



# What is a Good

# Campus?

Sustainability Report 2016

Toward a Sustainable Campus



Ono Pond



北海道大学  
HOKKAIDO UNIVERSITY



# What is a Good Campus?

What is your vision of the “ideal campus”?  
Is there anything you can do to achieve this ideal?  
This year’s Sustainability Report has been created with the aim of providing all students, faculty and staff members with the opportunity to think about and take action toward creating a better campus.

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~Place has a Mission~

Hokkaido University will celebrate its 150th anniversary in 2026. When we look ahead 150 years from that milestone year, what do we envision for HU campuses? In June 2016, four faculty and administrative staff members gathered in a room at the Hokkaido University Museum, which has undergone renovations and will reopen shortly, to exchange their views on a sustainable campus from their respective standpoints.

### On-Campus Round-Table Discussion

# A Sustainable toward the Fu



**Junji Yamamoto**  
Associate Professor,  
Hokkaido University Museum,  
Hokkaido University

**Takao Ozasa**  
Associate Professor,  
Faculty of Engineering,  
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**Noriko Nagahori**  
Specially Appointed Associate Professor,  
Support Office for Female Researchers,  
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Hokkaido University

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Senior Coordinator,  
Office of International Affairs,  
Hokkaido University

## 1 Keys to making Hokkaido University sustainable

**Ozasa:** When did HU start engaging in activities under the banner of “sustainable campus”?

**Takemura:** Eight years ago in 2008.

**Ozasa:** Back then, “sustainability” and “campus” were not discussed together. However, this concept was brought about from a discussion regarding the need for HU to take initiative in setting an example for society by creating its own sustainable models.

**Takemura:** The concept of sustainability can be traced back to discussions about “green campuses” and “eco-campuses.”

**Yamamoto:** Is sustainability really all about the environment?

**Ozasa:** The United Nations started focusing on sustainability, and the concept has now come to include not only the environment but also society, gender and economy.

# Campus ture

**Nagahori:** For universities, sustainability of research and education is important.

**Yamamoto:** My field of specialty is earth science. This academic field is actually said to be on the verge of disappearing. In high schools, earth science is now only taught to liberal arts students.

**Ozasa:** At universities, there is a field called urban geography that is closely related to urban planning, which we teach at our School of Engineering. However, the school does not have an instructor or course specialized in urban geography.

**Yamamoto:** Academic fields are all about needs. If people think an academic field is unnecessary, it will fade away. That’s why it is important to put some effort into

providing people with appropriate information.

**Ozasa:** It is also important to create need. Information that shows why earth science is necessary should be sent out.

**Takemura:** Is there a chance that need can be generated for earth science?

**Yamamoto:** There are needs for disaster prevention and other fields. Space development and exploration of seabed resources will also attract more attention in the future. Sustainability of universities is important, but I am always concerned about how long it will last because we cannot carry out research without such institutions. For earth science, 1,000 years is considered a short period of time.

**Takemura:** Even 1,000 years is short?

**Yamamoto:** I often use the unit of one million years. We can discover how critical diversity is if we look at things from the perspective of the long course of history. If we only possess stereotypical forms of value, we will not be able to adapt and survive. Therefore, it is also important for different types of value seeds to be sown on campus.

**Ozasa:** The sustaining of different forms of value, which have been abandoned by society due to changes in the trends of the times, is also an important role that must be played by universities. Speaking of HU, there are different forms of value that have been consistently sustained for nearly 150 years.

**Takemura:** What forms of value should HU protect to survive another 150 years or even 15,000 years?

**Nagahori:** Diverse human resources and an environment where people from diverse backgrounds can play an active role. Physical environments have the ability to control the motivation of individuals. If the university wants people from diverse backgrounds to actively participate, a design

enabling these people to feel welcome is important.

**Takemura:** So you mean a design that provides a welcoming feeling?

**Nagahori:** Yes. This is true for facilities and other physical environments as well as for the organizational structure. For example, if a pregnant teaching staff member with a fixed-term contract is told that her term will not be extended for maternity leave, she will feel that this organization does not welcome personnel who give birth.

**Ozasa:** In the fields of architectural planning and sociology, there is a key phrase—place of belonging. There is a big difference between people who have a place that provides them with peace of mind and a welcoming feeling and those who do not. I believe there is a need to create an environment in which everyone can find their own place on campus where they feel a sense of belonging. This is important because the achievements an individual can make differ completely depending on whether that person is able to use his or her ability free from anxiety.

