

ENVIRONMENTAL REPORT

2024

[DIGEST VERSION IN ENGLISH]





Introduction from the President

Realizing an Inclusive Campus



In recent years, in addition to global issues such as climate change, international conflicts, famine, poverty, and infectious diseases, regional issues such as unprecedented difficulties and divisions have surfaced one after another, and the world we live in has become increasingly complex and unstable.

Against this backdrop, the University of Tokyo announced in September 2021 a statement set of guiding principles titled “UTokyo Compass, which sets 20 goals from the three perspectives of “knowledge”, “people”, and “place”. As a comprehensive university serving the global public, the University of Tokyo has made steady progress toward the achievement of these goals to nurture diverse and talented individuals, and to contribute to solutions for various global issues facing humankind. Our participation in the “Race to Zero”, an international campaign aimed at achieving carbon neutrality (net zero greenhouse gas emissions), and our efforts to promote sustainability and GX based on our action plan for this campaign, the “UTokyo Climate Action”, are part of our progress.

We updated UTokyo Compass while continuing our dialogue with the members of the University and various stakeholders in society. In May 2024, we announced UTokyo Compass 2.0, which expands our concrete action plans, including laying of the foundation for autonomous and creative university activities, revising the roadmap to achieve carbon neutrality, and realizing an inclusive campus revolving around the UTokyo Center for Coproduction of Inclusion, Diversity and Equity, which was established in April 2024. The University of Tokyo reaffirms its determination to build a sustainable, diverse and inclusive campus with the cooperation of all our faculty, administrative staff and students.

Our university has multiple campuses, and various educational and research activities surpassing regular faculty operations are conducted in many facilities located on these campuses. The background and characteristics of the respective members and the ways they interact with society are also different. In a university environment with its diverse and dynamic “places”, “things”, “people” and “activities”, each person engaged in educational and research activities must achieve both goals of applying their knowledge maximally and of tackling common issues in cooperation with others from different backgrounds. To ensure a virtuous cycle between the two goals, it is important to develop a rational and sustainable environment that is ready for the risks in each “place”.

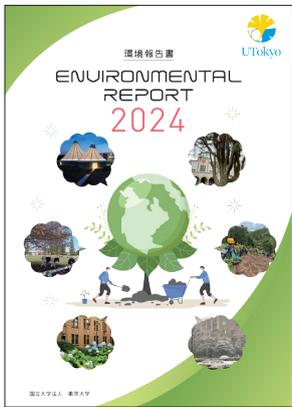
This report introduces the results of various “environmental” activities, including data on the environmental impact of our university, efforts to achieve carbon neutrality and gender equity, as well as multi-faceted diversity initiatives like barrier-free projects, education and research activities of faculty and students that contribute to sustainability, and environmental, health and safety management initiatives that support all of these activities. We hope this report provides a better understanding of our activities toward the realization of an inclusive campus.

Teruo Fujii, President of the University of Tokyo

藤井輝夫

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Words on the Cover Dialogue with the Environment 1



The cover is designed to express the policies of the University of Tokyo as presented in the UTokyo Compass with heartwarming, friendly illustrations of the Earth and speech bubbles in the colors of the four seasons at the University of Tokyo, which befit our environmental report. This concept will be used for three years starting from FY2024.

The University of Tokyo considers “dialogue” to be “the practice of seeking to know”, which is an essential part of the process of realization. Through dialogue, the University continues its efforts to solve global problems and realize a university that everyone in the world would want to join, while collaborating with stakeholders in and outside the University. This publication will continue to report on the results of various “dialogues” the University of Tokyo has with the environment.

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Reporting Scope

(1) Articles, topics, and data on health, safety, and society:

The University of Tokyo as a whole

(2) Data on the university's environmental impact:

The University of Tokyo as a whole

(Data from six campuses – Hongo, Komaba I, Komaba II, Kashiwa I, Kashiwa II, and Shirokanedai – are used for waste data.)

Reporting Period

(1) Articles, topics, etc.:

FY2023 (April 2023 to March 2024)

(2) Data on environmental impact, health, safety, and society:

FY2023 (April 2023 to March 2024)

The graph shows five years' worth of data for comparison.

(The target period of articles published outside the specified period is clearly indicated in each case.)

Editorial Policy (Approach to the Preparation of the Environmental Report 2024)

This report not only present data on the environmental impact of the University of Tokyo, but also introduces the initiatives involving environmental considerations, sustainability, the promotion of GX (Green Transformation), diversity, as well as environmental, safety, and health management. To clearly indicate the relationship between these efforts and the SDGs, icons of closely related SDGs are presented in the articles.

If you click on the URL in the report, you can directly view the details of the article and the websites of the affiliated laboratories, so please utilize this feature. You can use a search engine to search for "The University of Tokyo Environmental Report" or view it on the Environmental Report page on the University of Tokyo's official website.

<https://www.u-tokyo.ac.jp/ja/about/actions/public05.html>

Guidelines: Ministry of the Environment's Environmental Reporting Guidelines (2018 Edition)



The University of Tokyo Environmental Report Working Group

Working Group Members

Takeshi Iimoto (WG Chair, Division for the Environment, Health and Safety), **Takashi Tamura** (GS of Arts and Sciences), **Ichiro Daigo** (RCAST), **Kazuo Tatebayashi** (Institute of Medical Science), **Osamu Miyakawa** (Institute for Cosmic Ray Research), **Hiroko Nansai** (GS of Medicine), **Asuka Namai** (School of Science), **Yasuyuki Sawada** (GS of Economics), **Ei Bannai** (University Hospital), **Hideaki Sakaue** (University Hospital), **Hirohiko Houjou** (Environmental Science Center), **Yusuke Akimoto** (TSCP), **Masanobu Ogihara** (Environmental Group), **Kenji Onoma** (Environmental Group), **Yuki Sato** (Environmental Group), **Shiho Aoki** (GX Promotion Group), **Yu Sato** (GX Promotion Group), **Keitaro Tanoi** (Center for Coproduction of Inclusion, Diversity and Equity), **Kenji Masuda** (Diversity Promotion Group), **Makiko Ishikawa** (Diversity Promotion Group), **Reiko Kuroda** (Division for Environment, Health and Safety), **Masahiro Okura** (Division for Environment, Health and Safety), and **Hiroimi Koike** (Division for Environment, Health and Safety)

The objective of the University of Tokyo Environmental Report Working Group is to: (1) decide on the editorial policies (2) specify the contents and items for disclosure (3) select articles that introduce the university's education and research (4) decide on the design, and (5) conduct the final review and make the final decisions. The Working Group is composed of faculty members representing each faculty/graduate school/research institute, members of the Division for Environment, Health and Safety, staff of the Environmental Group of the Facilities Department, staff of the GX Promotion Group in the Management Planning Department, staff of the UTokyo Center for Coproduction of Inclusion, Diversity and Equity, and others. The contents of the articles were discussed at the Working Group meeting held on May 15.



Online Working Group meeting

Editor (Environment and Safety Group)

Fumie Ogawa, Hiroaki Tsukada, and Yoshiyuki Ieda

Environmental Philosophy and Basic Environmental Policy of the University of Tokyo

The University of Tokyo Charter states that the University of Tokyo will contribute to the coexistence of humanity and nature, the creation of a safe environment, the balanced and sustainable development of various regions, the advancement of science and technology, and the critical inheritance and creation of culture through its education and research. Based on this, the University of Tokyo has established the following “Environmental Philosophy of the University of Tokyo” and “Basic Environmental Policy of the University of Tokyo” in order to clarify specific environmental initiatives.

Environmental Philosophy of the University of Tokyo

Since the beginning of the 21st century, there has been an even stronger demand for society to transform itself from a wasteful system with mass production, mass consumption, and mass disposal of resources to a recycling system that supports sustainable development. In accordance with this major trend and the University of Tokyo Charter, the University of Tokyo, as a world-leading university, is nurturing human resources capable of responding to the demands of society with accumulated knowledge and a global perspective, and is contributing to the formation of a recycling-oriented society through active cooperation with external entities. In this way, we are returning to society the fruits of the education and research achieved through the resources entrusted to us by the Japanese people and society. We disclose the full details of the University of Tokyo’s environmental conservation activities and research activities for environmental improvement, and we aim to build an environmentally friendly campus. In addition, the University seeks to actively transform itself by exposing itself to evaluation by society as an “open university” and will continue to contribute to the creation and global exchange of science, knowledge and culture related to environmental improvement, as well as to the sustainable development of society. To achieve these goals, we continuously conduct our activities in accordance with the Basic Environmental Policy of the University of Tokyo.

