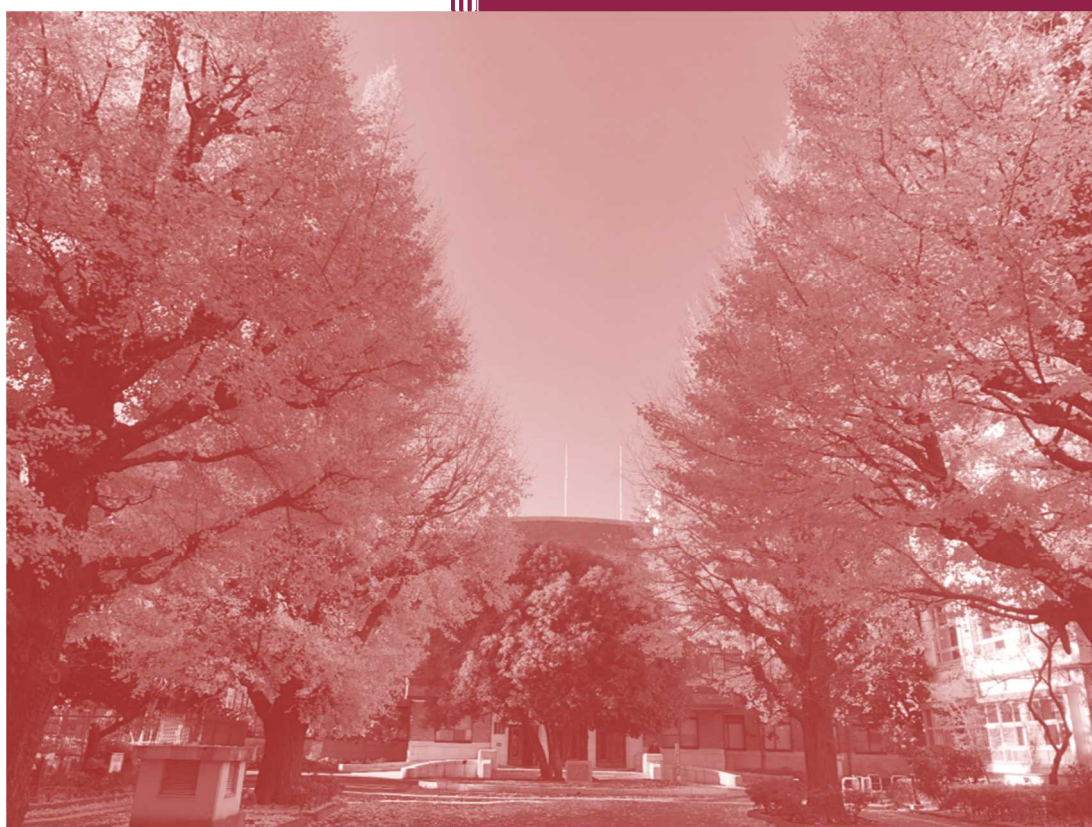


# Environmental Report 2023



# Ochanomizu University Environmental Report 2023

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## 1

## Greetings from the President



The world now faces a variety of difficulties such as the spread of new infectious diseases, severe climate changes, resource depletion, environmental pollution, and demographic upheaval. We must find solutions to these pressing global issues to create a sustainable global society.

Ochanomizu University will strive to resolve these issues by establishing a research and innovation center and promoting cutting-edge research through a fusion of academic areas that transcend the boundaries of the humanities and sciences. We aim to “realize a sustainable society where no one is left behind”, which is the principle of “Sustainable Development Goals (SDGs)”.

Since its foundation in 1875 (the 8<sup>th</sup> year of the Meiji era), Ochanomizu University, based on its tradition of and achievements in shaping women who will play an active role in Japan and abroad, has been committed to supporting all women, regardless of their age or nationality, by protecting their individual dignity and rights, in order to help them deepen their learning and proactively challenge themselves to develop their own unique qualities and abilities. Our mission is “to be a place where all women who are motivated to learn can realize their earnest dreams”.

We will promote human resource development and social contribution activities by realizing our university’s mission and promoting education and research to protect the global environment in the future. We will also strive to realize a safe, secure, environmentally friendly, and sustainable campus in consideration of the SDGs, such as reducing CO<sub>2</sub> emissions to achieve carbon neutrality and contributing to the improvement of the local environment.

In addition, regarding education and daily activities related to environmental maintenance and conservation, not only the university but also its affiliated schools are actively implementing projects to realize a sustainable society. In the past, the report “The Limits to Growth” had a profound impact on the people of the world, becoming a wake-up call for modern society; however, since then, environmental problems have continued to worsen. Nevertheless, the worsening has led the young people of the next generation to find the current situation unbearable, and they have begun to raise their voices. Many people have realized the true nature of the serious environmental problems we are currently facing and are beginning to work toward a solution. It could be said that finding environmental solutions is actually about exploring the realities of the Anthropocene and determining how to implement SDGs as policies. In any case, our university and its affiliated schools will work together to address various issues faced by modern society, including environmental problems, in an effort to move toward the sustainable development of humankind through the examination of evidence-based scientific measures.

This report is a review and summary of the university’s environmental efforts towards these global environmental conservation projects. We hope you will take the time to read this report and learn more about the university’s environmental improvement activities.

A handwritten signature in black ink, reading “Yumiko Soraki”.

President  
Ochanomizu University



The main gate, one of the Registered Tangible Cultural Properties of Japan





## Environmental Policies of Ochanomizu University

### I . Basic Philosophy

Ochanomizu University recognizes various environmental problems as urgent issues to be solved at a global level. We try to create a secure and safe campus while taking the global environment into consideration, and we play an active role in our society to realize a sustainable world. We also contribute to the creation of a prosperous future by striving, through our daily educational research and other activities, to help our students and employees develop into people who are aware of and capable of solving the environmental issues facing modern society.

### II . Basic Policies

Based on our basic philosophy, we pursue environmental efforts under the five basic policies presented below.

Promotion of Energy Conservation

Effective Use of Natural Resources

Prevention of Toxic Substance Leaks

Promotion of Pro-Environment Activities and Development of Pro-Environment People

Social Accountability and Information Transmission

#### 1. Promotion of Energy Conservation

Based on the "Ochanomizu University Energy Management Standard", we concentrate to our efforts on carbon neutrality by promoting energy conservation on campus and educating all members of the university about energy conservation.

#### 2. Effective Use of Natural Resources

We aim to be an eco-friendly campus by reducing and effectively utilizing environmental resources consumed on campus and reducing waste discharged off campus.

#### 3. Prevention of Toxic Substance Leaks

We prevent the leaking of toxic substances and pollutants by complying with environmental laws and regulations and properly managing all chemical substances.

#### 4. Promotion of Pro-Environment Activities and Development of Pro-Environment People

We aim to help our students and staff develop into people with environmentally conscientious mindsets who can think independently and actively work toward solving environmental problems through various environmental conservation activities, education, and research activities.

#### 5. Social Accountability and Information Transmission

We aim to serve as a bridge between the local and international communities by widely transmitting information about our environmental philosophy, initiatives, and achievements both within and outside the university.

(Established in September 2021)



## Our Efforts to Achieve SDGs

Ochanomizu University HP<Our Efforts to Achieve SDGs>

<https://www.ocha.ac.jp/program/menu/sdgs/top.html>

SDGs (Sustainable Development Goals), which were adopted by the UN at the summit held in 2015, are universal goals whose principle is based on the concepts of “inclusive society” and “leave no one behind”. SDGs require various countries, companies, and institutions to tackle and achieve specific global goals by 2030. We have been actively committed in various ways to achieving the SDGs, which consist of 17 goals and 169 targets. In 2022, we launched an “Institute for SDGs Promotion” project to contribute to greater SDG achievement than before.



In this report, we use icons to indicate the SDGs related to each of our environmental initiatives (see P. 7).

## Our Efforts to Realize Carbon Neutrality

The "Coalition of Universities and Other Institutions Contributing to Achieving Carbon Neutrality", established in July 2021, aims to discuss ideal ways and directions for decarbonization through collaboration among universities and other institutions, to promote research and development and social implementation of achievements, and to strengthen the ability to transmit information domestically and internationally.

In addition, we are implementing the following initiatives to achieve a zero-carbon campus:

\*Implementation of carbon-neutral measures

To improve energy-saving measures on campus, we have formulated a maintenance and construction plan that includes switching to LED lighting and improving the efficiency of air-conditioning equipment.

\*Procurement of electricity from 100% renewable energy

Regarding power procurement for the Otsuka Building No. 1 complex from fiscal 2022, we have signed a contract to procure 100% of the power needs from renewable energy sources.

## Annual Environmental Report Policy

### \*Aim

The university has made and released an environmental report since fiscal year 2021. The university's environmental policy, initiatives, achievements, and other information are widely reported to our stakeholders: our students at all levels, graduates, prospective students, patrons, faculty and staff, local inhabitants, corporations, and local governments. The reports are also used as a communication tool to connect the university with society by clarifying the direction in which the university is aiming to address various environmental issues.

### \*Areas included in this report

Ochanomizu University Otsuka Building No. 1, Otsuka Building No. 2, Higashimurayama Building, Tateyama Building

### \*Reporting period for information provided

Fiscal year 2022 (April 2022 – March 2023)

### \*References

Ministry of the Environment, “Environmental Reporting Guidelines 2018”

Ministry of the Environment, “Manuals for Items to be Reported in Environmental Reporting, etc. (ver. 3)”

### 3 University Overview

#### Ochanomizu University Campus Overview

The University's campus consists of five buildings: Otsuka Building No. 1 (Bunkyo-ku, Tokyo) is the main campus, Otsuka Building No. 2 (Bunkyo-ku, Tokyo) and the Itabashi Building (Itabashi-ku, Tokyo) are multipurpose facilities, the Higashimurayama Building (Higashimurayama-shi, Tokyo) is a suburban garden (farm), and the Tateyama Building (Tateyama-shi, Chiba) contains the Coastal Biology Education and Research Center and outdoor education facilities.

The total land area of these five buildings is approximately 140,200 m<sup>2</sup> and the total building area is approximately 102,300 m<sup>2</sup>. The main campus, Otsuka Building No. 1, has a land area of approximately 113,700 m<sup>2</sup> (81% of the total) and a building area of approximately 89,100 m<sup>2</sup> (87% of the total).



No.	Building name	Address	Main facility	Site area / building floor area
1	Otsuka Building No. 1	Otsuka 2-1-1, Bunkyo-ku, Tokyo	University building, University library, Student support facility, Attached school building	113,741 / 99,212
2	Otsuka Building No. 2	Otsuka 1-6-6, Bunkyo-ku, Tokyo	Koishikawa dormitory, Ochanomizu University SCC Ubiquitous Experimental House	2,553 / 2,784
3	Itabashi Building	Nakamachi 2-1, Itabashi-ku, Tokyo	-	8,029 / -
4	Higashimurayama Building	Hagiya-cho 2-3-1, Higashimurayama-shi, Tokyo	Suburban garden (farm)	3,168 / -
5	Tateyama Building	Koyatsu 11, Tateyama-shi, Chiba	Wangan Biological Education and Research Center, Tateyama Outdoor Education Facility	8,623 / 1,107

\*Area as of May 1, 2022

#### Otsuka Building No. 1 (Otsuka Campus) Overview

##### Present Condition of the Site

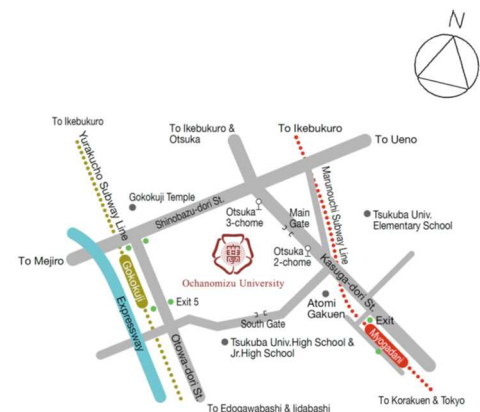
Otsuka Building No. 1 is surrounded by National Route 254 (Kasuga Dori), ward roads, and private residences, and is in an area with a mix of educational facilities such as universities, high schools, and junior high schools, as well as apartments and single-dwelling residences. The main gate faces the national road on the northeast side of the site, and the main building of the university is located directly in front of the gate. There is a private university, a school affiliated with another national university, and a public junior high school on the south side of the site. Other buildings are sites adjacent to single-family homes and condominiums.