**Yamamoto:** Before discussing place of belonging, we must first address accessibility. If someone is accepted by an organization, that person can receive a pass to access its facilities. However, this person will have problems if there is a barrier at the entrance. Although the Hokkaido University Museum is open to anyone, the gate to the university could be a barrier and there may also be physical and psychological barriers for entering the museum.

**Takemura:** Is there anything else we can do to make HU sustainable?

**Yamamoto:** I think it would be great if HU could become a campus capable of being fully utilized. If likened to a tree, HU has different branches and leaves that are resources utilized in various ways. Among the collection of items housed in the Hokkaido University

Museum, there are many items from olden times. For example, the museum houses wakame seaweed and kelp samples. These are materials that can be used to help us understand marine environments 100 years ago. HU has a culture for keeping resources and a history of doing so.

**Nagahori:** It is also true that accumulation is important when it comes to academic study. Different knowledge is accumulated and new value may be created from it.

**Yamamoto:** Although many research groups tend to obsessively focus on their own fields of research, they will someday interact with each other in a melting pot. What we need to do is create a venue for interactions between researchers.

**Nagahori:** We also need a gimmick to facilitate such interactions, don't we?



## Takao Ozasa

Associate Professor, Faculty of Engineering, Hokkaido University

Takao Ozasa was born in Tokyo. He graduated from the Department of Architecture of the Hokkaido University School of Engineering. He has a Ph.D. in engineering. After 10 years of experience in building design at a private company following graduation, he became an assistant professor at HU in 1993 and associate professor in 2006. He has doubled as a Director of the Office for a Sustainable Campus since 2010. He specializes in campus planning, urban design, architectural planning and building design.

**Ozasa:** We need people who can act as a mediator to combine disparate fields; otherwise, they will not be brought together. Eventually, the creation of an environment where individuals can come in

easily—or, in other words, where they can find their own place of belonging—may be the key to making fusion or creation happen.

## 2 Is HU integrated with the local community?

**Nagahori:** For people who play the role of mediator, their places of belonging require both a physical environment and culture. Does HU provide the type of environment needed for those people to actively play their roles?

**Ozasa:** It is often said that university campuses are like a city. Speaking of HU, there are a total of 22,000 to 23,000 people on our campuses, including students and faculty and administrative staff, which is equivalent to the population of medium-sized cities in Hokkaido. But when it comes to the question of whether HU has conditions like those of a city, I do not think it has become such a place. Cities have diversity. Cities have different forms of value and culture, and these differences are what make cities attractive.

**Takemura:** I think universities have more diversity and different forms of value than cities. People at HU have their own perspectives and I find that to be wonderful.

**Ozasa:** Unfortunately, however, it does not make the university attractive. I think it is OK for people to do their own things in day-to-day activities, but there comes a time when we should realize the need to stand together and act as one for the university. Here, one good example of such an occasion is the Future Strategy for the 150th Anniversary of Hokkaido University.

**Takemura:** The strategy calls for us to “establish an infrastructure that enables members to carry out their tasks with a sense of pride and fulfillment.” It also says, “We will make practical use of our extensive campus and broad range of advanced knowledge, work with the local community to help find

solutions to problems that affect them, and make proposals and provide information aimed at sustaining a safe environment and a stable society.”

**Ozasa:** Considering the location of the Sapporo Campus, which is situated in the city center just minutes from JR Sapporo station, I think it is important for HU to be integrated with and contribute to the local community. What is the current situation in this regard?



## Junji Yamamoto

Associate Professor, Hokkaido University Museum, Hokkaido University

Junji Yamamoto has been engaging in research to clarify the formation process of the solar system by analyzing the earth's interior with chemical approaches. He had applied for a position at university museums across the country with the aim of developing an experience-based learning system and was accepted by the Hokkaido University Museum in 2012. He strives to transform the exhibits housed inside the Hokkaido University Museum to create an interactive museum where visitors from within and outside the university can spend their time pleasantly.

**Yamamoto:** I do not think our collaboration with the local community is enough.

**Takemura:** I have heard someone say something along the lines of this: “Roles need to be allocated in such a way that HU finds its role in collaborating with people overseas and leaves interactions with the City of Sapporo and the Hokkaido Government to other universities.”

