



## Resource conservation and recycling

### Water Usage

Water usage for FY 2022 increased by 26,000m<sup>3</sup> (7.4%) compared to the previous fiscal year.

At Rokkodai, we plan to conserve resources by using river water from Mt. Rokko for toilets and experiments. We will continue working on ways to use water resources efficiently.

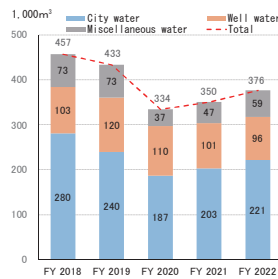


Figure 6: Water usage

### Waste

Waste volume from FY 2018-2022 is shown in figure 7. Waste volume for FY 2022 was 937.3t, a 0.01% increase from FY 2021. The recycling rate in FY 2022 was 28.0%, 0.5% lower than in FY 2021.

The FY 2021 recycling rate by waste type is shown in figure 8. According to this figure, it is clear that the recycling rate for printing paper, newspapers, magazines, and cardboard has not improved. If the recycling rate for paper reaches 90%, the total recycling rate for all waste will increase from approximately 28.0% to 39.7% (calculated according to FY 2022 waste volume). Kobe University will follow its basic policy to encourage environmental management, and work to further improve the recycling rate.

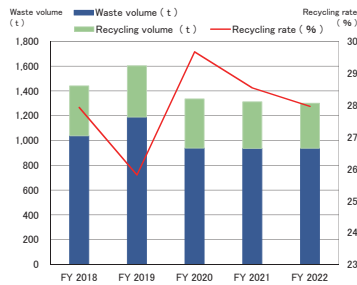


Figure 7: Amount of waste generated

### University-Wide Office Paper Consumption

Changes in consumption of office paper from FY 2018 to FY 2022 are shown in figure 9. Consumption decreased 1.13% (1.45 t) from the previous fiscal year.

We will continue to work to reduce our paper usage by making conferences and lectures paperless, introducing double-sided printing, printing multiple pages per sheet, and reusing the reverse side of paper that has already been printed on once.

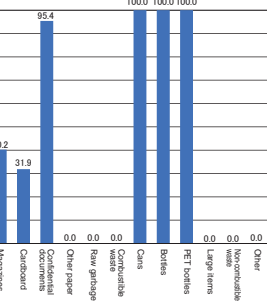


Figure 8: FY 2022 recycling rate by waste type

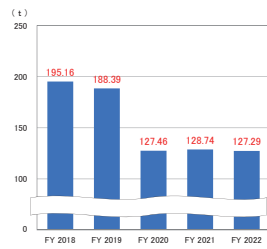
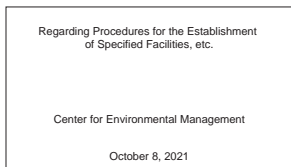


Figure 9: University-wide paper usage

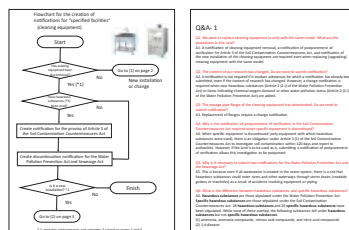
### Expanding E-Learning on Specified Facilities

The specified facilities to which the Water Pollution Control Law applies are wash basins and draft chambers used mainly for experiments and research. There are approximately 2000 specified facilities on campus (washing facilities, etc.), and it is a legal requirement that the government be notified prior to and after any new installation, change, or decommission.

However, there are numerous laws concerning specified facilities including the Water Pollution Control Law, the Sewerage Act, and the Soil Contamination Countermeasures Act, and these laws are complex and hard to understand. Both legal knowledge and knowledge of chemical substance management are necessary to fill in the large amount of required information for the notification materials to be submitted to the government. To address this, we have created e-learning materials about specified facilities-related laws and document preparation, etc., which we encourage staff members to utilize. The e-learning course is around 30 minutes long. To improve users' understanding, we have enhanced



E-Learning related to specified facilities



Utilization of templates related to specified facilities

this course by adding narration using a speech synthesis program so that users can hear the content in addition to reading the text on the screen. Additionally, to reduce administrative tasks within each department, we have created flowcharts, a Q&A, and standard templates concerning administrative notification materials for specified facilities (such as washing facilities for experimental research) regarding their installation, disposal, etc. These resources were made available for public access in January 2023.

## Green Purchasing and Procurement and Environmentally Friendly Contracts

### Green Purchasing and Procurement

The Act on Promotion of Procurement of Eco-Friendly Goods and Services by the State and Other Entities (Green Purchasing Law) was implemented in April 2004. This law stipulates the necessary procedures for the promotion of environmentally friendly goods procurement, etc. by the national government, providing information on increasing the demand for such goods, and aims to realize a society capable of sustainable development with less impact on the environment. It was established with the aim of contributing to people's health and cultural life both now and in the future, with the government and other organizations taking the initiative in stimulating the purchase of environmentally friendly goods.