##### Educational Environment

Ochanomizu University is a women's university with three faculties: Letters and Education, Science, and Human Life and Environmental Sciences. All faculties, graduate schools, research centers, the library, and many other university facilities are concentrated in Otsuka Building No. 1. This site is also home to an affiliated kindergarten, elementary school, junior high school, high school, Bunkyo-ku Ochanomizu University Kindergarten, and Izumi Nursery (daycare facility). The educational environment is based on a consistent philosophy developed through collaboration among the affiliated schools, university, and graduate school.

##### Natural Environment

Many trees are planted on the campus. It is a valuable green space not only for the university but also for central Tokyo. The garden contains donated trees, commemorative trees, and rare plants, including a maple tree gifted by Empress Kojun of Japan. In addition, the Tokyo Bunkyo-ku Green Protection Regulation requires that greenification standards be met when planning buildings above a certain size. In preserving the greenery on this site, we are striving to take such factors into consideration.



## Building Area / Population

Universities/Graduate Schools	
Building area	18,743 m <sup>2</sup>
Total floor area	64,816 m <sup>2</sup>
Population	
Undergraduate students	2,010 people
Faculty of Letters & Education	916 people
Faculty of Science	541 people
Faculty of Human Life & Environmental Sciences	553 people
Graduate students	758 people
Foreign students	201 people
Research students, etc.	91 people
Faculty and staff	112 people
<b>Total</b>	<b>3,172 people</b>

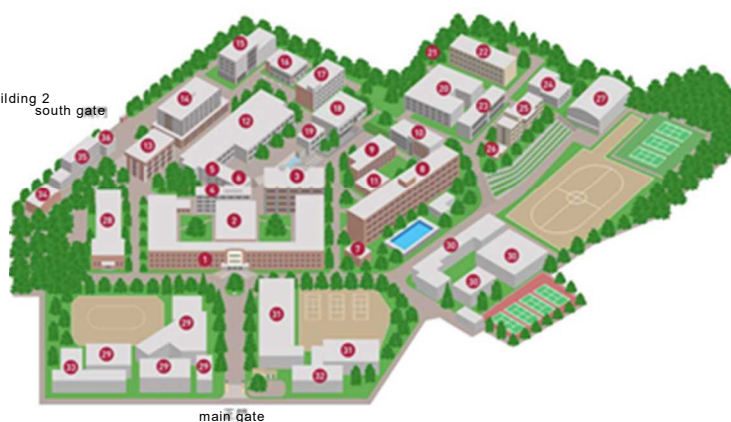
Affiliated Schools	
Building area	10,431 m <sup>2</sup>
Total floor area	21,404 m <sup>2</sup>
Population	
High school students	368 people
Junior high school students	317 people
Elementary school students	630 people
Kindergarten children	154 people
Nursery school children	103 people
Faculty and staff	112 people
<b>Total</b>	<b>1,684 people</b>

\*Building area & population as of May 1, 2022

## CAMPUS MAP

### List of Facilities

- |  |  |
|--|--|
| ① Main Building  | ⑩ Health Care Center   |
| ② Auditorium (Kiindo)  | ⑪ Student Dormitory  |
| ③ Integrated Research Building                               | ⑫ Archery Field  |
| ④ Faculty of Human Life & Environmental Sciences, Building 2 | ⑬ Faculty of Letters & Education, Building 2   |
| ⑤ Ochadai Academic Production Research Building              | ⑭ Student Commons  |
| ⑥ Outdoor Elevator Building                                  | ⑮ Student Meeting Center   |
| ⑦ Radioisotope Research Center                               | ⑯ Graduate School of Humanities & Sciences / University Innovation Research Building |
| ⑧ Faculty of Science, Building 1                             | ⑰ Tea House (Houkou-an)  |
| ⑨ Faculty of Science, Building 2                             | ⑱ University Gymnasium   |
| ⑩ Faculty of Science, Building 3                             | ⑲ Kindergarten   |
| ⑪ IT Center  | ⑳ Elementary School  |
| ⑫ University Library   | ㉑ Junior High School   |
| ⑬ Student Services Building                                  | ㉒ High School  |
| ⑭ Faculty of Letters & Education, Building 1                 | ㉓ Hisao & Hiroko TAKI PLAZA  |
| ⑮ Inter-Faculty Building 1                                   | ㉔ University Hall  |
| ⑯ Inter-Faculty Building 2                                   | ㉕ Izumi Nursery  |
| ⑰ Inter-Faculty Building 3                                   | ㉖ Ohtsuka Lodging  |
| ⑱ Cafeteria  | ㉗ Center for Early Childhood Education and Care                                      |



\*Campus Map as of May 1, 2022

## Campus Environmental Maintenance Policy

In the Campus Master Plan 2021, one of the basic policies sets the goal of "realizing an education and research environment that takes the global environment into account" to create a safe, secure, and appealing campus in consideration of the SDGs. In accordance with this basic policy, we promote integrated global environmental measures that maintain a green, natural environment and take energy conservation into consideration to realize a sustainable campus environment.

Specific maintenance policies based on the Campus Master Plan 2021 are as follows.

1. We will promote the preservation and succession of trees on campus and the maintenance and preservation of the existing natural environment by utilizing them for educational purposes.
2. We will upgrade and maintain facilities and equipment that have deteriorated due to age and reduced functionality so that they can be used effectively over the long term.
3. We will develop a plan to actively incorporate global warming countermeasures (energy conservation, prevention of global warming, etc.) into the development of facilities.
4. We will promote the development of environmentally friendly facilities to maintain a sustainable, environmentally proactive campus by implementing global warming countermeasures in accordance with relevant laws and regulations and striving to reduce greenhouse gas emissions.



Ochanomizu University HP < CMP2021 publication page >

[https://www.ocha.ac.jp/limited/introduction\\_d/fil/CMP2023ver20230602.pdf](https://www.ocha.ac.jp/limited/introduction_d/fil/CMP2023ver20230602.pdf)

## Outline of Otsuka 2 Housing

### Current Status of the Site

Otsuka 2 housing complex is a 3-minute walk from Otsuka 1 housing complex and is located on the boundary between an educational district with private universities and other educational facilities and a residential area. The north and east sides of the site are bordered by Atomi Gakuen and Teijin Gakuen, with Takushoku University across the front road on the west side and a quiet residential area on the south side.

### Educational Environment

Two student dormitories, Koishikawa Dormitory and Ochanomizu University SCC, are located in the Otsuka 2 Complex, and the Ubiquitous Experimental House, an experimental facility, is located on the site next to the Koishikawa Dormitory. The Koishikawa Dormitory is a student dormitory for graduate students and is managed through the self-governance of the residents. Ochanomizu University SCC is a student dormitory for first- and second-year undergraduates. Based on the concept of "a space to live together and grow together", the housing system is designed for relaxed coexistence.

## Outline of Higashimurayama Danchi

### Current Status of the Site

Higashimurayama Danchi is located at a 4-minute walk from Hagiya Station on the Seibu Tamako Line and Seibu Haijima Line, and is surrounded by a quiet residential area with convenient transportation access. It was divided into an east side and a west side with a Tokyo Metropolitan Government park and condominiums in between, but the west side site was discontinued at the end of FY 2021.

### Educational Environment

Higashimurayama Danchi has been developed as a hands-on learning farm (Higashimurayama Suburban Garden) for kindergarten students, children, and students of affiliated schools. Every year, the farm is used as part of educational activities to grow and eat vegetables such as sweet potatoes, radishes, and potatoes.

## Outline of Tateyama Danchi

### Current Status of the Site

Tateyama Danchi is located in Tateyama City at the tip of the Boso Peninsula. The northwest side of the site faces the shore of Tokyo Bay, and the southeast side borders private land (fields).

### Educational Environment

The Tateyama Complex includes the Wangan Biological Education and Research Center (laboratory and accommodation buildings), which is a seaside laboratory affiliated with the Faculty of Science, the Tateyama Outdoor Education Facility, which is a facility for extracurricular activities that can accommodate students, and staff housing. The Wangan Biology Education and Research Center has experiment and training facilities and accommodations along the coast. It is used for various practical training and research activities related to marine life, as well as for graduate and doctoral research.

\*Summary of each complex as of May 1, 2022





# 4




## Environmental Consideration Plan

The University formulates an action plan for each fiscal year based on the five basic policies of "promotion of energy conservation", "effective use of resources", "prevention of leakage of hazardous substances", "promotion of environmental activities and development of environmentally aware personnel", and "accountability to society and dissemination of information", and promotes environmental consideration initiatives. Below is our action plan for FY 2022 and our self-evaluation of our implementation of the plan.

### 1. Promotion of Energy Conservation



Issue	Action Plan	Evaluation	Reference Page
Reduction of Energy Consumption / Reduction of Greenhouse Gas Emissions 	<p>We aim to reduce energy consumption per unit of production by at least 1% annually across the university.</p> <p>We implement energy conservation measures based on an energy conservation check list.</p> <p>We continue to systematically replace traditional lighting with LED lights and replace aging air conditioning equipment as a measure against global warming.</p> <p>Newly installed equipment is and will continue to be energy-saving or high-efficiency equipment.</p>	○	P. 11 P. 13
	<p>Although we met our minimum energy reduction goal, we were unable to reduce overall energy consumption by more than 1% compared to the previous fiscal year. The continued impact of the post-COVID19 resumption of face-to-face classes is considered to be a factor.</p>		
Energy Conservation Awareness 	<p>Monthly utility consumption is published on our website to allow visualization of energy consumption.</p> <p>We continue to post various energy conservation related notices to educate students, faculty, and staff about energy efficiency and conservation.</p>	○	P. 11

### 2. Effective Use of Resources



Issue	Action Plan	Evaluation	Reference Page
Reduction of Drinking Water Consumption / Reduction of Wastewater Consumption 	<p>We continue to promote the installation of water-saving fixtures and onomatopoeic privacy devices when renovating toilets.</p> <p>We monitor water consumption in each building and work to promptly detect leaks.</p> <p>We continue to promote installation of rainwater harvesting and infiltration facilities.</p>	○	P. 12
Reduction of Paper Consumption 	<p>We continue to promote paperless meetings by using digital materials.</p>	○	P. 12
Reduction of Waste Emissions 	<p>We promote the reuse and efficient utilization of resources on campus.</p> <p>We promote recycling of resources by thoroughly separating and collecting waste.</p>	○	P. 13 P. 16




### 3. Preventing Leakage of Hazardous Substances

Issue	Action Plan	Evaluation	Reference Page
Prevention of Leakage of Chemical Substances 	Chemicals are properly managed and disposed of in accordance with the Chemicals Management Manual. We hold training sessions for graduate students and faculty members on the use of chemical management software. For undergraduate students, a faculty member explains the handling of chemicals before each experiment.	○	P. 14 P. 15
Prevention of Leakage of Hazardous Substances 	We continue to properly remove and dispose of building materials containing asbestos.	○	P. 15

### 4. Promotion of Environmental Activities and Development of Environmentally Aware Personnel

Issue	Action Plan	Evaluation	Reference Page
Promotion of Environmental Preservation Activities 	We continue to make efforts to beautify our campus' environs by thoroughly separating trash, cleaning up regularly, pruning trees, etc. We encourage student-led environmental activities.	○	P. 16 ~P. 19
Promotion of Environmental Education and Research Activities 	Through environmental education, we encourage students at all levels to become interested in environmental issues.	○	P. 20 ~P. 24

### 5. Social Accountability and Information Dissemination

Issue	Action Plan	Evaluation	Reference Page
Dissemination of Information Inside and Outside the University 	We continue to publicize our environmental policy and approach both inside and outside the university. Self-assessment of the results of our efforts is ongoing and continues to be made public both inside and outside the university.	○	P. 1 ~P. 9