**Ozasa:** But isn't it natural for people to want their town to become a better place and help if there is something they can do? Roles unique to HU definitely exist in Hokkaido, not in Europe or the United States, and through the

research and achievement of our local roles, we will eventually be able to create knowledge and wisdom as a leading institution with world-wide recognition.



## Noriko Nagahori

Specially Appointed Associate Professor Support Office for Female Researchers, Front Office for Human Resource Education and Development, Hokkaido University

Noriko Nagahori received a Ph.D. in science from the Hokkaido University Graduate School of Science. Although she had devoted herself to the research of functions of biopolymer since her days in school, she changed her career path from that of a researcher to administration and engaged in industry-academia collaboration for two years. She is currently working on the development of a research environment to support the career development of researchers and to support diverse human resources enabling them to fulfill their potential by focusing on issues with which women are often faced.

**Nagahori:** It is difficult to determine where to find the value of our university and how to allocate and invest our resources.

**Takemura:** HU currently employs the six-year cycle for management. I would like to hear your opinions from the standpoint of the one million-year cycle.

**Yamamoto:** I think that setting a six-year term and goals and evaluating the achievements are fine, but the goals set in a six-year plan should continue to be utilized in the next plan rather than being completed and then becoming extinct in a single six-year plan.

**Ozasa:** You mean it's important to continuously consider and take action for activities that need to be continued?

**Yamamoto:** The variety of knowledge established in a six-year project is lost because the people

who built that knowledge are gone once the project has been completed. It's a shame to see the value of knowledge connected to certain individuals disappear when those individuals leave.

**Ozasa:** Financial sustainability is also important when it comes to the concept of sustainability. Up until last academic year, HU spent an average of some four billion yen annually for the last 12 years to construct and improve buildings and infrastructure, excluding expenses for utilities. This continuous investment in facilities means that HU has accumulated considerable assets.

**Takemura:** So, do we have something special?

**Ozasa:** Since tax money has been invested in the development of our facilities over the past 140 years, we must insist that our environment, campuses and buildings are valuable. HU possesses physical assets, human assets, and research achievements, which are the products we have produced. To play the role of an institution with assets in society, we must think about sharing these assets with the local community. Some people think that universities fulfill their social responsibilities by educating and producing human resources. However, when it comes to collaboration with local communities, universities and local communities can chip in and work together to make their towns better.

**Takemura:** Is that a job for researchers?

**Ozasa:** It is the job of universities. If there is someone who can take on such initiatives as his or her research themes, it is the job of researchers.

**Takemura:** In the United States, it is said that education and research are the job of faculty and that university management is the job of administrators. I wonder if preparing the Hokkaido University Museum to open it up to the local community

and planning to attract more local residents to visit the campus are really the responsibilities of faculty. What do you think?

**Yamamoto:** Although we are appreciated for doing this work for the museum, we are also faculty members. We are researchers belonging to the School of Science, the School of Agriculture or others, and we will not be able to take the next step forward in our careers if we do not deliver research results.

**Ozasa:** There is a need for the overly polarized situation between faculty and administration jobs to change. I think we need a system to put in place a third-party human resource between the faculty and the administration to undertake both roles simultaneously.



## Riyuki Takemura

Senior Coordinator  
Office of International Affairs,  
Hokkaido University

Riyuki Takemura joined Hokkaido University in 2006 as a project planner of the Hokkaido University Initiative for Sustainable Development. Since then, she has engaged in operations that straddle areas involving the internationalization of universities and the creation of a sustainable society. She currently plays a role within the Secretariat for Sustainability Weeks and the Office for Hokkaido Universal Campus Initiative (HUCI) (Top Global University Project).

**Takemura:** Is this third party expected to play a comprehensive role?

**Ozasa:** Yes. For example, research institutions, which are open to faculty members of other universities, are established outside HU and research achievements are shared with the local community.

**Takemura:** In such a case, do you mean that HU campuses are not the

only places where we should be looking for a place of belonging, the key phrase you mentioned earlier?

**Ozasa:** I think this place of belonging should exist both inside and outside a university.

**Takemura:** So what you mean is that an ideal should first be created inside a university and then expanded into the local community as a way of taking the lead in setting an example for a new way of society.

**Nagahori:** If a research institute for studying local issues is established outside a university and research is carried out in collaboration with local governments, it is effective because people who know the field and people who are well-versed in research can help and complement each other.