Based on this act, Kobe University creates a policy for procuring eco-friendly materials every year. It procures materials based on this policy, publicizes the results, and provides reports to the Ministry of Environment and Ministry of Education, Culture, Sports, Science and Technology.

The university conducted a study on procurement results for 282 items across 22 fields. A selection of these results for 9 major fields are shown in table 12. In FY 2022, we achieved a 100% procurement rate for the designated items.

We will continue to create procurement policies based on the Green Purchasing Law, and proactively work to procure eco-friendly materials.

Table 12: Achievements in green purchasing and procurement in FY 2022

Category	Item	Total procurement volume	Procurement rate for specific items
Paper	Printing paper	126,768kg	100%
	Toilet paper	41,197kg	100%
	Other	4,603kg	100%
Stationery	Ballpoint pens	6,367	100%
	Envelopes (paper)	177,846	100%
	Other	50,304	100%
Office furniture, etc.	Chairs, desks, etc.	2,847	100%
Printing equipment	Copy machines, printers, etc.	6,522	100%
Lighting	Fluorescent tubes	9,943	100%
Interior	Curtains	281	100%
Work gloves		3,751	100%
Other textile products	Blue tarpaulins	61	100%
Services	Printing	530	100%
Average			100%

### Current status of environmentally friendly contracts

Under the Act on Promotion of Contracts of the State and Other Entities, Which Show Consideration for Reduction of Emissions of Greenhouse Gases, etc. (hereinafter referred to as the "Act on Contracts with Consideration for the Environment"), efforts must be made to develop contracts that give consideration to the reduction of greenhouse gases, etc. for the following eight categories: "procurement of electricity," "purchase and lease of automobiles," "procurement of ships," "building design," "building maintenance," "energy conservation improvement projects (ESCO projects)," "energy conservation improvement projects other than ESCO projects," and "disposal of industrial waste."

When procuring design work for the construction and renovation of buildings in FY 2022, Kobe University requested that the contractor submit proposals that effectively reduce environmental impact by taking into account the characteristics of the design work, thereby reducing the emission of greenhouse gases and other emissions.

The eight environmentally friendly contracts for high-voltage and special high-voltage electricity supply in the Rokkodai, Kusunoki, and Fukae areas, etc. are two-year contracts that cover FY 2022 and FY 2023, and they were implemented as shown in table 13.

Table 13: Electricity supply in each area

	Amount of power contracted	Planned amount of power to be used	Successful bidder
Rokkodai area	6,380kW	23,376,000kWh/year	The Kansai Electric Power Co., Inc.
Tsurukabuto 2 <sup>nd</sup> Campus (Graduate School of Human Development and Environment)	672kW	1,617,000kWh/year	The Kansai Electric Power Co., Inc.
Fukae area (Graduate School of Maritime Sciences)	873kW	2,196,000kWh/year	The Kansai Electric Power Co., Inc.
Myodani area (Graduate School of Health Sciences)	390kW	1,257,000kWh/year	The Kansai Electric Power Co., Inc.
Port Island area	Integrated Research Center 180kW Integrated Research Center Annex 380kW Incubation Center 150kW	3,400,000kWh/year	The Kansai Electric Power Co., Inc.
Other four areas	Secondary School attached to Kobe University 378kW Elementary School attached to Kobe University 154kW School for Special Needs Education attached to Kobe University 92kW Food Resources and Education Research Center 90kW	860,000kWh/year	The Kansai Electric Power Co., Inc.
Kusunoki area	6,960kW	36,210,000kWh/year	The Kansai Electric Power Co., Inc.
International Clinical Cancer Research Center	540kW	1,814,600kWh/year	The Kansai Electric Power Co., Inc.

## Outside Opinion

The world economy has developed exponentially since the Industrial Revolution that originated in the U.K., and society has become globalized and affluent. As a result, we are faced with various global-scale environmental challenges, including climate change due to global warming and the ocean plastic crisis, as well as issues related to the sustainability of the resources that support our society. Our urgent task is to overcome these challenges and build a sustainable society. The SDGs represent the goals that we have to achieve, one of which is the realization of carbon neutrality and the transition to a circular economy. As advanced educational and research institutions, universities are expected to conduct research and development, develop human resources, and contribute to society in order to overcome these critical issues. Kobe University has set up organizations to directly address social issues, including the establishment of the Office for Promoting SDGs in 2020 and the Carbon Neutral Promotion Headquarters in 2022. This really gave me a sense of the university's strong will to contribute to the resolution of these issues. This attitude is strongly expressed in the messages from the President and the Director of the Center for Environmental Management.