Basic Environmental Policy of the University of Tokyo

Education and Research

1. The University of Tokyo shall integrate educational and research activities that leverage its characteristics as a comprehensive university to contribute to the advancement of science and technology related to the environment, and contribute to the development of an environmentally friendly culture.

Social Responsibility of the University

2. All members of the University of Tokyo shall comply with the environmental laws and regulations applicable to university administration and the standards established by the university. Each shall also endeavor to prevent environmental pollution caused by research activities.

Reduction of Environmental Impact

3. The University of Tokyo shall aim to reduce the environmental impact of running the University and conducting educational and research activities, strive to conserve resources and energy, and pursue sustainability and the improvement of activities by making the most effective use of the resources entrusted to us by the Japanese people and society.

Sustainable Development of Global Society

4. The University of Tokyo shall contribute to the sustainable development of a global society by actively engaging in research in collaboration with other universities and research institutes in Japan and overseas.

Local Environmental Conservation

5. The University of Tokyo, as a member of the local community, shall contribute to the preservation of the local environment by conducting University operations in an environmentally friendly manner.

Self-Improvement

6. The University of Tokyo shall establish environmental objectives and targets for achieving its environmental policy and conduct environmental conservation activities with continuous reviews and improvement measures.

Disclosure of Information

7. The University of Tokyo shall self-inspect activities that affect the environment and disclose environmental information to the University community and the greater public.



01

Distribution of the University of Tokyo's Offices and Facilities

The University of Tokyo is comprised of 10 faculties, 15 graduate schools, 11 affiliated research institutes, six University Joint Education and Research Institutes, four Institutes for Advanced Study, five Interdisciplinary Research Institutes, three National Joint-Use Institutes, and 44 Collaborative Research Organizations, as well as many facilities attached to the faculties, graduate schools, and affiliated research institutes, such as the University Hospital and libraries. The University of Tokyo's facilities are widely distributed throughout Japan and overseas.

https://www.u-tokyo.ac.jp/ja/intl-activities/overseas-offices/list_of_overseas_offices.html

Distribution of Overseas Offices



General Overview

Founded ● April 12, 1877

History ● http://www.u-tokyo.ac.jp/gen03/b03_01_j.html

Members ● 8,263 (directors, academic and administrative staff)

Number of facilities ● 48 facilities

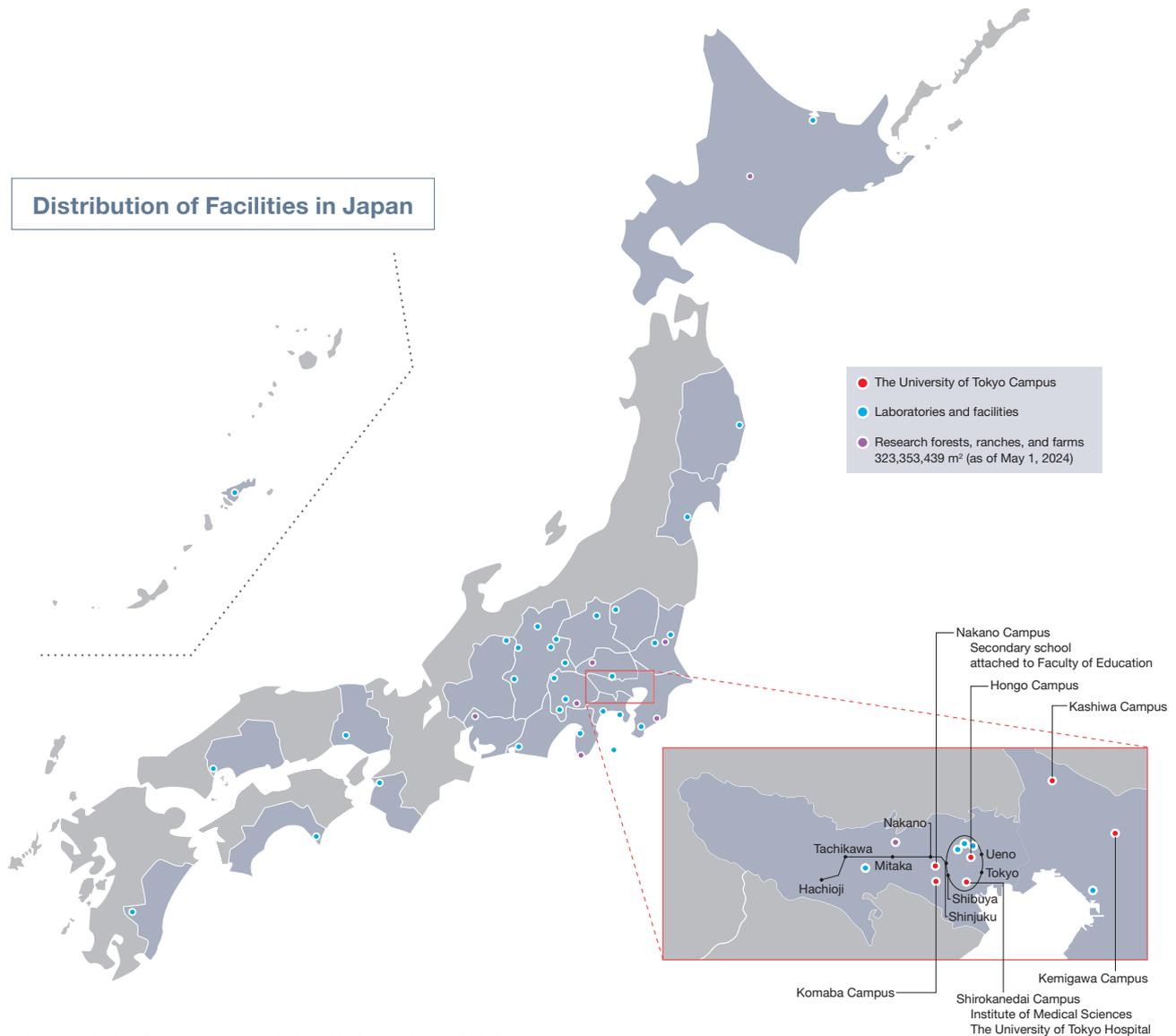
Site area ● 325,819,298 m²

Total floor area of buildings ● 1,831,000 m²

| Directors, academic and administrative staff | | | Faculties | | | Graduate schools | | |
|----------------------------------------------|--------------|--------|---------------------------|---------------|--------|----------------------------|---------------|--------|
| | Male | Female | | Male | Female | | Male | Female |
| Directors, etc. | 16 | 4 | Undergraduate students | 11,058 | 3,000 | Master's degree | 5,203 | 1,848 |
| Academic and administrative staff | 4,818 | 3,425 | Undergraduate researchers | 11 | 3 | Professional degree | 495 | 347 |
| Subtotal | 4,834 | 3,429 | Undergraduate auditors | 28 | 10 | Doctoral degree | 4,588 | 1,940 |
| | | | Subtotal | 11,097 | 3,013 | Graduate researchers, etc. | 354 | 241 |
| | | | | | | Subtotal | 10,640 | 4,376 |
| | | | International students | Male | Female | International students | Male | Female |
| | | | Undergraduate students | 172 | 113 | Master's degree | 1,029 | 728 |
| | | | Undergraduate researchers | 0 | 2 | Professional degree | 67 | 74 |
| | | | Undergraduate auditors | 0 | 1 | Doctoral degree | 1,380 | 787 |
| | | | Subtotal | 172 | 116 | Graduate researchers, etc. | 279 | 210 |
| | | | | | | Subtotal | 2,755 | 1,799 |
| Total | 8,263 | | Total | 14,110 | | Total | 15,016 | |

(As of May 1, 2024)

Distribution of Facilities in Japan



Three Main Campuses of the University of Tokyo

Hongo Campus

The Hongo Campus, with iconic scenery that symbolizes the University of Tokyo, such as the Red Gate, Yasuda Auditorium, the Avenue of Ginkgo Trees, and Sanshiro Pond, is home to many National Important Cultural Properties and Registered Tangible Cultural Properties. In addition to preserving the historical environment represented by this landscape as a valuable one, the Hongo Campus is striving to create an environment suitable for assuming a central role in education and research from the Senior Division of the undergraduate level faculties (specialized courses) through to the graduate schools. The Hongo Campus includes facilities in Hongo, Asano, and Yayoi Areas, as well as the University of Tokyo Hospital.