**Takemura:** But don't you think there is a question as to who is going to do this?

**Ozasa:** The key point is whether universities feel they have to do it. In the United States, universities have been involved in city planning since the 1980s. One example is Columbia University, which is located in the northern part of New York City. The neighborhood was unsafe back then. The university felt it was an obstacle to attracting students, so it got involved and invested in the redevelopment of the neighborhood.

**Takemura:** I think themes it would

be nice to work on in Sapporo are solving the issue of insufficient daycare facilities and developing a system to support the day-to-day lives of our faculty and administrative staff members with family members requiring nursing care.

### 3 What should be created in HU?

**Takemura:** Lastly, let's talk about what needs to be created on HU campuses or things to strive for.

**Yamamoto:** Place of belonging. The Hokkaido University Museum, which is scheduled to reopen, is based on the concept of "an intersection of knowledge." Since it is an organization that does not belong to any of the schools and therefore no one's "home," I hope a diverse range of people will visit to seek out their place of belonging.

**Nagahori:** It would also be nice to have a daycare facility and after-school care program to provide services in English. I strongly hope we will establish these in order to create a research environment that will attract international researchers and students.

**Takemura:** I expect there to be a minimum set of rules. As members on campus become diversified, conflicts may occur. We should therefore set rules for use of the campuses. For example, the

campuses can be used freely with the exception of open flames. Then people will be able to carry out creative activities based on their own unique ideas through use of the campuses.

**Ozasa:** I feel it is important to have housing facilities that will provide dwellings not only for students but also for teaching and administrative staff members and international guests. A place to share time and space is necessary within the university. In this sense, Nitobe College should have a dormitory. In such a dormitory, Japanese and international students live together and research fellows can visit to teach and stay. With people of different ages and from different countries, it would be a place where instructors and students can do something together. Since there are many things to teach outside the classroom, they could be taught there.

**Takemura:** One professor from abroad has mentioned that the unique selling point of the Japanese educational system is seminars. Seminars are a place where members share good and bad times, eat together, and grow up by teaching each other. He said that we should take pride in this system and highlight and sell it to the world.

**Ozasa:** If we really want to provide education to foster well-rounded

individuals, face-to-face education to share the learning experience is necessary, otherwise it will be difficult for us to accomplish.

**Takemura:** If the method is fully exploited, it will be a form of education that is superior to Internet education, unique to Japan and only provided in Hokkaido.

**Ozasa:** To this end, we should properly improve our campuses. That's what we need to do.



# Creating a Sustainable Campus!

- Organized by: Office for a Sustainable Campus
- First-round application deadline: July 15, 2015
- Announcement of subsidized projects: March 24, 2016

Proposals for initiatives to reduce the environmental burden of HU were invited from within the campus. By broadening the definition of a Sustainable Campus, various projects, including those to improve the quality of campus life and those to ensure the safety and security of the campus environment, have been selected for grant funding. The Sustainable Campus Promotion Committee comprised of faculty and staff members, including those from the Faculty of Engineering and the Facilities Department, is responsible for reviewing applications.



## Focusing on the realization of pollen forecasts

### Monitoring of Environmental Nano-Micro Substances

Changes in pollen counts at the HU Sapporo Campus and the development of a forecast model

Applicant	Joint-use Facilities, Faculty of Engineering Laboratory of Nano-Micro Material Analysis
Background/objective	Many people at HU suffer from hay fever. A better living environment is sought through the observation of floating substances in the air.
Project outline	A pollen collector has been installed at three locations on campus. A pollen forecast model will be developed.

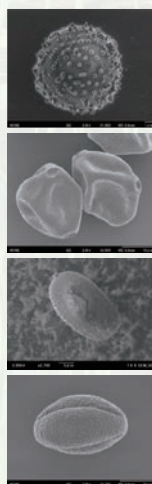
#### Which types of pollen are floating around campus?