On the other hand, universities are also corporations, and like private companies, they have social responsibilities to reduce their environmental impact, such as reducing energy consumption, carbon dioxide emissions, and waste. With a total of 23,905 faculty, staff, and students, Kobe University has a large environmental footprint. For example, Kobe University's CO<sub>2</sub> emissions in FY 2022 were at 30,177 t-CO<sub>2</sub>. This amount of emissions is half the size of the emissions of the residential sector of Ako City (60,000 t-CO<sub>2</sub> in FY 2021), which has a population of approximately 50,000 people, which gives a sense of the magnitude of the emissions. The Center for Environmental Management is responsible for the overall environmental management of Kobe University, and it is my understanding that specific efforts are being carried out in cooperation with each faculty, graduate school, and other organizations. It is the responsibility of corporations to reduce their environmental impact in a variety of ways, such as energy-saving initiatives and reduction of CO<sub>2</sub> emissions, which will naturally lead directly to the realization of carbon neutrality. The Carbon Neutral Promotion Headquarters has a campus division along with its education, research, and social co-creation divisions, and its intention is to link its education and research on carbon neutrality to the realization of carbon neutrality on its campus. I felt it necessary to give a more detailed explanation of how exactly this campus division and the environmental management efforts centered on the Center for Environmental Management will be linked to reduce environmental burdens by taking advantage of the benefits of an educational and research institution. Although most universities, including

Hiroshima University, have already made contributions to the SDGs and carbon neutrality, they are still in the trial-and-error stage as to how to link their efforts to reduce environmental burdens in human resource development, research and development, social contribution, etc. I am very interested to see how Kobe University, which has established a Carbon Neutral Promotion Headquarters, will link education and research with practical reductions in the environmental impact of the campus in the future.



Name: NISHIJIMA Wataru  
Current position: Hiroshima University  
Professor, Director of Environment  
Research and Management Center

### Profile

1992 Research Assistant, Faculty of Engineering, Hiroshima University  
2000 Associate Professor, Graduate School of Engineering, Hiroshima University  
2005 Professor, Environment Research and Management Center, Hiroshima University  
2006 Director, Environment Research and Management Center, Hiroshima University  
2019- President, NPO for Establishing a Recycling-Oriented Society  
2021- 2023 President, Japan Society on Water Environment  
2021- Ad hoc member of Water Environment and Soil Pesticides Subcommittee, Central Environment Council, Ministry of the Environment

#### ■ Awards Received

2005 Best Paper Award, Japan Ozone Association  
2008 Best Paper Award, Japan Ozone Association  
2009 Honda Prize for Recycling Technology Development, Clean Japan Center  
2012 Best Paper Award, Japan Ozone Association  
2017 Academic Award, Japan Society on Water Environment  
2017 Best Paper Award, Society of Environmental Science, Japan  
2018 Paper Incentive Award, Japan Ozone Association

■ Research Field : Environmental Studies / Environment Creation Studies / Natural Sym-  
biosis System  
Development of technologies for water treatment and recycling-ori-  
ented social systems, survey and study of environmental manage-  
ment, conservation, and rehabilitation technology development for  
coastal areas

■ Affiliations : Japan Society on Water Environment, etc.

## About the Cover

In order to further publicize this Environmental Report to our students (who comprise the majority of the university population), we created the cover by requesting photos and illustrations from undergraduate and graduate students at the university, as well as from students at our affiliated schools. The cover photo was selected by the Environmental Planning and Assessment Committee, with the photo below receiving the grand prize.

From the many works submitted, we also selected two photos for Excellence Awards as shown below. We would like to take this opportunity to express our thanks to all those who submitted photos and illustrations.

### Grand Prize (Cover photo/illustration)

Photo by MORI Kanato, Sophomore, Department of Oceanology, Faculty of Oceanology, Kobe University  
Shooting location: Fukae Campus

#### Photographer's comment

I had a chance to look at the cover photos that have been used in the past. I think that all of the photos are very beautiful with excellent colors and compositions, creating an inspiring image of the natural environment. However, while all of the photos met the criteria, the subject matter, at least for the last five years, seems to have been the Rokko campus. When discussing the environment, I consider the environment to be all natural areas that humans can interact with. Therefore, I am concerned that the cover photo showing a campus in the mountains and plants may leave room for a narrow interpretation of the environment as "mountains and plants" by those who read the report. Taking into account the strengths of Kobe University, which has a variety of faculties, I have decided to focus on the "sea" to widen our perspective from the "land". In order to clearly express the idea that the environment is not only "land" but also "land" and "sea" in a broader sense, I chose the Fukae Campus, home of world-class marine research, as the subject of this photo.



### Excellence Awards (Cover photo/illustration)

Photo by ASAI Yuta, Junior,  
Department of Civil Engineering,  
Faculty of Engineering,  
Kobe University  
Shooting location: Science and  
Technology Research Building 3



Photo by MORI Kanato,  
Sophomore,  
Department of Oceanology,  
Faculty of Oceanology,  
Kobe University  
Shooting location: Fukae Cam-  
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