Photo by Yuji Ozeki

Komaba Campus

Komaba I

This campus houses the Junior Division of the College of Arts and Sciences program (1st and 2nd years), the Senior Division of the College of Arts and Sciences program (3rd and 4th years), the Graduate School of Arts and Sciences, and the Graduate School of Mathematical Sciences. The leafy campus is filled with educational and research buildings. Many buildings of historical value remain, including the Komaba Museum, which is open to the public, and Classroom No. 900, which was designed as companion to the Komaba Museum. Since all students who enter the University of Tokyo spend the first half of their undergraduate career at the College of Arts and Sciences, it also serves as a base for students' circle activities.

Komaba II

The Institute of Industrial Science and the Research Center for Advanced Science and Technology support the most advanced academic research in these fields and graduate education in the research process.



Kashiwa Campus

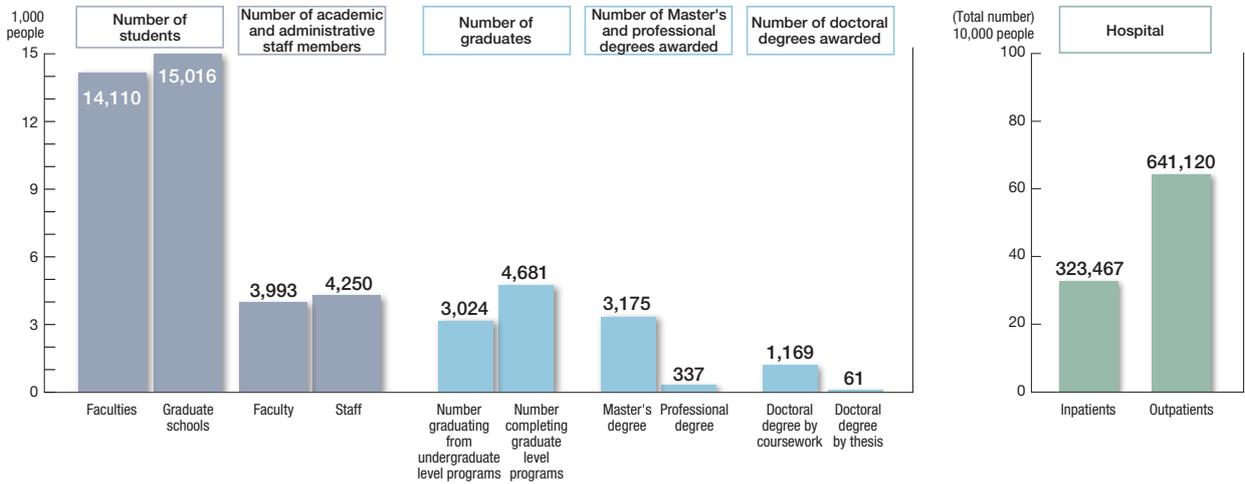
The Kashiwa Campus together with the Hongo Campus and Komaba Campus comprises the three main campuses of the University of Tokyo. In the spirit of academic integration, the main Kashiwa Campus, the Kashiwa II Campus, and the Kashiwa-no-ha Station Campus work together to realize the three prongs of the University of Tokyo's philosophy of education and research: "promoting world-leading research and the creation of new academic fields", "international collaboration between students and local residents and the formation of distinguished international education and research centers", and "social implementation of university research through the promotion of regional collaboration and social collaboration".



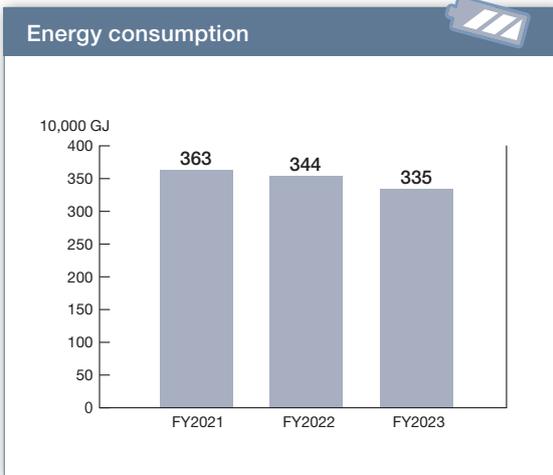


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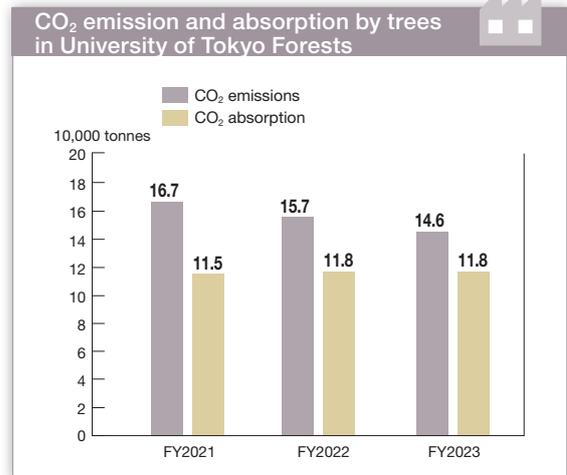
Overall Picture of the University's Activities and Environmental Impact



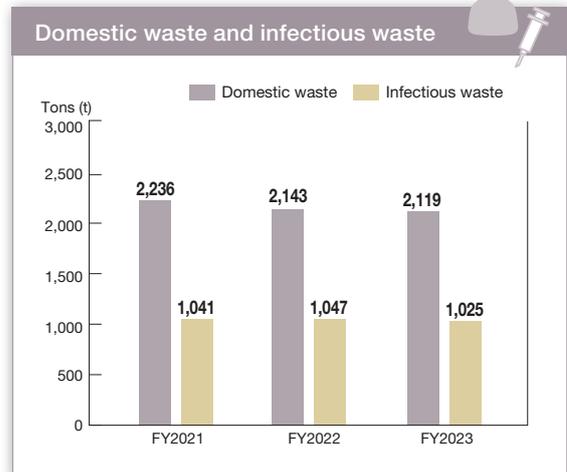
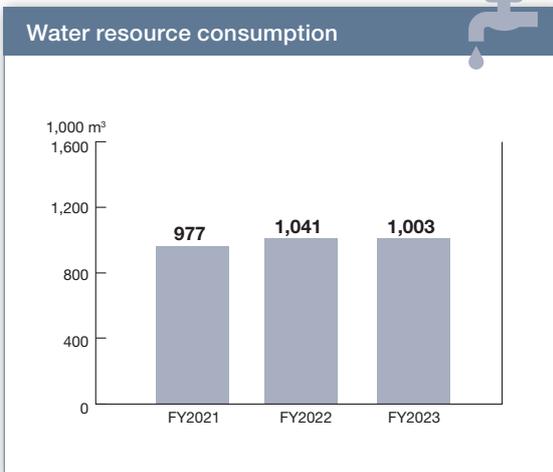
▶ INPUT



OUTPUT ▶



*The CO₂ absorption is calculated for University of Tokyo Forests (Forest Management Committee).