While there are some people who have come to HU from outside Hokkaido whose hay fever symptoms have been cured, there are others who say they have gotten hay fever for the first time since starting their campus life at HU. On the HU campus, different varieties of plants grow and pollen dispersal conditions may differ greatly from that in the urban area of Sapporo. Ryoko Kurishiba of the Faculty of Engineering thinks it would help to create an environment enabling people to feel at ease and focus on their research or studies by correctly understanding the situation and therefore created her own pollen collector and installed it at three locations on campus. With the cooperation of the Hokkaido Institute of Public Health, she observes and measures pollen counts. More than 20 types of pollen, including the Asiatic dayflower, white birch and ginkgo, have been con-

firmed so far. The pollen collection and observation methods, pollen information on Sapporo and Hakodate campuses, and other related information are now available at the website mentioned below. Kurishiba, describing her next step, says, "I want to develop a pollen forecast model by relating temperature and humidity data with pollen dispersal conditions."

©Monitoring of environmental nano-micro substances

Changes in pollen counts at the HU Sapporo Campus and the development of a forecast model  
<http://nma.eng.hokudai.ac.jp/sustainable/>



Collected pollen

**Ryoko Kurishiba**  
 Technical Staff  
 Faculty of Engineering



# Creating a Sustainable Campus!

File  
**02**

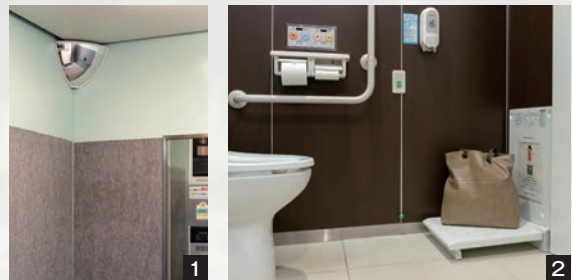
## Making restrooms and elevators more accessible! Accessibility Improvement Plan in the Northern Country and for the Disabled Vol.1

<b>Applicant</b>	Academic Support Office for Students with Special Needs
<b>Background/objective</b>	In line with the Basic Policy for Promoting the Elimination of Discrimination Based on Disability of the Cabinet Office
<b>Project outline</b>	Changing boards have been installed in multi-function restrooms and a mirror has been installed in an elevator for the convenience of wheelchair users.

### Changing boards have been installed in restrooms.

In October 2015, a changing board was installed in the multi-function restroom at the Hokkaido University Information Center, followed by the installation of changing boards in multi-function restrooms in the Graduate School of Education research building in December. These changing boards can be used to place bags and other belongings or as a platform for changing clothes. In addition, a triangular mirror has been installed in the elevator in the Graduate School of Education research building for wheelchair users because

there is a possibility of a wheelchair running over someone's foot due to blind spots under the feet. Professor Yasuko Matsuda, who concurrently serves as a counselor at the Academic Support Office for Students with Special Needs and who spurred these installations, says she believes a sustainable campus is "a campus comfortable for everyone" and found her proposal perfectly matched the concept of the Creating a Sustainable Campus initiative.



1 Triangular mirror installed in the elevator of the Graduate School of Education research building

2 Changing board installed in the multi-function restroom at the Hokkaido University Information Center

### What about the Improvement Plan Vol. 2?

After conducting a facility inspection with the cooperation of students, it was discovered that some restrooms are too small for the installation of changing boards. Nevertheless, Professor Matsuda goes beyond organizational boundaries to exchange information with other faculty members to learn what she can do to improve facilities and make them more user-friendly. She is also planning other ideas such as creating resting areas and better methods for snow removal. Why not visit the Academic Support Office for Students with Special Needs if you have any ideas for improving the campus environment?



**Professor Yasuko Matsuda**  
Faculty of Education, Graduate School of Education, School of Education  
Student Counseling Room, Academic Support Office for Students with Special Needs (concurrent post)





## 154 applicants for 13 old computers! Reduce, Reuse and Recycle Old Lab Computers (PC-3R) Project

<b>Applicant</b>	Joint-use Facilities, Faculty of Engineering Laboratory of Nano-Micro Material Analysis
<b>Background/ objective</b>	To reduce waste by reusing and recycling old computers, which have not been reused at HU up until now, and support education and research activities by providing recycled computers and peripheral devices.
<b>Project outline</b>	Computers and peripheral devices no longer in use at the School of Engineering are collected, repaired and lent out to applicants.