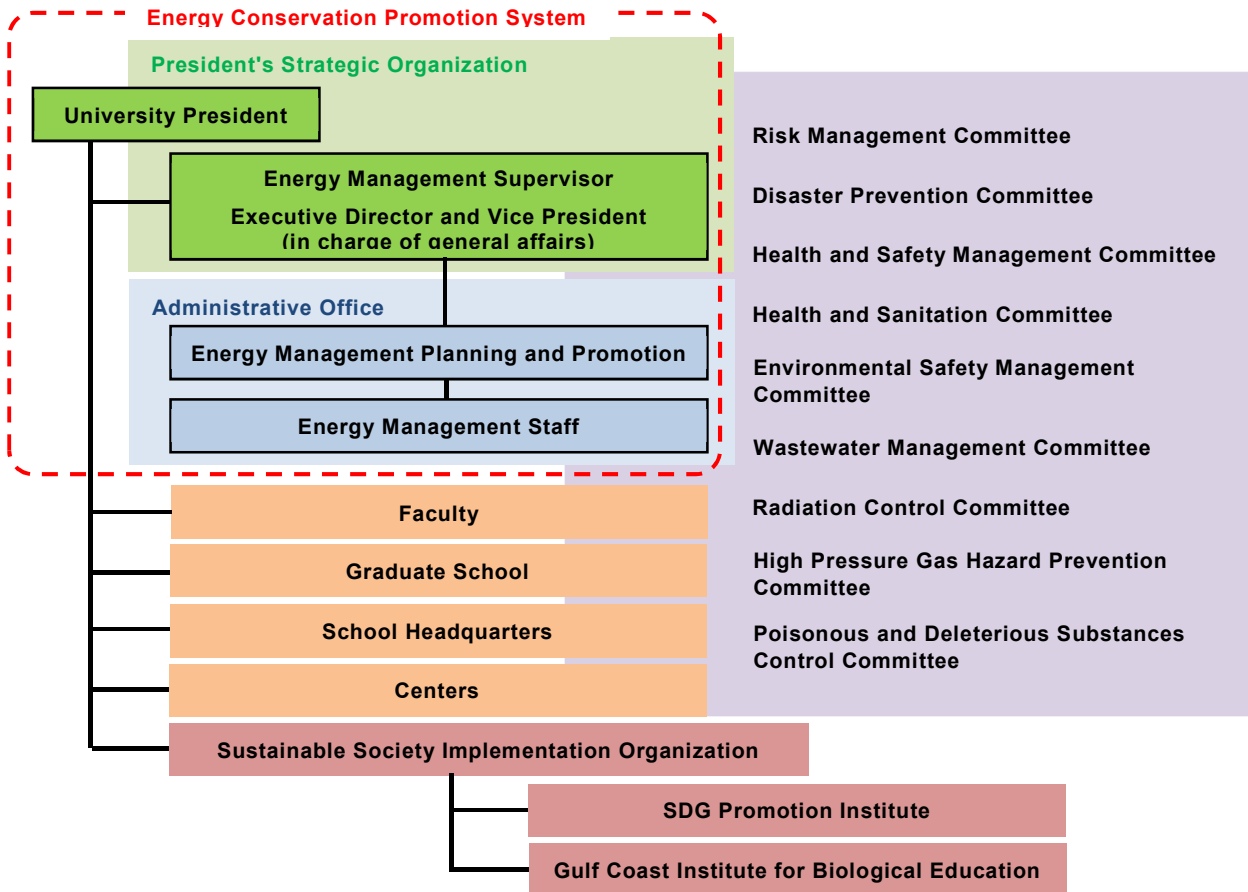
【Evaluation】 ○ Targets achieved    △ Targets not yet achieved but showing a good improvement trends  
 × Insufficient effort

# 5

## Environmental Management Organization Structure

To ensure the implementation of our plans for environmental consideration, the university has implemented an environmental management organizational structure under the leadership of the President, as shown in the figure below. Each committee is responsible for cross-organizational review and implementation of plans regarding various environmental issues within the university. Faculty members and administrative staff from the university's faculties, graduate schools, and affiliated schools have been appointed as members of each committee, and the entire Ochanomizu organization is working on environmental issues.

In FY 2022, the SDG Promotion Institute and the Gulf Coast Institute for Biological Education were newly established under the Sustainable Society Implementation Organization.



### Sustainable Society Implementation Organization

The creation of a sustainable society requires that society as a whole promote the achievement of the SDGs. We have newly established this organization in order to develop human resources for this purpose and will plan and implement SDG education and research programs. By building a research and innovation center for solving urgent social issues and promoting cutting-edge research that transcends the boundaries of the humanities and sciences, we aim to realize a sustainable society in which no one is left behind, which is the principle of the SDGs.

### SDG Promotion Research Institute

The SDG Research Institute is organized by researchers in the fields of life science, life and environment science, gender studies, and nutrition education, which are characteristic of this university, and it promotes research aimed at contributing to a sustainable society. In addition to the development of an SDG integrated education program from early childhood by taking advantage of the fact that affiliated schools are located on the same campus, the institute aims to support activities through joint research and internships with companies, local governments, and other organizations.

### Gulf Coast Institute for Biological Education

This institute's goal is to promote research of and education about biology and the environment of the Gulf region and to deepen society's understanding of natural sciences and the environment through educational activities both in the field and in the classroom. The center will promote research on the development, evolution, ecology, and conservation of plants and animals inhabiting a wide range of environments from the intertidal zone to the deep sea.

# 6

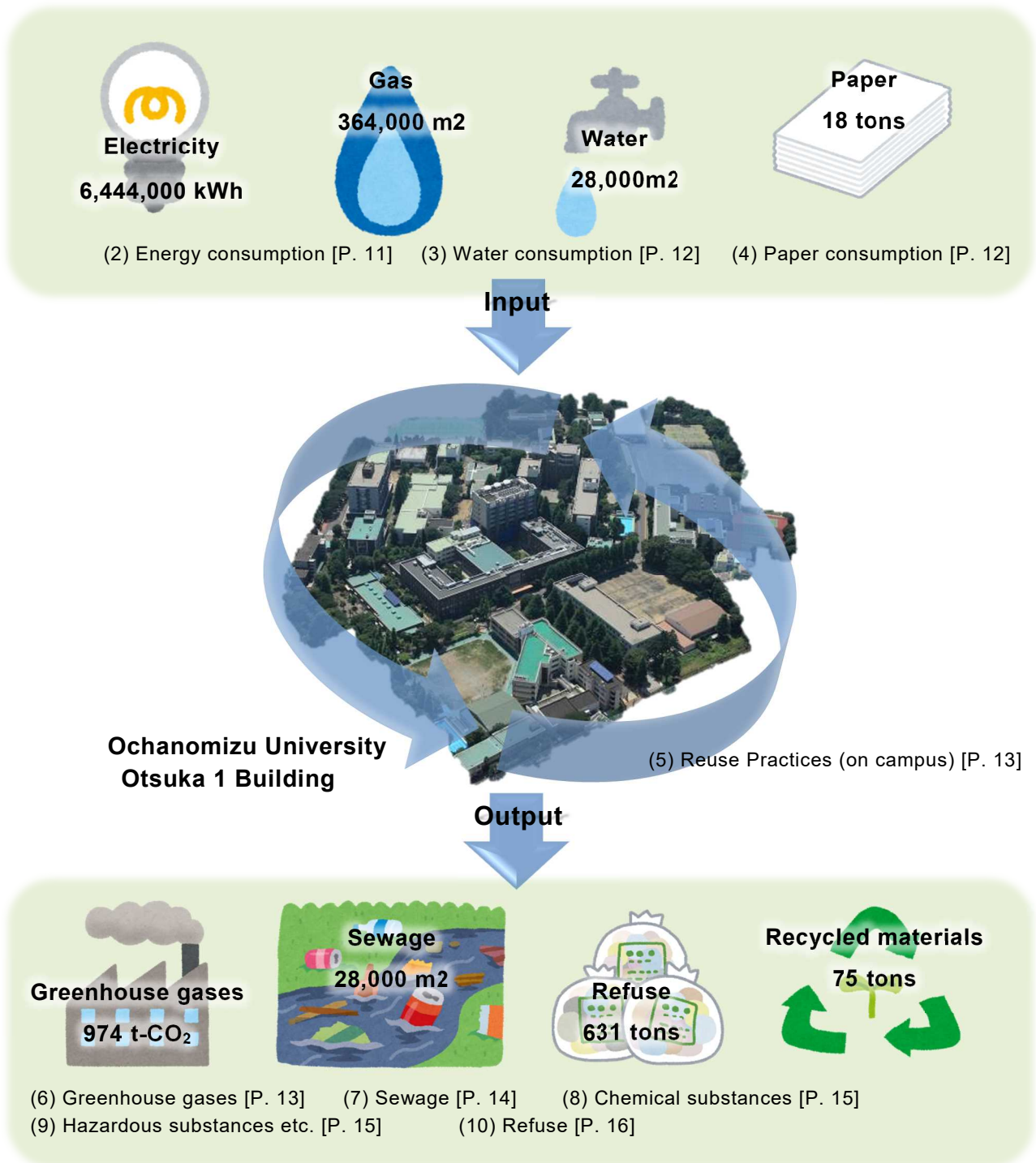
## Environmentally Friendly Practices

### (1) Material Flow



Material flow is the grand total of the amount of resources consumed, the flow of resources within an area, and the amount of resources discharged from an area within a fixed period of time. The first step in creating a reuse-oriented society is to understand the quantity of resources we extract, consume, and dispose of.

The following is an overview of the material flow of the Otsuka 1 Building (Otsuka Campus) in 2022.



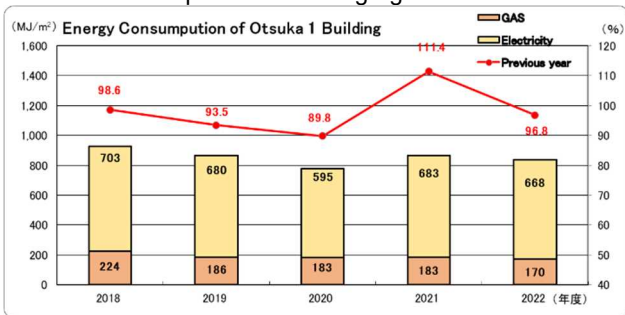
## (2) Energy Consumption



### Energy Conservation

Ochanomizu University established the "Ochanomizu University Energy Management Standard" in 2004, and we have been promoting energy conservation on campus by properly implementing energy management under the energy conservation promotion system. Under the Ochanomizu University Energy Management Standard, based on the Law Concerning the Rational Use of Energy (Energy Conservation Law), we have set a target of "reducing unit energy consumption by 1% or more compared to the previous year" as a yearly plan. (\*Energy consumption intensity indicates energy consumption per floor area of a building.)

The energy consumption intensity of Otsuka 1 complex in FY2022 decreased by approximately 3% from the previous year (FY 2021). The Ochanomizu University Otowakan (student dormitory) began operation, increasing the total floor area and total energy consumption, but we believe the decrease was due to the effects of energy conservation activities and replacement of aging facilities.



\* The calculation standard for energy consumption intensity is Based on reference [10]

### 【Energy Conservation Practices (2022)】

Energy conservation measures were implemented based on the energy conservation checklist in the "Ochanomizu University Energy Management Guidelines". Specific examples are provided below.

- The air conditioners in lecture halls are set to turn off automatically in the event that someone forgets to turn them off.
- During the summer, the heated toilet seats in restrooms and electric water boilers in the kitchen are switched off.
- The adjusting of blinds and curtains is encouraged to reduce the use of electric lighting and air conditioning.
- During lunch breaks, all lighting in offices and other rooms is turned off.
- During sunny days, lights near windows are turned off.

In each building, old air conditioners have been replaced with high-efficiency air conditioners and LED lighting fixtures have been installed.

### Energy Conservation Awareness

Besides installing energy-saving electrical appliances, it is important to raise the awareness of students and faculty members to achieve effective energy conservation. Together with energy conservation efforts, the university is working to raise awareness about energy conservation among students and faculty members.