03

University-Wide Environmental Safety Management System

System introduction

In order to ensure environmental safety and health on campus, the University of Tokyo has established the Division for Environment, Health and Safety in its Administration Bureau along with the Environmental Safety Management Offices in its faculties/graduate schools/research institutes. Academic and administrative staff work together to solve a wide range of problems while strictly complying with laws and regulations, enhancing safety education, preventing the recurrence of accidents and disasters, managing chemical substances, utilizing safety and health systems, and conducting patrols by industrial physicians. With the aim of creating a safe and secure environment for education and research, the Division for Environment, Health and Safety is working as one to further enhance environmental safety and health in cooperation with all university organizations and faculties/graduate schools/research institutes, including the Environmental Science Center, the Isotope Science Center, the Cryogenic Research Center, the Office for Life Science Research Ethics and Safety, and the Health Service Center. The following are noteworthy initiatives and matters of FY2023. In the area of chemical substance management, we established a new autonomous management system for chemical substances in accordance with the revision of the Ordinance for the Enforcement of the Industrial

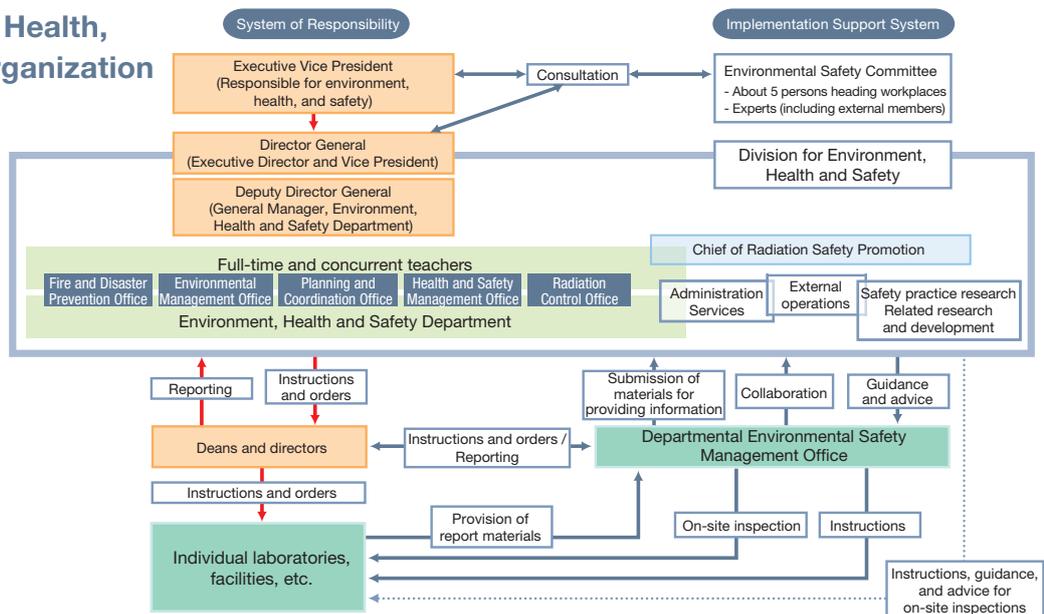
<https://kankyoanzen.adm.u-tokyo.ac.jp/>

Safety and Health Act. As a unique system of the university, we have established a Chemical Substance Management Promoter who is responsible for promoting appropriate chemical substance management through the management of chemical substances and the use of protective gear for each activity unit, such as departments, special courses, and laboratories, in cooperation with the chemical substance manager and the protective gear use manager in each workplace. The University of Tokyo Chemical Information Management System (UTCIMS) was also upgraded to conduct risk assessment and record data to prevent exposure.

With the objective of developing and expanding the fire and disaster prevention system, fire risk assessment was conducted as a university-wide effort to prevent fires. Fire risk factors were identified and measures taken to reduce fires.

It takes time for a safety culture to take root in a university, which consists of people of various backgrounds. Nevertheless, we are steadily promoting the development and strengthening of this system, partly basing our efforts on past examples. We will continue striving to improve the environmental health and safety of the University and to ensure the safety of our students, academic and administrative staff, as well as local residents.

Environment, Health, and Safety Organization



04

Targets Set for FY2023 and Status of Achievement

| Item | Targets set for FY2023 | Status of achievement | Future initiatives |
|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Reduction of CO₂ emissions | Continue to reduce total emissions under the TSCP Plan. | Reduced by 19.3% compared to FY2017. | Reduce the CO ₂ emissions by 50% from FY2013 levels by the end of FY2030 through the efforts of the UTokyo Climate Action. |
| Chemical substance management | Develop a new chemical substance management system in line with the revision of the Ordinance for Enforcement of the Industrial Safety and Health Act. | Implementation and recording of risk assessments concerning exposure prevention in the Chemical Information Management System was enabled. The University established its own autonomous management system and held briefing sessions to disseminate the information throughout the University. | Provide training and seminars based on the new chemical substance management system. Review operational issues. |
| Fire prevention and disaster prevention | Enhancement and expansion of disaster management systems for fire and disaster prevention. | Fire risk assessment was carried out, and measures for fire reduction were taken. | Prevent fires by improving the implementation rate of fire risk assessments. |



The University of Tokyo Guidelines for Action

✦ UTokyo Compass

UTokyo Compass is a statement on the guiding principles of the University of Tokyo, which express the ideals to which our university should aspire and the direction it should take, under the title “Into a Sea of Diversity: Creating the Future through Dialogue”. It was formulated under Teruo Fujii, the 31st president, and announced in September 2021. The name UTokyo Compass implies that it will mark the course for the University of Tokyo as it embarks on a new voyage under the leadership of President Fujii, a researcher of oceanographic engineering.

In order to realize a university that values creativity, diversity, and inclusion achieved through dialogue and is a place that anyone in the world would want to join, the Basic Policy establishes 20 goals and a concrete action plan for achieving those goals from the standpoint of “establishing management capacity” for autonomous

and creative activities, and from the threefold perspective of “knowledge”, “people”, and “place”. As a comprehensive university that serves the global public through the creation of a virtuous cycle, the University of Tokyo is engaged in the pursuit of truth and the creation of academic knowledge as it nurtures diverse, highly competent, human resources while endeavoring to find solutions for the various global issues facing humanity such as stewardship of the global commons for future generations.

In May 2024, we released the UTokyo Compass 2.0, which reflects our progress to date and new initiatives. UTokyo will continue to promote dialogue with diverse stakeholders involved in our mission and ideals and will work hand in hand with society to create an ideal vision for a shared future.

UTokyo COMPASS 2.0 20 Goals



Establishing Management Capacity

1. Develop an Autonomous and Creative University Model
2. Formulate a Sustainable Management Strategy and Expand the Functions of the University
3. Cultivate Support and Appreciation for the University's Roles



Knowledge

4. Seek Solutions to Global Problems
5. Promote Diverse Scholarship
6. Generate Excellent Academic Knowledge
7. Generate Value through Co-creation with Industry
8. Promote Responsible Research



People

9. Nurture Inclusiveness and Capacity for Creative Dialogue
10. Nurture an International Outlook
11. Undergraduate Education: Cultivate Disciplinary Expertise, Wide-ranging Knowledge, and High Ethical Standards
12. Graduate Education: Cultivate Advanced Disciplinary Expertise and Practical Capabilities to Tackle Next-Generation Problems
13. Support Early-Career Researchers
14. Cultivate Administrative Staff with Advanced Expertise and a Creative Mindset
15. Connect the University and Society through Bidirectional Recurrent Education



Place

16. Create a Supportive and Empowering Campus that Anyone in the World Would Want to Join
17. Support Education and Research Activities
18. Expand the Campus in Cyberspace
19. Extend Our Place into Wider Society
20. Extend Our Place Internationally

Plan 1: Manage global systems responsibly
Plan 2: Decarbonize the activities of the UTokyo organization

Plan 3: Pursue co-creation with local communities toward green transformation

Achieving a Low-Carbon Society, Starting with the University of Tokyo

01 Response to the Race to Zero

Green Transformation (GX) is one of the main initiatives in the UTokyo Compass, the guiding principles of the University of Tokyo released in September 2021. In October of the same year, the University of Tokyo joined the Race to Zero, an international campaign under the United Nations Framework Convention on Climate Change (UNFCCC), as part of its efforts to accelerate climate change initiatives.

The GX Promotion Subcommittee (established in April 2022) of the Future Society Initiative (currently UTokyo Compass Initiative), which oversees the University's GX activities, set the following reduction targets for Scopes 1, 2, and 3 in the UTokyo Climate Action (CA), formulated in October 2022 to achieve net zero greenhouse gas emissions. (The baseline for the reduction target is FY2013.)

| | By FY2030 | By FY2040 | By FY2050 |
|----------|-----------|-----------|-----------|
| Scope1,2 | 50% | 75% | 100% |
| Scope3 | 25% | 50% | 75% |
| Total | 34% | 67% | 100% |

Periodic reviews of the CA will be conducted to check the progress and report the results as well as to update the actions as necessary towards the targets. In October 2023, one year after the first edition of the CA was published, the UTokyo Climate Action 2023 (CA2023), which also serves as an annual report, was published.

In CA2023, we reviewed the progress we had made in reducing greenhouse gases and discussed approaches to further accelerate the action. (The chart below shows the results of emissions calculations up to FY2022, the latest data available at the time of publication.)