#### 【Practices Related to Energy Conservation Awareness (2022)】

Comparisons of the monthly and yearly consumption of electricity, gas, and water are recorded in graphs and published on the university website. In addition, real-time information on electricity consumption is disclosed to encourage energy usage visibility.

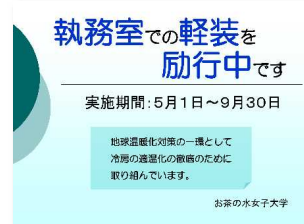
Ochanomizu University HP  
 <Electricity Consumption Status>  
[https://www.ocha.ac.jp/save\\_energy/index.html](https://www.ocha.ac.jp/save_energy/index.html)



In order to promote energy conservation during the summer, when the use of air conditioners is at its peak, the university encourages all faculty members to take a week off (August 9<sup>th</sup> – 16<sup>th</sup>).

The following flyers were distributed and other measures have been implemented to raise awareness about energy conservation.

- Students, faculty, and staff are encouraged to dress lightly (Cool Biz campaign) during the summer.
- "2 Up 3 Down Campaign" flyers are posted near every elevator.
- Stickers to encourage energy and water conservation are pasted near switches and water faucets.

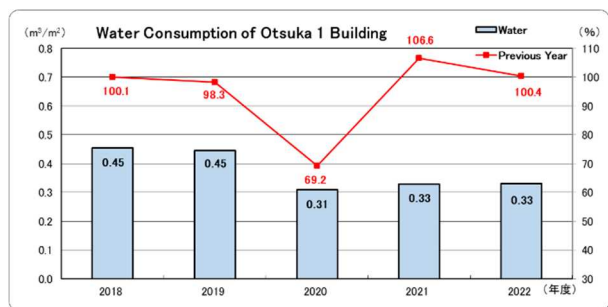


### (3) Water Consumption

We have been educating students, faculty, and staff on water conservation by publishing monthly water consumption on its website. In addition, when renovating restrooms, we promote the use of water-saving sanitary fixtures that reduce the amount of water used for flushing. These efforts to conserve water resources help to conserve the environment by saving the consumption of energy essential for the use of water and hot water, thereby reducing the emission of CO<sub>2</sub> that causes global warming.

The unit water consumption of Otsuka 1 complex in FY 2022 is unchanged compared to the previous fiscal year (FY 2021). This is the second year since the resumption of face-to-face classes, but usage was similar to previous years.

(\*Unit water usage intensity indicates the amount of water used per floor area of the building.)



\*The calculation standard for water consumption is

#### 【Initiatives to Reduce Water Consumption/ Sewage Discharge (2022)】

Water meter readings in every building are taken weekly to monitor changes in water usage. By doing so, it is possible to detect leakages early and fix the problems promptly. In 2022, there were no major water leakages in any of the buildings.

During the renovation of the Faculty of Science Building No. 1 (west side), rainwater infiltration pipes and rainwater infiltration trenches were installed to reduce sewage discharge. By reducing sewage discharge, the amount of energy used to treat wastewater at the sewage treatment facility is reduced, which in turn reduces greenhouse gas emissions.

When the new student dormitory (Otowakan) was constructed, new rainwater infiltration pipes and rainwater infiltration trenches were installed to reduce the amount of sewage discharge that flows into the public sewage system. Additionally, rainwater storage tanks were installed outdoors and are used for watering outdoor greenery.



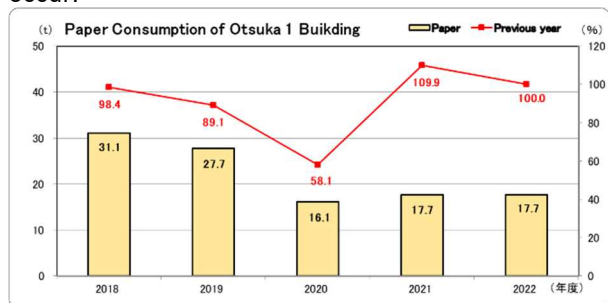
Rainwater storage tank



Rainwater infiltration pipe and rainwater infiltration trench

### (4) Paper Consumption

We have been promoting the "paperless use of electronic files for meeting materials" for the purpose of improving and streamlining administrative efficiency in the Third Medium-Term Plan, which has also led to a reduction in paper purchases. The amount of paper purchased in FY 2022 was the same as in the previous fiscal year (FY 2021). In the year before last, remote conferencing and online classes at the coronavirus pandemic facilitated the use of electronic files for materials, but FY 2022 is the second year that face-to-face classes have resumed, and we believe that paper distribution of materials continues to occur.



\*The calculation standard for paper consumption is based on reference [10].

#### 【Efforts to Reduce Paper Consumption (2022)】

The following initiatives were implemented to reduce the amount of paper purchased.

- PDF documents for various meetings were made available for viewing on tablets and other devices to promote paperless meetings.
- The distribution of paper materials has been reduced by using electronic bulletin boards.



## (5) Reuse Practices (on campus)



The university strives to reuse and allocate resources effectively by implementing the following initiatives to reduce the amount of waste generated.

- Furniture (desks, chairs, lockers, etc.) that is no longer needed is stored in a common storeroom on campus and saved for future use.
- The university is effectively promoting the reuse of older items by advertising used electrical items (computers, printers, etc.) through bulletin boards and the campus groupware system.
- Reusable equipment from previous renovation projects are stored and reused for other renovation projects.
- A “help yourself” corner has been set up in the library to provide visitors with materials that are no longer necessary to the library. These materials include duplicate titles that are held by the library, books that are due to be disposed of because of outdated content, journals that have exceeded their retention periods, books donated by publishers or authors that cannot be displayed in the library and so on.



Reusable equipment storage



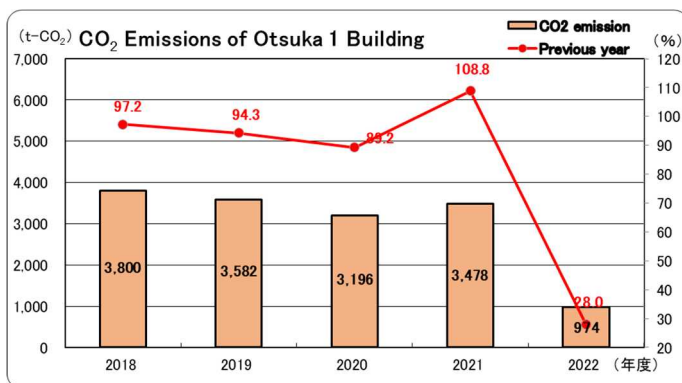
Help yourself corner

## (6) Greenhouse Gases



### Reduction of CO<sub>2</sub> Emissions

In the Third Medium-Term Targets and Plan, we have set a goal of "reducing greenhouse gas emissions by 17% by FY 2021" through the promotion of energy conservation and other measures. In FY 2022, the Otsuka 1 complex's CO<sub>2</sub> emissions decreased by approximately 72% from the previous year (FY 2021). Although the Ochanomizu University Otowakan (student dormitory) began operation, increasing the total floor space and electricity consumption, the significant reduction was achieved by changing the contract from the conventional electricity supplier to an electricity supplier with lower CO<sub>2</sub> emissions.



\*The calculation standard for CO<sub>2</sub> emissions is based on reference [10].

### 【CO<sub>2</sub> Emissions Reduction Efforts (2022)】

Fluorescent lighting fixtures were replaced with LED lighting fixtures.

Aged air conditioners were replaced efficient air conditioners. Moreover, timers were installed in ventilation equipment with high volume discharge to allow intermittent operation.

Old water boilers were replaced with efficient water boilers.

The buildings' thermal insulation was improved by implementing the following changes. Improved thermal insulation in buildings will increase air conditioner efficiency in summer and winter, thus leading to energy conservation and reduction in CO<sub>2</sub> emissions.

- Insulation was installed on the exterior walls, during the renovation of the Faculty of Literature and Education Building 1 (Phase I).
- Double-glazing was adopted as a window glass specification, during the renovation of the Faculty of Literature and Education Building 1 (Phase I)

### Fluorocarbons Leakage Prevention

Refrigerants used in air conditioners are a major cause of the greenhouse effect, and the leakage of refrigerants has a significant impact on global warming. In accordance with “The Laws Concerning the Effective Use and Proper Management of Fluorocarbons (Regulation Laws Regarding Fluorocarbons Discharge)”, the university strives to prevent fluorocarbons leakage by properly managing equipment that is equipped with fluorocarbons. Calculated leakage of CFCs in FY 2022 was 15 t-CO<sub>2</sub>.

## (7) Drainage



The main drainage system of the Otsuka Campus is divided into the East Gate System, West Gate System, and South Gate System according to the discharge destination to the public sewage system, and the water quality of the drainage is periodically inspected at the end of each system. In FY 2022, nitrogen in the east gate system and n-hexane extractants in the west gate system exceeded the sewage elimination standard in the 23 wards of Tokyo. We contacted the Tokyo Metropolitan Government Bureau of Sewerage and conducted another investigation, which resulted in the levels falling below the standard values. We also reported the matter to the campus wastewater management committee and issued a warning for the future.

Results of Drainage Water Quality Analysis (October 12, 2022)      : Items Over Benchmark

Parameter	Standard Value	Result (East Gate)	Results (West Gate)	Results (South Gate)
Cadmium	≤ 0.03 mg/L	< 0.003	< 0.003	< 0.003
Cyan	≤ 1 mg/L	< 0.1	< 0.1	< 0.1
Organic Phosphorus	≤ 1 mg/L	< 0.1	< 0.1	< 0.1
Lead	≤ 0.1 mg/L	< 0.01	< 0.01	< 0.01
Hexavalent Chromium	≤ 0.5 mg/L	0.06	< 0.05	0.07
Arsenic	≤ 0.1 mg/L	< 0.01	< 0.01	< 0.01
Total Mercury	≤ 0.0005 mg/L	< 0.0005	< 0.0005	< 0.0005
Alkyl Mercury	Not to be detected	Not detected	Not detected	Not detected
Trichloroethylene	≤ 0.1 mg/L	< 0.01	< 0.01	< 0.01
Tetrachloroethylene	≤ 0.1 mg/L	< 0.01	< 0.01	< 0.01
Dichloromethane	≤ 0.2 mg/L	< 0.02	< 0.02	< 0.02
Carbon Tetrachloride	≤ 0.02 mg/L	< 0.002	< 0.002	< 0.002
1,2-Dichloroethane	≤ 0.04 mg/L	< 0.004	< 0.004	< 0.004
1,1-Dichloroethylene	≤ 1 mg/L	< 0.02	< 0.02	< 0.02
Cis-1,2-Dichloroethylene	≤ 0.4 mg/L	< 0.04	< 0.04	< 0.04
1,1,1-Trichloroethane	≤ 3 mg/L	< 0.3	< 0.3	< 0.3
1,1,2-Trichloroethane	≤ 0.06 mg/L	< 0.006	< 0.006	< 0.006
1,3-Dichloropropene	≤ 0.02 mg/L	< 0.002	< 0.002	< 0.002
Benzene	≤ 0.1 mg/L	< 0.01	< 0.01	< 0.01
Selenium	≤ 0.1 mg/L	< 0.01	< 0.01	< 0.01
Boron	≤ 10 mg/L	< 0.1	< 0.1	< 0.1
Fluorine	≤ 8 mg/L	< 0.5	< 0.5	< 0.5
1,4-Dioxane	≤ 0.5 mg/L	< 0.05	< 0.05	< 0.05
Total Chromium	≤ 2 mg/L	< 0.2	< 0.2	< 0.2
Copper	≤ 3 mg/L	0.01	0.02	0.02
Zinc	≤ 2 mg/L	< 0.2	< 0.2	< 0.2
Phenols	≤ 5 mg/L	< 0.5	< 0.5	< 0.5
Soluble iron	≤ 10 mg/L	< 0.05	< 0.05	0.06
Soluble manganese	≤ 10 mg/L	< 0.05	< 0.05	< 0.05
Biochemical Oxygen Demand	< 600 mg/L	200	180	71
Suspended solids	< 600 mg/L	85	110	84
N-hexane extractants	≤ 30 mg/L	6	37	5
Nitrogen	< 120 mg/L	160	97	36
Phosphorus	< 16 mg/L	7.6	6.8	2.4
Hydrogen Ion Concentration (pH)	5.0 < <9.0	7.3	7.5	7.3

Impact on the public sewage system due to nitrogen exceeding the standard value: High concentrations of nitrogen will reduce the treatment function of the Water Reclamation Center.

(No obligation to report the exceedance of standard values.)

## (8) Chemical Matters



At this university, in accordance with the “Chemical Management Manual from National University Corporation Ochanomizu University”, all chemical agents are properly managed from purchase to disposal, based on the chemical management support system IASO R6, which was created by Kanto Chemical Co., Inc. and Tohoku Ryokka Kankyohozen Co., Inc.

At the IASO lecture, which is held once a year, the following is addressed: how to use the system; each relevant regulation and law, such as the Fire Service Law, the Industrial Safety and Health Law, the Chemical Management Law (PRTR, MSDS etc.); the attachment of barcode labels and their actual practical uses such as in the disposal of chemicals.



## (9) Hazardous Substances



### Asbestos

The University conducts surveys to determine whether or not building materials contain asbestos when they are being renovated or demolished. If the building materials do contain asbestos, they are removed and appropriately disposed of based on the relevant laws and regulations. In FY2022, as shown in the table on the right, a total of 6 cubic meters of building materials which contain asbestos were removed and disposed of in total.

Table The Removal and Disposal of Asbestos in FY2022

Building	Type of Construction	Area of Construction	Asbestos Level	Amounts of Asbestos Removed
Faculty of Letters, Arts and Education Building No. 1	Renovation	Floor	Level 3 (floor tiles)	2.4 m <sup>3</sup>
Faculty of Letters, Arts and Education Building No. 1	Renovation	Stairwell/ Wall/Ceiling	Level 3 (Painted sprayed material)	1.0 m <sup>3</sup>
Faculty of Letters, Arts and Education Building No. 1	Renovation	Heat insulator	Level 3 (Pipe heat insulators)	2.0 m <sup>3</sup>

### High-Pressure Gasses

The Committee of High-Pressure Gas Hazard Prevention plans and holds a lecture to teach faculty and students who will be in charge how to handle high-pressure gasses safely and the relevant regulations to prevent hazards. Inert gasses such as nitrogen and argon are managed in each laboratory by registering them with IASO. Combustible gasses such as hydrogen and oxygen are managed throughout the entire building.



### Hazardous Materials

The University notifies the fire department about chemicals which are classified as “hazardous materials” or “small quantity hazardous materials” under the Fire Service Law and stores them in the designated “storage and handling area”. The type and characteristics of the chemicals (e.g., fire prohibited, water prohibited) are clearly indicated on the building where the chemicals are stored, and the laboratory doors are clearly marked with a contact number in case of an emergency.

Users is certified hazardous material handlers (Class A) and renew their certification as prescribed.



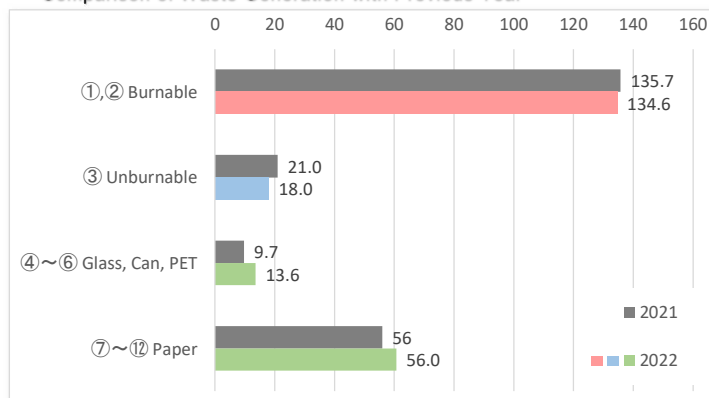
## (10) Disposal

We thoroughly enforce separate collection of waste to promote waste reduction and recycling, and disseminate this information to students through the Campus Guide (student handbook). In addition, in accordance with the "Bunkyo-ku Waste Disposal and Reuse Ordinance," we have prepared a "Reuse Plan for Large-Scale Buildings for Business Use" and have set a target of 1% reduction in waste emissions from the previous year.

In FY 2022, the Otsuka 1 complex generated approximately 23% of its waste compared to the previous year. This was mainly due to a 99.5-ton decrease in scrap metal emissions compared to the previous year. Until the previous fiscal year, iron materials and electric cables removed during construction (see photo below left) were collected on the university's premises and sold to recycling companies. However the scrap metal generated during the large-scale renovation work (renovation phase I of Building 1, Faculty of Humanities and Education) was sold off by the contractor to reduce

construction costs. The amount of emissions other than metal scraps was almost the same as the previous year.

Comparison of Waste Generation with Previous Year



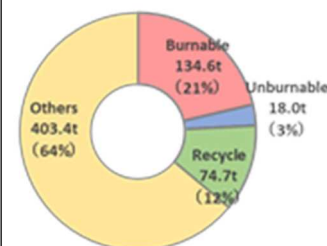
Recycling of Metal Materials



Recycling of Electric Cables and Copper Wires

Table List of Amounts of Waste Generated in 2022

No.	Type of waste	Subject	Type of disposal	Amount of emission in 2022 (t)
1	Compost waste	Food wastes, used tea leaves, etc.	Burnable	12.0
2	Paper	Fallen leaves, disposable chopsticks, etc.	Burnable	122.6
3	Plastic	Food packages, cup noodles cup, cling film	Unburnable	18.0
4	Glass	Drink bottles (glass)	Recycle	1.9
5	Can	Drink cans (aluminum, steel), canning	Recycle	4.3
6	PET	Plastic bottles for drink	Recycle	7.4
7	Used paper (OA paper)	Copier paper, OA paper, etc.	Recycle	2.0
8	Used paper (Confidential document)	Confidential documents	Recycle	11.0
9	Used paper (Magazine)	Magazines, pamphlets, colored paper	Recycle	31.3
10	Used paper (Newspaper)	Newspaper, flyer	Recycle	1.4
11	Used paper (Cardboard)	Cardboard	Recycle	10.8
12	Used paper (Mixed paper)	Shredder scrap	Recycle	4.2
13	Recycling electrical appliance	Electrical appliance	Recycle	0.4
14	Scrap metal	Scrap metal, metal product	Others	110.7
15	Wood	Wood chips, wooden product	Others	14.3
16	Other mixed waste	Waste plastic, metal, etc.	Others	278.4



## (11) Other

### Environmentally Conscious Contract

Based on the "Law Concerning the Promotion of Procurement of Eco-Friendly Goods by Nations", Ochanomizu University formulates and announces the "Policy for the Promotion of Procurement of Eco-Friendly Goods" every year and the procurement of eco-friendly goods by following this policy is promoted. The table below shows the status of specified procurement items for FY2022. The policy goals were achieved for all items.

Table Status of Specified Procurement Items for FY2022

Type	Item	Total Amount Procured	Amount Specified for Items	Rate of Procurement
Paper	Copy paper	18,144.5kg	18,144.5kg	100%
Stationery	Office supplies, OA supplies	65,501 items	65,501 items	100%
Office Furniture	Chairs, desks, fixtures	1,990 items	1,990 items	100%
Imaging Equipment	Copy machines, ink cartridges	1,536 items	1,536 items	100%
Computers	Computers	1,132 items	1,132 items	100%
Office Equipment	Shredders, cell batteries	2,456 items	2,456 items	100%
Mobile Phones	Mobile phones	19 items	19 items	100%
Electrical Appliances	Refrigerators, microwaves	30 items	30 items	100%
Air Conditioners	Air conditioners	7 items	7 items	100%
Lights	Fluorescent lights	747 items	747 items	100%
Interior and Bedding Equipment	Curtains, duvets	80 items	80 items	100%
Work Gloves	Work gloves	67 items	67 items	100%
Other Textile Goods	Pipe tents, mops	775 items	775 items	100%
Systems	Online meeting systems	75 cases	75 cases	100%
Disaster Reserves	Drinking water for disaster reserves	1,462 items	1,462 items	100%
Procurement-Related Labor	Printing, cleaning, delivering	49,832 cases	49,832 cases	100%
Garbage Bags	Garbage bags	226 bags	226 bags	100%

### Tree Management

In order to prevent dead branches from falling and to keep the campus environment safe, trees on campus are pruned regularly. In particular, trees along the perimeter of the campus are scheduled for pruning in relatively short cycles as there is a possibility of causing problems for neighboring residents. In addition, after stormy weather such as typhoons and heavy rain, there is a high risk of fallen trees and broken branches. The campus is patrolled by staff who prune and remove such hazards as soon as possible.

#### 【Tree Management during FY2022】

In FY 2022, we focused on pruning trees around the perimeters of the main traffic lines on the premises, as shown in the figure on the right.





## (1) Campus Activities

### Environment Beautification

Ochanomizu University has a nice green environment with ginkgo trees, cherry blossoms, hydrangeas, and azaleas, which remind us of the four seasons. When typhoons or natural disasters occur, many branches and leaves fall to the ground. Afterward, staff and contractors clean up our green spaces. Also, there are some harmful insects, so staff and contractors deal with them to keep the campus clean and safe.



Hydrangeas



Bicycle parking area

There are bicycle parking areas on campus. Only those who have a permit can park there. Staff check the parking area and if they find a bicycle without a permit, they inform the owner about the rule. If the owner ignores the caution, their bicycle is sold for reuse.

At the garbage station, garbage generated on campus is separated into cardboard, plastic, used paper, burnable trash, cans, PET bottles, batteries, and fluorescent light bulbs and picked up by contractors. Large items that are no longer needed but can still be used, such as computers and other electronic equipment, are consolidated in one warehouse and picked up by a contractor to generate revenue for the university. Regardless of size or content, usable items are given to those who wish to use them through the university's "recycling bulletin board".



Garbage station



Industrial waste storage

## (2) Attached Schools



### Affiliated Kindergarten: Activities to Protect the Environment

Before the second term, with the help of contractors, the kindergarten's garden and playground are weeded. An alumni organization called Chigusa-Kai used to support these activities, but it no longer exists. We leave some weeds in a specific area so that the children can also enjoy nature.

We ask parents to do some volunteer work to clean around the school facilities, including the roof. If the area is clean, the children can play more comfortably. Also, we hope that children can learn the importance of the environment by watching the adults' actions.



### (3) Students' Environmental Activities



#### School Festival

Every year, we hold a school festival in November called "Kiin-sai". The Festival Executive Committee, which is mainly composed of university students, asks festival-goers to separate garbage thoroughly, to use "eco-friendly containers", and to use "disposable chopsticks made from thinned wood", in order to make the festival eco-friendly.



Separation of garbage



Renewable bento container

#### Student Projects

##### ■Sign project

This project aims to promote correct separation of garbage. It is planned and put into action by volunteer students. They design new labels to prompt the correct separation of garbage and they introduce recycling boxes to encourage the reuse of used paper.



Garbage sorting display

Paper collection box

##### ■Taking part in the Bunkyo Eco Recycle Fair



The Environmental Science Club, a student club at the university, has participated in the Bunkyo Eco Recycle Fair since 2006. The Bunkyo Eco Recycle Fair is held by Bunkyo Ward, Tokyo. At this event, people introduce ideas for reducing waste at home, as well as environmental and 3R-related topics. The club introduces "science experiments which can be done with household materials" every year. In 2021, the club exhibited a "Molecular Model with Beads", a "Bean Pistol with Straw and Tissue", and "Paper Cups that Draw Near When You Blow on Them".

##### ■Reusing second-hand textbooks

STUDY FOR TWO (Ochanomizu University branch) started its activities in 2012. The group collects donations of textbooks and books no longer used after graduation and resells them for about half the normal price. Of the profits 80% are used for educational support for children in Laos and Bangladesh. Textbooks that are no longer needed are collected in 7 boxes on campus and a school dormitory, and sold in early April and October every year as second-hand textbooks.