Regarding Scopes 1 and 2, which are related to energy use associated with university activities, emissions in FY2022 were reduced by 17.3% from the figure in FY2013, which is taken as the base year, and by 3.4% from the figure of the previous year. The results can be attributed to the reduction effect of continuing energy-saving activities, such as the Todai Sustainable Campus Project (TSCP), and changes in the volume of activities themselves, such as upgrading to large computers. However, in some departments and offices, the increase in emissions can be attributed to the lifting of restrictions stemming from COVID-19. So we need to continue paying attention to future progress. Above all, we must recognize that we will not reach our reduction targets



by 2030 at the current pace of reduction. In light of this situation, and in addition to conventional TSCP measures, we will consider energy conservation through data-driven behavior change using DX (digital transformation) and energy creation through off-campus solar power generation. To promote the former, in August 2023, we signed a memorandum of understanding with Microsoft Corporation to collaborate on the promotion of research involving GX.

In FY2022, Scope 3 emissions, which account for more than 70% of the total emissions, increased 5.0% over the previous year. The main reason for this is possibly the increase in the number of business trips due to the relaxation of restrictions on business trips to prevent the spread of COVID-19. However, the calculation is still based on the amount spent based on financial accounting data as the source of activities, and the emission factor of the generally available LCA database is applied to that amount. This is not only highly uncertain, but it is also considered inappropriate in terms of measuring the effects of reduction activities. Since FY2023, the UTokyo Climate Action Working Group, which consists of faculty members involved in LCA (life cycle assessment), has been working on improving the calculation methods for Scope 3.

The University of Tokyo regards FY2024 as the year to start taking concrete actions to achieve Net Zero. To this end, we will incorporate the measures embodied in CA2023 into our action plans and establish a system to implement them.

The University of Tokyo is required to serve the global public as a world-class research university. The Race to Zero initiative not only aims to achieve Net Zero on campuses, but also contributes to the Net Zero of society through initiatives developed on campuses, which are respective living laboratories with a variety of functions from classrooms and laboratories to cafeterias and hospitals.

Introducing the actions

<https://www.u-tokyo.ac.jp/en/about/gx/about.html>
About GX at the University of Tokyo

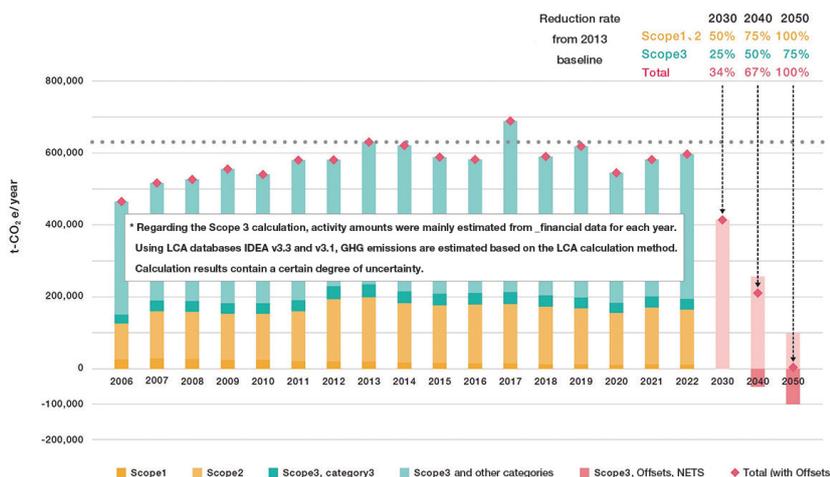


Figure 1: UTokyo Scope 1,2,3 GHG calculation results with projections to the future



Figure 2: Cover of UTokyo Climate Action 2023



Achieving a Low-Carbon Society, Starting with the University of Tokyo

02 Sustainable Campus Initiatives

The University of Tokyo (UTokyo) established the Todai Sustainable Campus Project (TSCP) in April 2008 in order to provide a model for a sustainable society of the future as an educational and research institution. In July of the same year, the TSCP Office, an expert organization under the direct control of the President, was established. Since July 2022, it has continued its activities as the TSCP Team of the Environmental Group in the Facilities Department. The TSCP has a wide range of activities, but its top priority is to reduce CO₂ emissions.

When the TSCP was established in 2008, it announced a target for reducing the CO₂ emission related to energy use. It aims to reduce CO₂ emissions by 50% by FY2030, compared to FY2006, the base year. This target is known as TSCP 2030. Thus far, TSCP 2012, set as a short-term target, and TSCP 2017, set as a medium-term target, have been achieved with the cooperation of various departments. At the end of FY2023, we also achieved our target of reducing emissions by 18% from the FY2017 levels (TSCP 2023).

In October 2022, we formulated the UTokyo Climate Action as an action plan to achieve net-zero greenhouse gas emission by 2050. We also set the target of reducing the Scope 1 and Scope 2 CO₂ emissions by 50% by FY2030, compared to the base year of FY2013 (Figure 1). In the second report, UTokyo Climate Action 2023, we analyzed the progress and tried to present a clearer and more concrete future measures to achieve the targets.

The trend in CO₂ emissions related to energy use is shown in Figure 2 as an index excluding advanced experimental facilities, compared to FY2006, the base year. On a scale of 100 for FY2006 emissions, FY2022 emissions were 77.5 in terms of area and 61.7 in terms of ordinary income. Although the floor area of the University as a whole

has increased along with the level of activity, the efforts of TSCP and the understanding and cooperation of university members have helped to mitigate the increase in CO₂ emissions even with an increase in the activity levels.

Concrete efforts so far have focused on improving the efficiency of large air-conditioning and heat source facilities and individual distributed air conditioners as measures to update energy-saving facilities. Currently, over the course of several years, we have been working to convert more than 100,000 Hf lights on campus to LEDs. Furthermore, as part of our energy conservation awareness activities, we have been involved in the visualization of electric power, the distribution of energy conservation awareness stickers, and the formulation of energy conservation guidelines for laboratory facilities. We are also striving to foster awareness of energy conservation among the university members, including students, academic and administrative staff members. In addition to accelerating thorough energy-saving measures toward 2030, we are working on the introduction of energy-creating facilities. In FY2023, we installed solar power generation systems on the rooftop of buildings in Hongo, Komaba I and Shirokanedai Campuses.

The university has slightly under 40,000 members, putting us on a scale similar to that of a city. If we are able to reduce the University's CO₂ emissions, then this step toward decarbonization will provide a vision of a path whereby a low-carbon society can be realized, contributing toward the achievement of many of the SDGs. The major mission of the University is to conduct educational and research activities. Although it is difficult to maximize these activities while reducing CO₂ emissions, we believe it is our mission to tackle this challenge, and we are proceeding with the project.

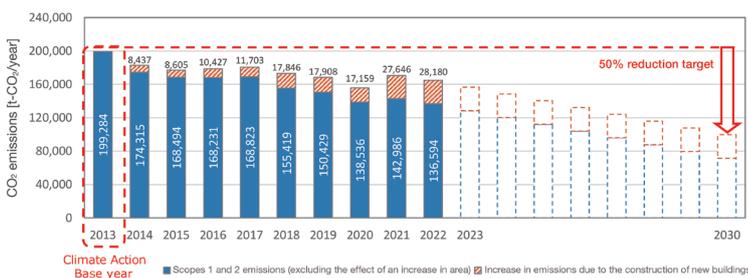


Figure 1: Change in CO₂ emissions from energy use and future targets for the university as a whole

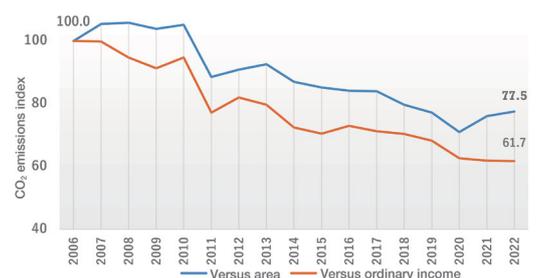


Figure 2: Change in CO₂ emissions from university-wide energy use per unit area and per ordinary income (excluding advanced experimental facilities)



Figure 3: Energy saving and energy creation measures
Left: Switching Hf lights to LED lights, Right: Installation of a solar power generation system

03 Activities of UTokyo GX Student Network (GXSN)

Ikuto Nakaya, UTokyo GX Student Network (GXSN)



To truly realize the green transformation (GX) promoted by the University of Tokyo, it is essential that students who use the campuses also participate. The GXSN is working to realize campus sustainability from the multiple perspectives of students through eight projects.

1. Overview of GXSN

The UTokyo GX Student Network (GXSN) is a multifaceted student committee dedicated to the realization of sustainability on our campuses. Established in 2023, the GXSN was formed by merging the TSCP Student Committee, which was working on the University of Tokyo Sustainable Campus Project (TSCP) from a student perspective since 2015, and the UTokyo Sustainable Network, a network of on-campus environmental student groups. At the same time, it became an official organization of the GX Promotion Subcommittee established in the UTokyo Future Society Initiative (FSI) in 2022 in line with the trend of GX promotion at the University. Since then, it has continued its energetic activities in cooperation with the university's Administration Bureau (Figure 1).

The organization is characterized by diversity, comprising a wide range of domestic and international students from first-year undergraduates to graduate students, who participate in activities.

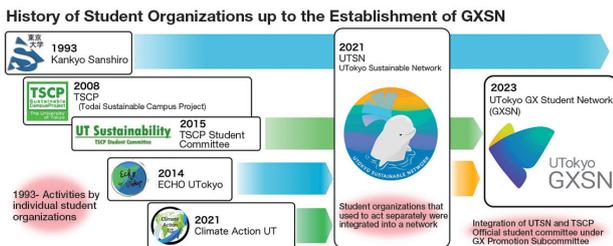


Figure 1: History up to the establishment of GXSN

2. Activities

Activities are carried out on a project-by-project basis, with eight projects currently underway as shown in Figure 2. Two projects, the Water Server and Sustainability Week, are introduced on pages 24 and 25 of the Japanese edition. Members are free to participate in any activities they are interested in. There are currently about 20 active members and an increasing number of people are showing interest in joining.

3. Collaborations with other organizations in and outside the university

Through its activities, GXSN has developed relationships with other organizations both in and outside the university.

One example is the University of Tokyo Co-op. An event was held in 2022 by UTSN, the predecessor of GXSN, which started a collaborative relationship with the Co-op. Specifically, we are collaborating to discuss the introduction of vegan menus in the campus cafeterias through the Plant-based Menu project, offer special menus during Sustainability



<https://www.utokyo-gxsn.org/>

Week, and reduce food waste as part of the newly launched Food Bank project. In working on GX, the assistance of the Co-op is very encouraging, since students are very familiar with the Co-op and frequently use it.

We are also building links with environmental student groups at other universities. Last year, students participated in the Eco Pro 2023 as well as networking and opinion exchange meetings of universities in Bunkyo City, where they interacted with students from the other universities and learned from each other. These connections often lead to further initiatives. For example, in 2024, the University of Tokyo hosted a Sustainability Week jointly with three other universities in the Tokyo Metropolitan Area.

4. GXSN's plans for the future

One of the future goals of GXSN is to start new projects and expand the existing ones. The eighth project, the Food Bank, did not exist when GXSN was founded. It was launched in November 2023 by new members. In the Water Server project, various activities are being carried out even after the installation of water servers throughout the campuses, under the principle of reducing the use of plastics. Through such efforts, we hope to further promote the realization of campus sustainability. We are also aware of the lateral development of initiatives between universities, and would like to play a role as a starting point for GX by conducting a series of initiatives and sharing knowledge to serve as a role model for university GX.



Figure 2: List of projects (from the GXSN website. Details are available at <https://www.utokyo-gxsn.org/projects/>)



Figure 3: Workshop held by several GXSN members. Monthly general meetings and some project activities are conducted face-to-face.



Achieving a Low-Carbon Society, Starting with the University of Tokyo

04 Other GX Initiatives

◆Cross-departmental GX research initiatives

GX efforts to address climate change and other issues go beyond natural science to encompass a wide range of fields, including social, economic and legal systems. At the University of Tokyo, three main collaborative research institutes are working on issues related to GX beyond the boundaries of existing academic disciplines. The Collaborative Research Organization for Comprehensive Energy Sciences (10 departments), which was established in July 2021, conducts research covering an extensive range of areas from energy system development to energy policy and institutional design. The UTokyo Center for Climate Solutions (13 departments), established in July 2022, carries out research on how society should overcome climate change. In April 2023, the UTokyo LCA Center for Future Strategy, consisting of 10 departments, was newly established and is attempting to apply LCA to the design of future societies.

Collaborative Research Organization for Comprehensive Energy Sciences: <https://www.croces.t.u-tokyo.ac.jp/>

UTokyo Center for Climate Solutions: <https://utccs.u-tokyo.ac.jp/>

UTokyo LCA Center for Future Strategy: <https://www.utlca.u-tokyo.ac.jp/>

◆Development of advanced human resources to lead GX

The University of Tokyo has established GX education programs for various levels of society, ranging from literacy education to advanced human resource development. Among these, SPRING GX is an advanced human resource development program adopted as a project under Japan Science and Technology Agency's (JST) Support for Pioneering Research Initiated by the Next Generation (SPRING) in the fall of 2021. In April 2024, the new SPRING GX program was launched with 1,154 doctoral students across the whole university (including four-year doctoral students) taking part. The purpose of this program is to develop human resources who will play an active role in the realization of GX in all fields at the University of Tokyo. As core events, the program includes GX overview lectures by leading experts, GX inspiration lectures by emerging researchers, and the Green Future Exchange Meeting where students from all fields interact. These respective events were all held twice in the 2023 academic year.

SPRING-GX: https://www.cis-trans.jp/spring_gx/

◆Cooperation with Bunkyo City

The University of Tokyo is promoting GX-related collaborations with Bunkyo City, where Hongo Campus is located. The "Networking

and Opinion Exchange Meeting to Introduce Sustainability-Related Initiatives of Universities in Bunkyo City" took place in December 2022. The second meeting was held in November 2023 and future meetings are also scheduled as an ongoing initiative. On March 29, 2024, the University signed an agreement on cooperation toward green transformation with Bunkyo City and agreed to enter into a partnership to promote GX in the region and society.

Networking and Opinion Exchange Meeting to Introduce Sustainability-Related Initiatives of Universities in Bunkyo City

<https://www.u-tokyo.ac.jp/ja/about/actions/gx/news.html>

Agreement with Bunkyo City

https://www.u-tokyo.ac.jp/focus/ja/press/z1313_00012.html



Agreement with Bunkyo City (Signing ceremony)

◆Dissemination of GX to university members

To further promote GX activities, it is also important to carry out publicity activities to familiarize members of the university with GX. In April 2024, students who participated in on-campus jobs created the campus newsletter "Found! GX in the University of Tokyo". In this newsletter, students approach GX at the University of Tokyo from a student's perspective, focusing on the four themes of education and research, industry-university collaboration, extracurricular activities, and university campus.



Found! GX in the University of Tokyo
<https://www.u-tokyo.ac.jp/content/400240676.pdf>

Contributions to the SDGs

In April 2024, the University of Tokyo established the UTokyo Compass Promotion Council chaired by the President. One of the purposes of the Council is to promote effective collaboration and to contribute to the future of humanity and the planet, based on the University's mission of serving the global public as outlined in the University of Tokyo Charter. To imbue such collaborative activities, we are striving to optimize the SDGs (Sustainable Development Goals) that are aligned with the University's mission.

The University of Tokyo has constructed a system to create synergy and social value between the University's diverse activities by visualizing and publicizing such activities that contribute to 17 SDGs as registered "SDGs Projects". As of June 1, 2024, there were 197 registered projects.