Donation of unnecessary textbooks

Sale of used textbooks

##### ■Protection Activities



A team from the university takes part in a project to protect rows of Diego trees in the Amami Islands. This project was established by a company called "Kikaze", which takes care of the Diego trees. The company's activities meet the concept of the SDGs. It promotes regional revitalization by developing a product which uses the oil from the trees and the profits are used for the trees' protection. Students participating in this project study the extraction of the oil. We have been working with Kikaze since 2021, and in 2022, master's students visited Amami Island from March 14<sup>th</sup> to 17<sup>th</sup>, and successfully got some leaves and oil from the trees.



## (1) University Commission

### Endowed courses by The Mitsubishi UFJ Environment Foundation

Endowed courses by The Mitsubishi UFJ Environment Foundation started in 1994. The aim of these courses is to cultivate a basic understanding of environmental issues for future generations, taking into consideration that environmental education and study in Japan is far behind that of western countries. This course has been held in many national, public, and private universities. In 2021, The Mitsubishi UFJ Environment Foundation started to provide environmental courses at Ochanomizu University, and they are scheduled to be offered until 2023.

We have a special educational course called, “Liberal Arts of the 21<sup>st</sup> Century” for B1-2 students. It provides a cross-disciplinary perspective, teaching problem-solving skills and logical thinking. The course is affiliated with integrated themes from both the arts and sciences, consisting of a combination of subjects presented via lectures, discussions, presentations, experiments, and exercises.

One of these themes is “Life and the Environment”. Students living in the 21<sup>st</sup> century need to comprehend their relationship to nature and develop a new style in order to coexist. To use environmental education to empower students to achieve SDGs, The Mitsubishi UFJ Environment Foundation established a new course, “Environment from the perspective of ‘*seikatsu-sha*’” based on the theme of “Life and Environment”. These are the courses endowed by The Mitsubishi UFJ Environment Foundation in 2022:

1. Liberal Arts Life and the Environment 7 “Human Life and the Environment”  
 Prof. Toyohiko Nakakubo (Department of Human Life and Environmental Science,  
 Human-Environmental Science)  
 Prof. Yoko Fujiwara (Department of Human Life and Environmental Science, Nutrition and Food  
 Science)

The Fifth Basic Environment Plan by the Ministry of the Environment (April 2018 ~) promotes the policy objectives that materialize a CIRCULAR and ECOLOGICAL ECONOMY. Based on its objectives, this course treats “food environment and organic matter circulation” and “developing a safe water environment”. It provides the students skills to think and act by themselves through studying quantitative evaluation and efforts for social implementation.

We need to develop a tough community corresponding to frequent natural disasters and also big natural disasters such as the Nankai trough earthquake and the Tokyo island earthquake. Indeed, developing a tough, forward-thinking community became a priority in the field of living environment studies after the Great Eastern Japan earthquake. This course uses a critical thinking and frank discussion approach to treat the subject of “natural disasters and a living environment”.

In addition to the 13 lectures of this course, we provide an Active Learning Hour (ALH). Students visit, and later discuss, job sites of businesses that are undertaking advanced environmental practices. This provides students the valuable experience of learning how to operate public infrastructure and services to cope with changes in social structure and the environment.

## 2. Liberal Arts life and the Environment 10 “Environmental Problems and Society”

Prof. Naoko Hasegawa (Department of Letters and Education, Liberal Arts and Humanities, Geography)

Prof. Masao Kotani (Department of Human Life and Environmental Science, Human Life Studies, Human Life and Society)

Prof. Yoshihito Mori (Department of Science, Chemistry)

Our society relies on various areas of scientific knowledge. In other words, we live in a highly scientific society in which we benefit from scientific and technological achievements, making them, to a certain extent, common property. Therefore, some scientific problems may not be especially specific to certain experts, but are indeed close to every citizen. In particular, the problem of our changing environment presents a great need for scientific knowledge. Unfortunately, however, our current knowledge is insufficient. Nevertheless, we must organize ourselves as a society, even without sufficient knowledge.

Thus, the aim of this course is not to learn about the fragmented knowledge of current environmental issues. Each problem is just a single case out of many. The true aim of this course is to provide students the opportunity to learn about the uncertainty of science with regard to environmental problems, relations between science and society, the structure of conflicts of interest that arise from environment-related issues, and social decision-making concerning science and technology. Learning from this perspective will also help students to understand the main social framework of environmental problems and will provide every student with the opportunity to consider how to create one voice for environmental issues, which are not yet scientifically understood.

This course has three parts: A review of what will be and what was learnt in the course (the beginning and the end of the course), studying about global warming and climate change focusing on specific environmental problems, and learning about and practicing assembly, which is one way of discussing complex problems.

This course is a lecture format, but there will be time for students to think about their own ideas or discuss the course contents with each other, so that they can build a foundation upon which to think and act on their own when they enter society.



## 3. Liberal Arts Fusion of Arts and Sciences Life and Environment, Series 23:

### “Marine Environment and Biodiversity”

Professor Masato Kiyomoto (Faculty of Science, Department of Biology, Gulf Coast Institute for Biological Education)

Professor Satoshi Washida (Faculty of Science, Department of Biology)

In this training course, students experience the marine environment and get in touch with marine creatures through fieldwork both on land during low tide and offshore. For example, sea urchins, sea fans, and turban shells found on the beach may have been born far away and washed up here on the Japanese coast. The goal of this course is to understand the process of maintaining marine communities throughout their dynamic life histories, which naturally make good use of the marine environment. As each student finds various marine creatures, we will encourage them to consider the creatures' evolutionary phylogenetic relationships. We will also examine the processes that led to the current state of the oceans from the perspective of Earth's long

history. Furthermore, based on the development of students' understanding of the marine environment through experience, we will consider the impact of human activities on the oceans. The characteristics of chemically stable seawater and ocean acidification due to increased carbon dioxide will be examined, and the effects of ocean pollution on organisms will be studied using sea urchin embryos and larvae. We aim to examine environmental issues more deeply and accurately from a bio-scientific perspective, based on the dynamic processes that maintain our current ecosystems while also considering the historical processes that have led to current environmental issues.



Observation and Collection of Coastal Organisms During Low Tide



Identifying Collected Organisms in a Picture Book



Observing Sea Urchin Fertilization and Development

### Ochanomizu University's Version of the Climate Citizens Conference (not an endowed course) To Reduce Ochanomizu University's CO<sub>2</sub> Emissions

In February 2023, a Climate Citizens Conference was held for all students of Ochanomizu University to discuss environmental issues at the university. The university recognizes the urgent need to work on global solidarity solutions to various environmental issues and aims to "build a safe and secure campus that takes the global environment into consideration". We also consider it important to play a social role in the realization of a sustainable society, and through our daily educational, research, and other activities, we strive to help individuals develop into people who are aware of the environmental issues facing modern society and have the ability to contribute to solving them. Specifically, we have established the following issues to focus on: energy conservation recommendations, effective use of resources, prevention of hazardous substance leakage, promotion of environmental activities and development of environmental human resources, accountability to society and information dissemination, and we will continue to work toward carbon neutrality by reducing CO<sub>2</sub> emissions and contributing to environmental improvements in the region. We would like to establish an environmental management organizational structure within the university and activate projects utilizing the SDGs Promotion Institute and the Gulf Coast Institute for Bioeducation under the Sustainable Society Implementation Organization, which was established in FY 2022.

One of the most unique features of this university is that all of its affiliated schools, from kindergarten through high school, are located on the same campus in Tokyo as the university. By holding meetings together with students from the affiliated schools, we can exchange opinions with a wide range of age groups, even though we are all students attending school on the same campus. In recent years, there has been a growing interest in environmental issues, with a noticeable increase in awareness among different generations, and by discussing a single issue with these generations, it will be possible to have a multifaceted discussion that is more in line with the actual situation. Also, in making recommendations and implementing them and by working together from early childhood to university, we can expect to make significant changes and influence a wider range of stakeholders. By proposing initiatives from the perspective of students who actually put them to use at their own educational institutions, we hope to not only initiate strategies from new perspectives, but also to improve the environmental situation in a bottom-up manner.

Based on the above ideas, an Ochanomizu University version of the Climate Citizen's Conference Steering Committee of student volunteers was organized in October 2022, and through weekly two-hour

discussions, the committee prepared for the Climate Citizen's Conference. Preparation included finding ways to recruit other students, establishing topics to be discussed, and gathering information necessary for the discussions. The Climate Citizens Conference was held on February 9, 2023, from 10:00 to 18:00. In addition to the 8 steering committee members, 26 students participated in the conference. Each group engaged in discussions based on presentations by guest lecturers and talks by environmental committees of other universities. In the end, we compiled recommendations on what we could do in each of the five themes of choosing electricity, using electricity, water, food, and plants, and submitted them to Director Kato at the end of the meeting.



Group Photo



Group Discussion



Presentation



Lecture by Chiba University Guest



Submission of Proposals

## (2) Initiatives at Affiliated Schools



### Affiliated Kindergarten: Introduction of Environmental Experiences

#### Thinking about the Environment Based on the Fruit of the School garden -3-

There are several kinds of fruit trees in the kindergarten yard. In the Environmental Report for FY 2021, we introduced bamboo shoots, Japanese plum seeds, and Shiba. For the FY 2022 report, summer tangerines were introduced, and in this report, we introduce the relationship between the children and the loquat on the “small mountain”.

#### 1. The “Small Mountain”

Our kindergarten is very blessed with nature. We have a garden where children can play right outside the school yard and a “small mountain” where various activities are developed daily by the children as they play in the garden with its different elevations.

To climb or descend the “small mountain”, visitors can take a circular stairway with a gentle slope, three other stairways, or a stone slide. It is left to each child to choose which path to take, when she or he wants to visit the “small mountain.” This includes the important element of deciding and choosing according to their purpose. In addition, the size and texture of each step on every staircase is different from the others. When the garden was planned, this designed was decided upon with the hope that children would develop a sense of physical balance by trying to match their stride to each step.



The natural environment of our kindergarten is, of course, determined by the original geographical advantages of the site, but knowing and thinking about the meaning behind the selection of this site and its design in the context of a large university can change the way children perceive their feelings and the way they play. This is where we can find the the significant importance of education through the environment.

#### 2. Loquat Picking

Currently, at the entrance to the “small mountain” there is a loquat tree. For at least 30 years now, the loquat trees have been bearing fruit, and every year we have seen children interacting with the fruit. It is amazing to see green loquats suddenly appearing one day. Children climb up and shake the trees to get loquats, and by the time the fruits ripen, there are only a few left, or crows have eaten them while children were waiting to get them, saying, “Do we need to wait a little longer?”



This year we had a rare bumper crop. The children knew that even if they picked some fruit while it was still green, the tree would still produce more and the fruit would become more delicious as it changed color. In response to the children's desire to eat as many loquats as possible before the crows took them, the teachers suggested a tool that they had used before for something different: They could pull a rope around a tall branch and pull it down with their hands, or they could use a bamboo stick with a loop of wire attached to the end to pluck the fruit. The children had learned that the loquats would be crushed if they fell to the ground, so a large sheet was spread out to catch them. Children filled various roles, such as cheering, holding the sheets, handling tools, giving directions, etc., with the desire to "get it", "eat it", and "have them eat it".

The experience of harvesting with ingenuity and hard work, the joy of tasting something together with others, and the pleasure of serving and being served, became ingrained in each child's feelings and body, and they learned to lead life together at the kindergarten.

Although the natural environment is always there, we would like to continue to think carefully about it from the viewpoint of the significance and relationships that exist there.



## (2) Initiatives at Affiliated Schools

### Affiliated Elementary School: Introduction of Environmental Experiences

#### Fourth Year *Tetsugaku* Creation Activity "SDGs"

SDGs NEWS 2023/1/25

#### Microplastics

We collected microplastics at the beach of Odaiba. Let's think about the garbage problem in the ocean.