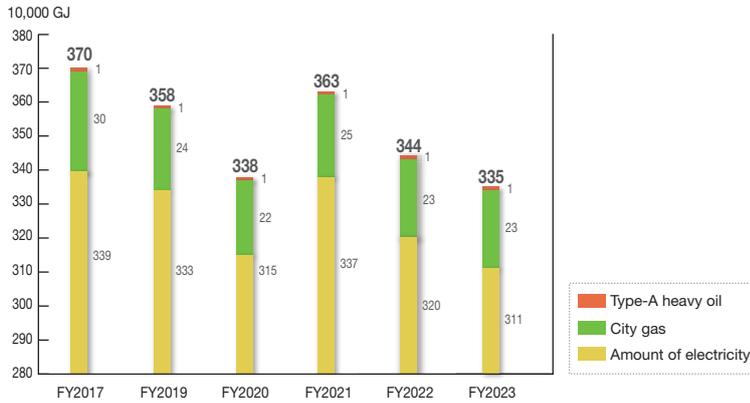
01

Amount of Energy and Water Used

The University of Tokyo has set its own CO₂ emission reduction target (18% reduction compared to FY2017) as part of its TSCP activities and is promoting measures to reduce CO₂ emissions throughout the University. In FY2020, the electricity, gas, and primary energy consumptions decreased owing to restrictions on activities throughout the University due to the COVID-19 pandemic. In FY2022 and FY2023, the primary energy consumption was expected to increase following the easing of restrictions on activities involved in the spread of infectious diseases. However, partly due to the shutdown of the supercomputer on the Kashiwa Campus, the primary energy consumption actually decreased 2.6% year-on-year. In keeping with the responsibilities of an educational and research institution, we will continue striving to meet the challenges of reducing the total amount of CO₂ emissions.

*The energy-related graphs show figures for six years including the base year of the TSCP target (FY2017).

Primary energy consumption

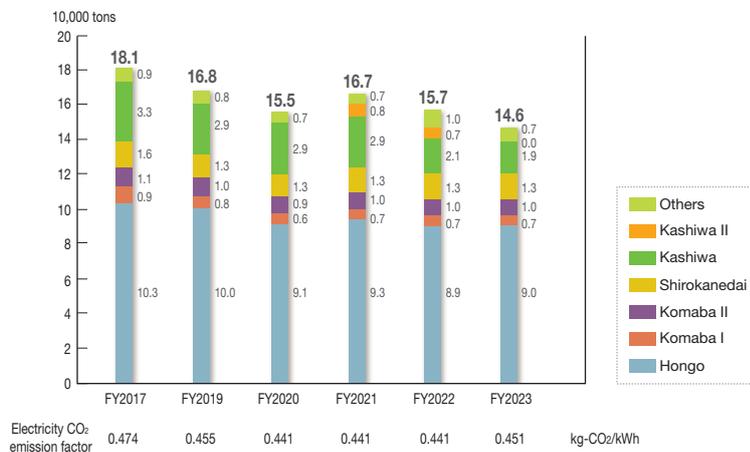


The energy consumed by the University of Tokyo as a whole in FY2023, including electricity and gas, amounting to approximately 3.35 million GJ of primary energy.

Conversion factor
 Electric power: 9.76 GJ/MWh
 City gas: 45 GJ/1,000 m³
 Oil (Type-A heavy oil): 39.1 GJ/kl

*In previous reports, there was an error in the primary energy consumption total for FY2017. Therefore, the figures have been corrected from the Environmental Report 2020.

CO₂ emissions (energy sources)



The University of Tokyo emitted approximately 146,000 tonnes of CO₂ in FY2023.

CO₂ emission factor
 Electricity: see bottom of graph
 City gas: 2.31 kg-CO₂/m³
 Oil (Type-A heavy oil): 2.71 kg-CO₂/l

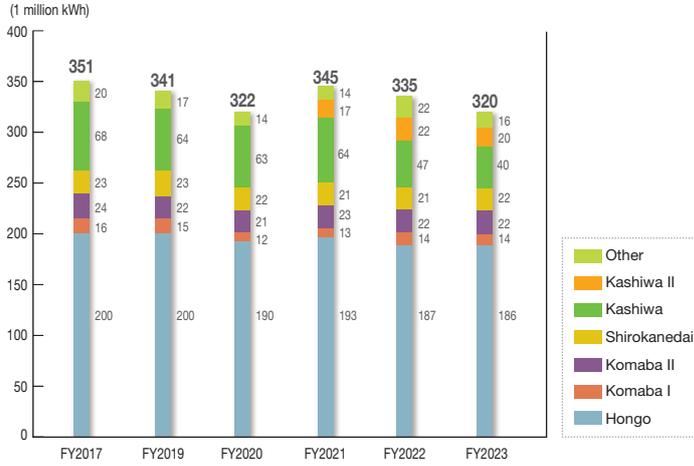
*In previous reports, there were errors in the CO₂ emissions total for FY2017, and therefore the figures have been corrected from the Environmental Report 2020.

Chapter 5

Environmental Safety Management Initiatives

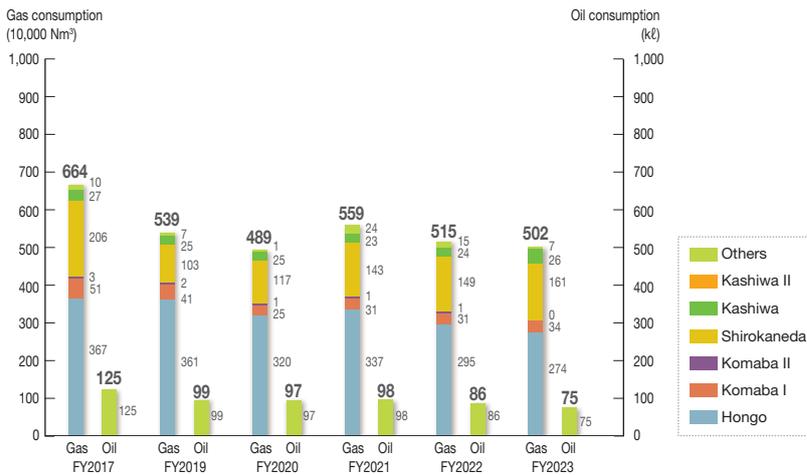


Electric power consumption



Electricity consumption in FY2023 was approximately 320 million kWh.

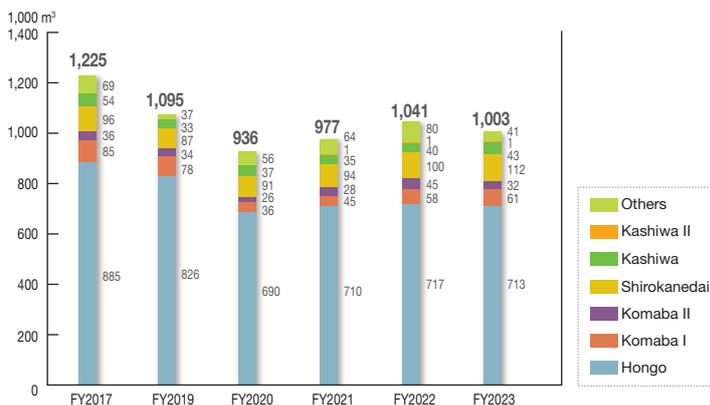
Gas and oil consumption



Gas consumption in FY2023 was approximately 5.02 million Nm³ and oil consumption was approximately 750,000 Nm³.

*In previous reports, there was an error in the gas consumption total for FY2017, and therefore the figures have been corrected from the Environmental Report 2020.

Water resource consumption



In FY2023, we used approximately 1,003,000 m³ of water resources (tap water + well water).

*In previous reports, there was an error in the water resource consumption total for FY2019. Therefore, the figures have been corrected from the Environmental Report 2021.

02

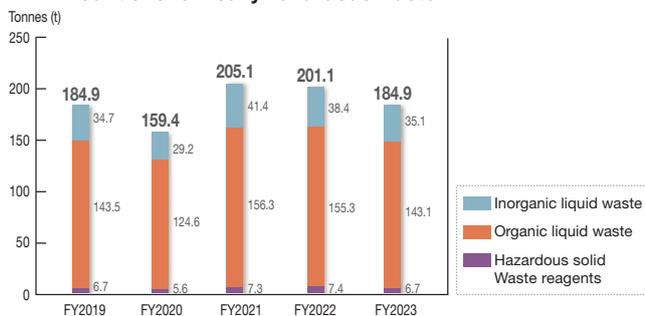
Waste Management

The Environmental Science Center centrally collects and manages chemically hazardous waste generated through research and educational activities at the University of Tokyo. For each type of chemically hazardous waste, the Environmental Science Center selects a waste disposal company that can properly treat the waste and entrusts them with the waste disposal. Furthermore, regular inspections are conducted to confirm that the waste treatment is being carried out properly.

As for infectious waste that does not contain hazardous chemical substances, each department within the University of Tokyo is responsible for selecting and contracting with a waste disposal company who can conduct proper disposal. Concerning domestic waste, we are making efforts to reduce the amount and to promote recycling by thorough sorting.