#### 【What are microplastics?】

Microplastics are tiny plastics which are less than 5mm. Waste plastics reach the ocean from the river because they are blown away by rain and wind, and thrown away carelessly. The plastics are exposed to waves, sand, and strong ultraviolet rays. They can't be disassembled naturally, so they remain as small pieces of plastic and become marine debris.

#### 【What can we do?】

Some people throw away used plastic bottles in the nature such as mountains and oceans. If you always bring your own bottles, you can drink what you really like. Don't use plastic bottles and pour water to your bottles from water server connected to the water supply directly! Let's make our lifestyles eco-friendly!

#### Collected Microplastics at the Beach of Odaiba!

We went to the beach of Odaiba. The beach was beautiful at first sight, but we found that garbage like microplastics was mixed in the sand.

There was also garbage right near the edge of the surf. Sand, stones, and shells sink, while plastic floats on the water.

#### What Are Microplastics?

Microplastics are waste plastics which become tiny because of waves and ultraviolet rays. They also include microbeads contained in products like toothpaste and chemical fibers from frayed clothing. They are about 5 mm in size but cannot degrade completely. Therefore, they flow with the ocean currents, gather, and create huge piles of trash all over the world.

#### What did we prepare?

- tweezers (1 pair per person)
- dustpan (1)
- plastic bags (4)
- deep trays (3)
- Colander (mesh size of 5 mm or smaller; 1)
- work gloves (1 pair per person)
- tongs

#### How did we collect the microplastic?

1. Dug a 25 cm square of sand with the dustpan
2. Put the sand in the colander and sifted it
3. Put the contents of the colander into the seawater in a tray
4. Took whatever floated on the sea water, like plastics and twigs (because sand and stones sink)

Done!!

#### What did we find?

There were more microplastics on the beach than we had expected. We also found waste plastic, which was much bigger than 5 mm. Let us try to reduce the amount of garbage.



### Fifth Year “Tetsugaku Creation Activity” Environmental Project

We participated in the “Tetsugaku Creation Activity” Environmental Project for one year under the theme “Make our surroundings better!” We helped the students learn about international efforts and the current situation of Japan regarding environmental problems through an exhibition about the SDGs at JICA Chikyu Hiroba. Together, we put handmade boxes for recycling in each room, and quizzed the children on topics like waste disposal and eco-friendly planes and cars. We invited five people from the Clean Authority of TOKYO to the school and discussed what we learned with one another.



### Sixth Year Art Class “Dream Project”

The “Dream Project” is an activity during which the students express their ideas for an ideal future society (schools, cities... etc.). This year, we found that they tended to focus on saving nature in ways like decarbonization more than on advances in technology like science fiction. This was different from what they used to choose.



## Affiliated Junior High School: Introduction of Environmental Classes

First Year: Japanese Language (October 2022)

Reading *The Phantom Fish Was Alive*, by Tetsuji Nakabou

We had a class where we read *The Phantom Fish Was Alive*, by Tetsuji Nakabou, and summarized the story in a leaflet format. In this book, the author writes about the extinction of the *kunimasu*, a type of fish that inhabited Lake Tazawa in Akita Prefecture, and the story in which *kunimasu* was found in Lake Nishi in Yamanashi Prefecture. He also focused on initiatives to revive the *kunimasu* in Lake Tazawa. We set the following learning tasks: summarize the book and make a leaflet aiming at helping many people get to know *kunimasu* and think about the environment. This class also aimed to put the leaflets at Kunimasu Trout Museum (a museum for the protection and revival of *kunimasu* near Lake Tazawa).

By reading this material, students came to know that *kunimasu* became extinct due to environmental modifications, which put water from the Tamagawa River into Lake Tazawa to increase

food production - a measure to mitigate the extremely poor harvest in 1934, that one fisherman's desire moved people near Lake Tazawa and caused a movement to find *kunimasu* in implantation sites, that the searchers later discovered an individual fish that had characteristics of *kunimasu* among the *himemasu* inhabiting Lake Nishi, and how researchers investigated to confirm that it was actually *kunimasu*. Through understanding and organizing the contents of such learning material, the students grasped the impact of environmental modification for all life, and learned that it was not easy to improve the environment but that it needed time and effort even though *kunimasu* was rediscovered in Lake Nishi. Based on their learning, they edited their leaflets to incorporate their new knowledge.

We chose about thirty leaflets from among those from the entire year, and sent them to the Tazawako Kunimasu Trout Museum, explaining about this initiative. All of the students' leaflets we sent were displayed, and museum staff sent some photos of them to us. The photos are shown below.



Second Year: Moral Education (January 2023)

Plastic Waste Problem Considered from the Viewpoint of "Mannequin in the Deep Sea"

This was a practical unit which used beach sands near the Marine and Coastal Research Center with the cooperation of the Institute for the Development and Awareness of Women in Science at our university.

Looking at the Deep-Sea Debris Database (JAMSTEC), we saw that a surprising amount of plastic waste can be found even on the seabed at a depth of more than 6,000 meters. We asked, if there is so much plastic waste in the deep sea, what condition is our local coast in? When we investigated beach sands that looked quite normal with the naked eye, we were surprised that they contained so many microplastics. Later in the

course, we considered the drift routes utilizing knowledge of weather learned in science classes. And then, the teacher presented a photo that captured a surprising aspect of Hawaii, a tourist spot, which is known by almost all Japanese people: plastics accumulated in Camilo Point and animals died from eating too much plastic. When the teacher asked the students, “regarding the plastic waste in this photo, can any of you say that it is irrelevant to you?” The students remained silent.



Deep-sea Debris Database (JAMSTEC):  
<https://www.godac.jamstec.go.jp/catalog/dsdebris/j/>

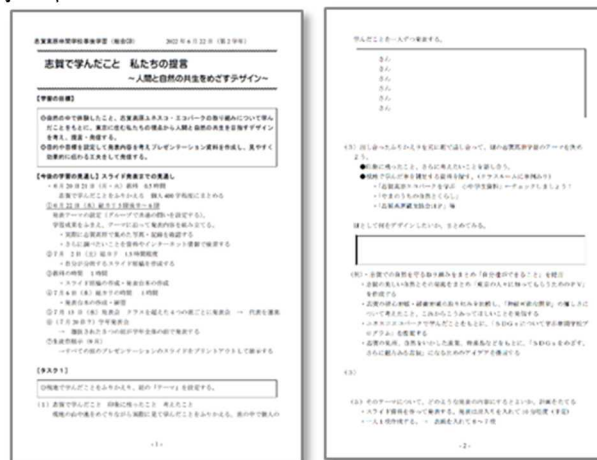
Finally, regarding borderless environmental problems, we had time to consider and share about what we should value and how we should live in the future.

**Comprehensive Second-Year Curriculum (May to July 2022)**  
**Comprehensive Learning Connected to Overnight Stay Initiatives: “Preserving and Making Use of the Natural Environment”**

In our school, outdoors school in Shiga Kogen National Park, which is one of the UNESCO Biosphere Reserves, takes place as overnight stay for second-year students. As the initiatives of comprehensive learning classes, we conducted a series of activities aimed at the following:

- (1) Thinking about and imagining a design that aims for the coexistence of humans and nature
- (2) Creating and giving a presentation about your

ideas  
 This curriculum segment is based on lessons from a previous semester (third semester of first year).



During previous lessons at the outdoor school, some students attended an online lecture by a guide of Shiga Kogen National Park, and the students in charge researched each theme and presented it in front of students of the same year. On the day of the outdoor school, the students experienced the initiatives, changing their sense of purposes little by little: experience, feel, and think about the greatness of nature. Subsequently, they made the presentation appealing to others to preserve and utilize the natural environment of Shiga Kogen National Park and they also presented the good points about caring for the region. The students then took turns presenting their projects to each other.

As a result, ideas utilizing digital technology, like SNS (Social Networking Service) and VR (Virtual Reality), were developed as part of the students’ designs aiming at the coexistence of humans and nature. These were in addition to ideas which focused on local experiences, such as workshops, and plan for local production for consumption. Moreover, as these were creative presentations partly based on previous learning, some students made catchphrases in the form of skits. They expanded their perspectives through the initiatives of the previous year. This can be regarded as an effect of subject leanings such as Japanese language and the cooperation of students.



### Second Year Mandatory Class: Japanese History

Students learned about the Japanese assimilation policy for the Ainu people, and they considered what transformations of their own lifestyles and culture influence the environment.

From the Ashio Copper Mine pollution incident, students learned what environmental issues occur during the process of modernization.

Students learned about four major lawsuits, which pertained to pollution-related diseases, that began during a period of great economic growth. They thought about why these lawsuits started at that time even though the illnesses all began at different times. Additionally, students thought about why it took so long for the Basic Act for the Environment to be enacted, learned about the history of development and the environment, and then considered how to address the issues that remain.

### Second Year Required Subject: Research I Global Environmental Science

Students decided on a study topic by using keywords such as global warming, air pollution, resource energy, and climate, and they researched that topic. These are examples of the topics chosen in FY 2022.

“Sustainable Energy Production on a Regional Basis” (Participated in the SSH Designated Girls’ High School Presentation in 2022)

“Reducing Waste in the 23 Wards of Tokyo by Charging for Garbage Bags” (Excellent!!: Open Governance Semi-finalist sponsored by University Tokyo, 2022)

“The Real Situation of Fibrous Microplastics” (Excellence Award in SSH Designated Girls’ High School Presentation, 2022)

### Second Year Mandatory Class: Home Economics

Students learned, experienced, and shared ethical consumption. Such class activities have been ongoing since 2011.

Second-year students visited the first-year students of Ochanomizu Junior High School and give a lecture on ethical consumption every year.

### Third Year Optional Class: Geography B

On a global level, students thought about environmental issues and the relationship among those issues with regard to natural resources and energy, population, and food.

### Third Year Optional Class: History B

When students studied the formation of the Japanese archipelago and the beginning of rice cultivation, they learned that changes in terrain and food resources due to climate change had a significant impact. They learned to think from the perspective of people’s lives in relation to the natural environment.

Students watched part of “*Isejingu Mori kara umareta inori*” (Kinokuniya Syoten), learned the relationship between the cutting down of shrine forests and many floods in the early modern period, and considered the relationship between nature worship and religious norms and environmental conservation.

Students learned there were many famines due to damage from cold weather and extreme weather in the Middle Ages, a period known as the Little Ice Age, and they considered the effects that these had on society and political power.

Students learned that in the Edo era (the Middle Ages), city planning to reduce damage from large fires and lifestyles that reduce garbage were established by taking advantage of cities’ relationships with nearby rural areas. The students considered the factors that support the establishment of sustainable lifestyles.

### First to Third Year Mandatory Class: Home Economics

In cooking class, students used 100% biodegradable eco-friendly detergent, microplastic-free cellulose sponges, and composting for food waste disposal. They endeavored to use eco-friendly cooking methods that minimize wastewater contamination, minimize food loss as much as possible, and use energy-efficient cooking methods.