Experimental waste

Amount of chemically hazardous waste



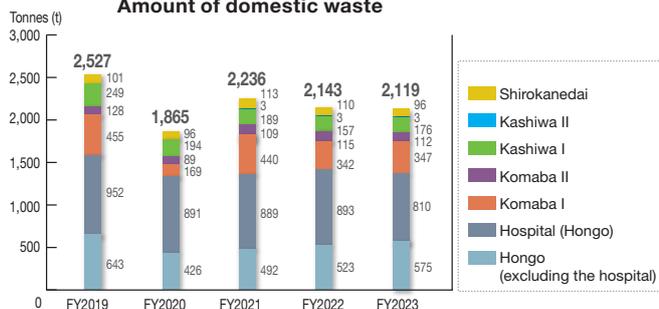
*Because of rounding up/down, the sum of the numbers for each item may not match the total value on the graph.

Although the total amount of waste discarded from university laboratories is not large, the contents of waste vary greatly and the waste contains a wide variety of hazardous substances. For this reason, the University of Tokyo requires those who discard experimental wastes containing chemically hazardous substances to take the environmental safety training course to obtain the qualification to do it. Those who discharge waste are required to properly classify chemically hazardous wastes according to the rules, accurately describe their composition, and bring them to the Environmental Science Center. After inspection and analysis at the Environmental Science Center, the waste is entrusted to the off-campus waste disposal facilities, as described above.

In FY2020, the amount of experimental waste decreased owing to restrictions on activities throughout the University that accompanied the spread of COVID-19. However, in FY2021, the amount returned to pre-COVID-19 levels. In FY2023, the figure was almost the same as the previous year (slight decrease of about 8%).

Domestic waste

Amount of domestic waste

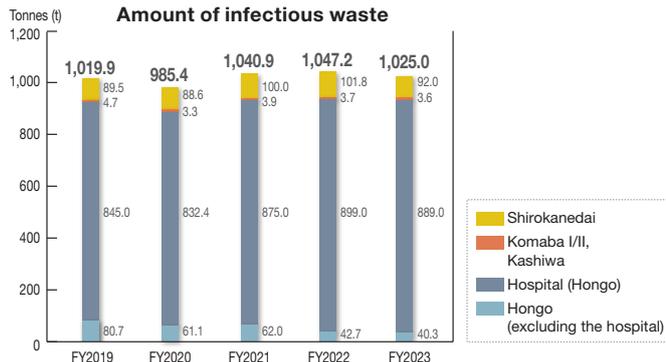


Sorting rules for domestic waste differ slightly from campus to campus, but the basic policy is to recycle what can be recycled. Only items that cannot be recycled are disposed of as combustible or non-combustible waste. Paper waste, empty cans, empty bottles, PET bottles, etc. are sorted. Paper waste is further subdivided into copier paper, magazines, miscellaneous paper, cardboard, etc.

With the exception of the large drop caused by the COVID-19 issue in FY2020, the amount of domestic waste generated over the past five years has shown a gradual downward trend.

Infectious waste

Amount of infectious waste



*Due to errors in the results for the FY2019 and FY2020 totals, the figures have been corrected in the reports for FY2022 and later.

It is essential that infectious waste is properly sorted at the site of generation under strict management, and the University of Tokyo is also fully committed to its proper handling. Furthermore, the University of Tokyo has established its own rules for disposing of syringes and needles used in non-medical experiments as infectious waste from the standpoint of public acceptance.

In FY2023, the amount of infectious waste was almost the same as in the previous year (slight decrease of approximately 2%).



03

Status of Compliance with Environmental Laws and Regulations

In FY2023, the University of Tokyo received no guidance, recommendations, orders, or dispositions from regulatory authorities for violations of environmental laws and regulations (laws and ordinances on pollution control, such as the Water Pollution Control Law, Sewerage Law, and Air Pollution Control Law; laws and ordinances on resource circulation and proper waste disposal; and laws and ordinances related to energy conservation, etc.).

In order to prevent accidental discharge of hazardous substances used in experiments, we will continue to take measures such as holding safety education sessions, conducting patrols, and servicing equipment.

04

About the PRTR System

The University of Tokyo uses the University of Tokyo Chemical Information Management System (UTCIMS) to calculate the amount of chemical substances released into the environment at all laboratories for every fiscal year. The results are submitted as a PRTR system notification (Act on the Assessment of Releases of Specified Chemical Substances in the Environment and the Promotion of Management Improvement: Chemical Management Act).

The PRTR system applies to entities that handle one tonne or more of Class 1 designated chemical substances and 0.5 tonne or more of specified Class 1 designated chemical substances annually. In FY2023, the PRTR law applied to two campuses: the Hongo Campus and the Komaba Campus. On Hongo Campus, a total of three substances, chloroform, methylene chloride and hexane, were subject to the PRTR system, while on Komaba Campus, one substance, chloroform, was subject to the system. As usual, proper notification was given.

Amounts of chemical substances released and transferred

| Name of campus | Name of substance | Amount handled | Amount discharged | Amount transferred | |
|----------------|-------------------------|----------------|-------------------|--------------------|--------------------------|
| | | | Ambient air | Sewerage | Sites other than offices |
| Hongo | Chloroform (kg) | 13,000 | 50 | 0.0 | 5,500 |
| | Methylene chloride (kg) | 9,000 | 5 | 0.0 | 6,400 |
| | Hexane (kg) | 23,000 | 30 | 0.0 | 10,000 |
| Komaba I | Chloroform (kg) | 1,800 | 8.9 | 0.0 | 1,700 |

*Each calculation result is displayed to two significant digits.

*For substances other than dioxins, the figures are rounded to the nearest two decimal places in accordance with the regulations of the Ministry of Health, Labour and Welfare when the amount discharged or transferred is less than 1 kg.

05

PCB

Polychlorinated biphenyl (PCB) waste is designated as specially controlled general waste and specially controlled industrial waste under the Waste Management Law, and requires strict management.

In accordance with the Law Concerning Special Measures against PCB Waste, in FY2020 and FY2021, the University of Tokyo detoxified approximately 32 and 33 tonnes, respectively, of fluorescent lamp ballasts containing high concentrations of PCBs that had been stored on Hongo Campus and other sites, at processing sites of the Japan Environmental Storage & Safety Corporation, a high-concentration PCB waste processing company.

Approximately 48 tonnes of stored low-concentration PCB waste was then separated for processing in FY2022 and FY2023, and approximately 39 tonnes was detoxified in FY2022.

We will continue to make efforts to properly store, transport, and dispose of the remaining low-concentration PCB waste.

06

Asbestos

Since the announcement in late June 2005 of industrial accidents at workplaces where asbestos was used, several cases have been taken up, and asbestos has become a major social problem that affects not only workers but also their families and the residents around the factories. As the latency period for the health effects caused by asbestos is long (more than 20 years), appropriate measures must be taken over a long period of time. We are also working to grasp the current situation of asbestos use and thoroughly implement safety measures.

In March 2006, after repeated discussion concerning the handling of asbestos in a WG formed of knowledgeable people within the University, we established the University of Tokyo Asbestos Countermeasures Guidelines (hereinafter referred to as “the Guidelines”) to prevent health problems caused by asbestos in students, faculty, and staff. The Guidelines provide for appropriate maintenance and management not only of sprayed asbestos, but also of asbestos-containing laboratory equipment, to prevent health problems.

Currently, in accordance with the Guidelines, asbestos labels are attached to rooms and laboratory equipment where asbestos has been confirmed present to make it known that asbestos is being used. At the same time, exposure prevention measures are implemented according to the status of asbestos management, and alerts are issued to prevent health problems. We have also established an Asbestos Consultation Desk within the University to provide health consultations to those who have health concerns involving asbestos, and to provide medical examinations to those who wish to receive them (including retirees).

Concerning on-campus rooms with sprayed asbestos, in addition to confirming that these facilities are sealed off to prevent asbestos from being scattered and systematically dismantling the asbestos to reduce the on-campus amount of asbestos, we are also promoting the appropriate maintenance and control of asbestos-containing laboratory equipment in research laboratories, etc., as well as educating the University community about the need to replace asbestos-containing materials with non-asbestos materials and to upgrade equipment.



Sprayed asbestos
(in ceiling)



Asbestos has been used
(laboratory
equipment, etc.)



Not clear whether or not
asbestos has been used
(laboratory
equipment, etc.)



Sprayed asbestos
(contained)



Sprayed asbestos
(stable)