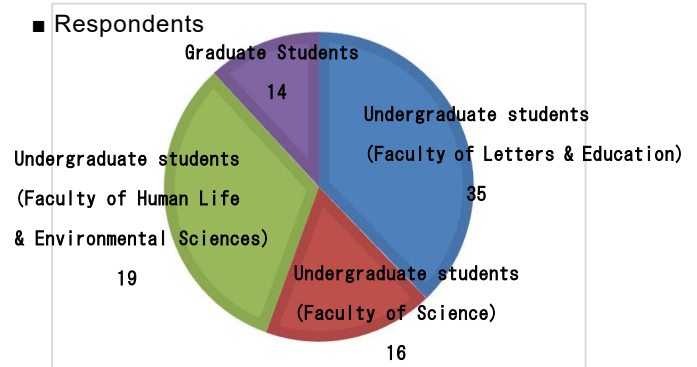
## (1) Compliance with Environmental Regulations

Laws and Regulations	Regulations of the University	University System	Compliance with Laws, Regulations, etc.
[Environment] <ul style="list-style-type: none"> <li>■Environmental Basic Law</li> <li>■Environmental Consideration Promotion Act</li> <li>■Environmental Contract Act</li> <li>■Green Purchasing Law</li> <li>■Environmental Education Promotion Act</li> </ul>		Finance Section Facility Section	○
[Measures Against Global Warming and Energy Saving] <ul style="list-style-type: none"> <li>■Law Concerning the Promotion of Measures to Cope with Global Warming</li> <li>■Law Concerning the Rational Use of Energy</li> <li>■Law Concerning the Control of Freon Emissions</li> </ul>	Campus Master Plan Energy Management Standard	Energy Conservation Promotion System Facility Section	○
[Water Quality and Soil] <ul style="list-style-type: none"> <li>■Water Pollution Control Law</li> <li>■Sewerage Law</li> <li>■Soil Contamination Countermeasures Law</li> </ul>	Wastewater Management Regulations	Wastewater Management Committee Facilities Division	△ Exceeded effluent standard values (see p. 14)
[Air] <ul style="list-style-type: none"> <li>■Air Pollution Control Law</li> </ul>		Facility Section	○
[Noise, Vibration, and Offensive Odors] <ul style="list-style-type: none"> <li>■Noise Regulation Law</li> <li>■Vibration Regulation Law</li> <li>■Odor Control Law</li> </ul>		Facility Section	○
[Waste and Recycling] <ul style="list-style-type: none"> <li>■Waste Disposal and Public Cleansing Law</li> <li>■PCB Special Measures Law</li> <li>■Various recycling laws</li> </ul>		Planning and Strategy Section (Crisis Management) Finance Section Facility Section	○
[Hazardous Materials and Chemical Substances] <ul style="list-style-type: none"> <li>■Fire Service Act</li> <li>■Poisonous and Deleterious Substances Control Law</li> <li>■Occupational Health and Safety Law</li> <li>■PRTR Law</li> </ul>	Poisonous and Deleterious Substances Control Regulations	Poisonous and Deleterious Substances Control Regulation Planning & Strategy Section (Crisis Management)	○
[Radioactive Material] <ul style="list-style-type: none"> <li>■Law Concerning Prevention of Radiation Hazards Due to Radioactive Isotopes, etc.</li> </ul>	Radiation Hazard Prevention Regulations Regulations on Measurement and Control of Nuclear Fuel Materials	Radiation Control Committee	○
[High Pressure Gas] <ul style="list-style-type: none"> <li>■High Pressure Gas Safety Law</li> </ul>	High Pressure Gas Hazard Prevention Regulations	High Pressure Gas Hazard Prevention Committee Planning & Strategy Section (Crisis Management)	○
[Safety and Health] <ul style="list-style-type: none"> <li>■Labor Standards Law</li> <li>■Labor Safety and Health Law</li> </ul>	Safety and Health Management Regulations Environmental Safety Management Regulations	Safety and Health Committee Environment Safety Management Committee Human Resources and Labor Section	○

## (2) Status of Response to Stakeholders

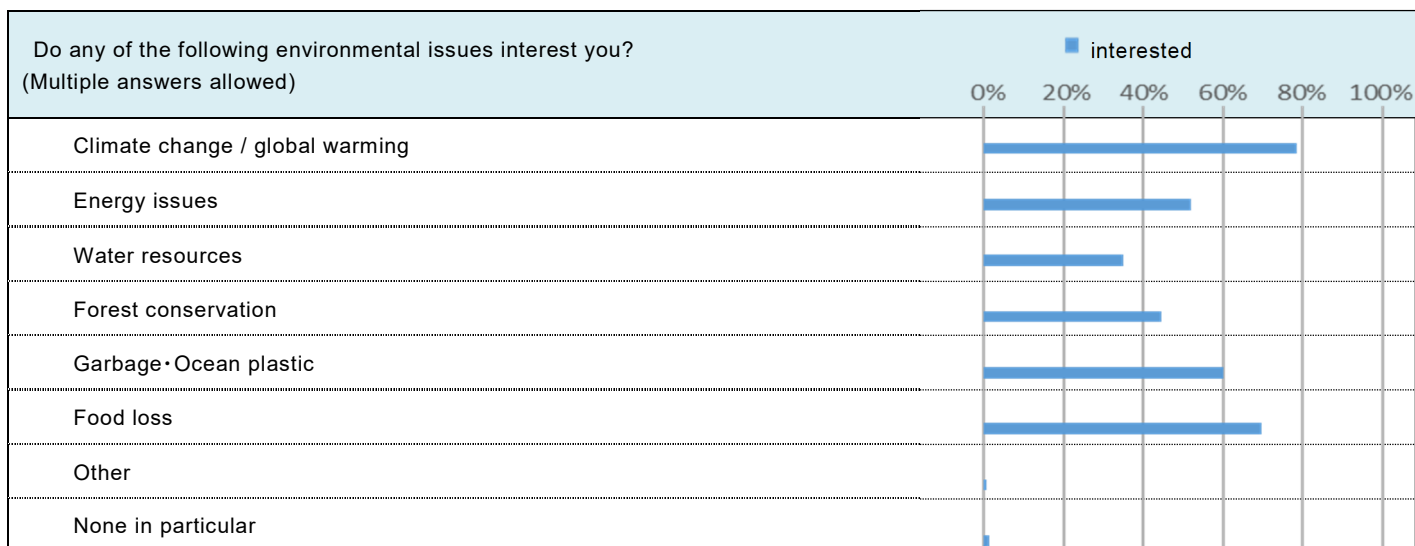
### Environmental Survey for Students

We conducted an environmental questionnaire survey of undergraduate and graduate students in FY 2022.

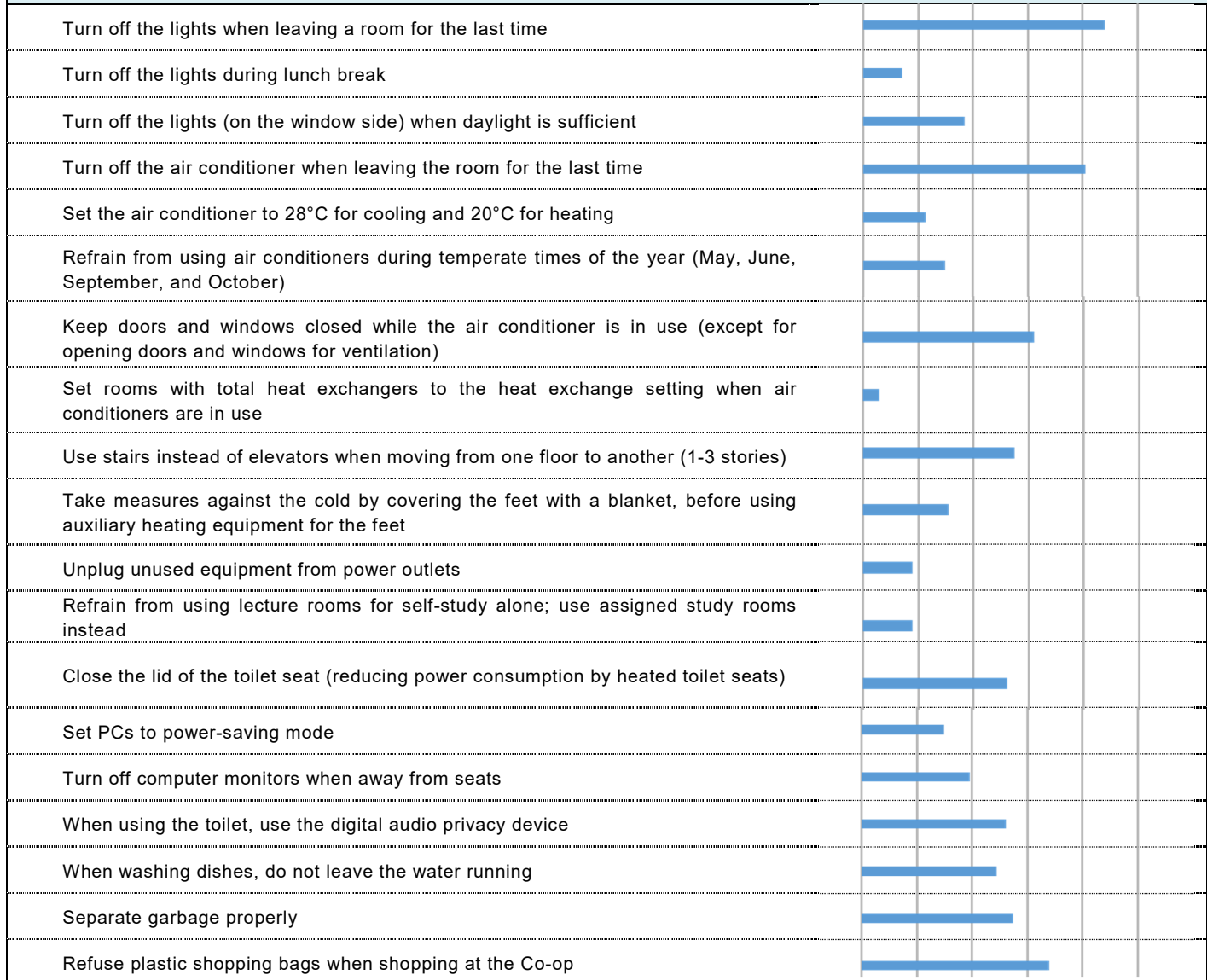


### ■ Survey Results

Survey Questions	Response Rate					
	①	②	③	④	⑤	⑥
	0%	20%	40%	60%	80%	100%
Do you think that environmental issues are urgent problems that we should tackle? 1. yes, very much 2. yes, a little 3. no, not really 4. no, not at all 5. don't know	[Bar chart showing response distribution]					
Do you think environmental problems can be improved through the awareness and actions of each and every one of us? 1. yes, very much 2. yes, a little 3. no, not really 4. no, not at all 5. don't know	[Bar chart showing response distribution]					
Do you think we should take environmentally friendly actions (energy saving, waste reduction, etc.) on a daily basis? 1. yes, very much 2. yes, a little 3. no, not really 4. no, not at all 5. don't know	[Bar chart showing response distribution]					
Are you concerned about environmental issues? 1. yes, very much 2. yes, a little 3. no, not very much 4. no, not at all 5. don't know	[Bar chart showing response distribution]					
Do you talk about environmental issues with your family and friends? 1. yes, often 2. yes, sometimes 3. no, not much 4. no, not at all	[Bar chart showing response distribution]					
Would you be interested in attending a lecture on environmental issues if it were offered? 1. yes, very much 2. yes, a little 3. no, not really 4. no, not at all 5. don't know	[Bar chart showing response distribution]					
Do you want to participate in environmental activities (volunteer work such as picking up trash, etc.) in the community or university where you have already taken a course on the environment? 1. yes very much 2. yes, a little 3. no, not really 4. no, not at all 5. don't know 6. I'm already involved in environmental activities or have been in the past	[Bar chart showing response distribution]					
Are you aware of the SDGs (Sustainable Development Goals) in which you are already or have been involved? 1. yes, very aware 2. yes, a little aware 3. no, not really aware 4. no, not at all aware 5. don't know 6. I'm already involved in SDG activities or have been in the past	[Bar chart showing response distribution]					
Do you think Ochanomizu University is making efforts to save energy? 1. yes, very much 2. yes, a little 3. no, not really 4. no, not at all 5. don't know	[Bar chart showing response distribution]					
Do you think Ochanomizu University is making efforts to save water? 1. yes, very much 2. yes, a little 3. no, not really 4. no, not at all 5. don't know	[Bar chart showing response distribution]					
Do you think Ochanomizu University is making efforts to reduce waste? 1. yes, very much 2. yes, a little 3. no, not really 4. no, not at all 5. don't know	[Bar chart showing response distribution]					
Do you think Ochanomizu University is lush and coexists with nature? 1. yes, very much 2. yes, a little 3. no, not really 4. no, not at all 5. don't know	[Bar chart showing response distribution]					
Do you think Ochanomizu University offers a good variety of lectures on the environment? 1. yes, very much 2. yes, a little 3. no, not really 4. no, not at all 5. don't know	[Bar chart showing response distribution]					



Do you consider environmental issues on a daily basis and do you act on them?  
Do you take any of the following environmental measures on campus?  
(Multiple answers allowed)



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