**Nobuyuki Miyazaki**  
Technical Specialist  
Faculty of Engineering

### Computer recycling at the School of Engineering

At Hokkaido University, laboratory equipment and furniture are recycled through an equipment support system called RENUH. Up until now, however, computers have not been reused or recycled. Believing this to be wasteful, Nobuyuki Miyazaki of the Faculty of Engineering has begun collecting computers that are no longer in use at the School of Engineering. He has set up a PC-3R Project Working Room in a section of the server room inside Materials Engineering and Chemical Experiment Laboratory and worked on replacing parts, upgrading and cleaning the inside of the computers he collects. It goes without saying that all data is completely erased to prevent the leakage of personal and confidential information.

Staff members and students of the School of Engineering were invited to submit requests to rent 13 computers prepared for reuse and a total of 154 applications were submitted. Among the computers available, the most popular one received 31 applications. This clarified the demand for old computers. This demand may stem from the fact that some laboratories do not allow students to use their own computers in the laboratory. Miyazaki hopes the lucky ones who won the lottery and are allocated a computer use them in an appropriate manner because he knows some of the laboratories are covered in dust.

### Expanding computer recycling to the entire university in the future

If a PC-3R category for reducing, reusing and recycling old computers is added to RENUH in the future, effective utilization of out-of-use computers will become possible not only at the School of Engineering but also across the entire university. However, the amount of work that can be done is limited because Miyazaki is currently doing all of the repair work alone in addition to his original job. In addition, to collect out-of-use computers from across the campus, it will be necessary to establish a system for housing the collected computers before handing them over to the PC-3R Project Working Room once every six months or so. If the personnel costs exceed the price of purchasing a new computer, recycling will make less sense.



PC-3R Project Working Room



## PDCA Cycle based on ASSC

HU uses the Assessment System for Sustainable Campus (ASSC), which was developed by the Office for a Sustainable Campus in cooperation with the Sub Committee for Campus and Regional Community Planning of the Architectural Institute of Japan's Research Committee on Urban Planning and Design, in the PDCA (Plan, Do, Check and Act) cycle of its university operations. This effort was presented under the title of "Establishment of PDCA Cycle and On-Campus Communication" at the first Sustainable Campus Award Contest (2015)

organized by CAS-Net JAPAN and won the top honor in the university operations category. In addition, the Office for a Sustainable Campus was recognized for its efforts and given the First Prize of the President's Award for Education and Research Support Operations in February 2016.

In accordance with the assessment results based on ASSC, HU has implemented the following strategies since academic 2015.

- ◆ Education for sustainability literacy
- ◆ Incentive programs for student activities, administrative operations, and education/research related to the development of a sustainable campus
- ◆ Encouragement for student involvement in activities to reduce environmental impact, including the organization of student workshops
- ◆ Revision of the Campus Master Plan and formulation of energy plans and goals
- ◆ Discussions for utilization of the campus area in cooperation with the City of Sapporo

## Assessment System for Sustainable Campus (ASSC) **ASSC**<sup>®</sup>

This assessment system is comprised of 170 evaluation criteria for overall assessment of a university in four fields: Management, Education and Research, Environment and Local community. It was designed and developed to enable universities to understand the composing elements of a sustainable campus and strategies

required for them, as well as to discover an appropriate operation method matching their own characteristics with numerous evaluation criteria for overall university planning, management system, securement of human resources and securement of budget, etc.

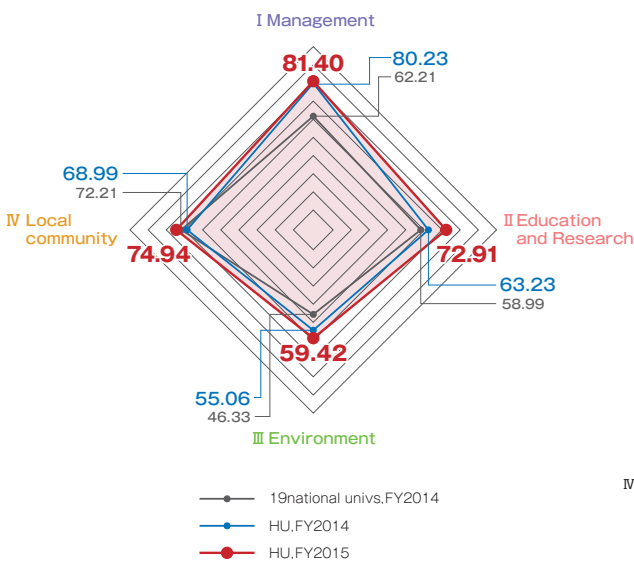


Fig. 1 Score percentages of Hokkaido University in four fields

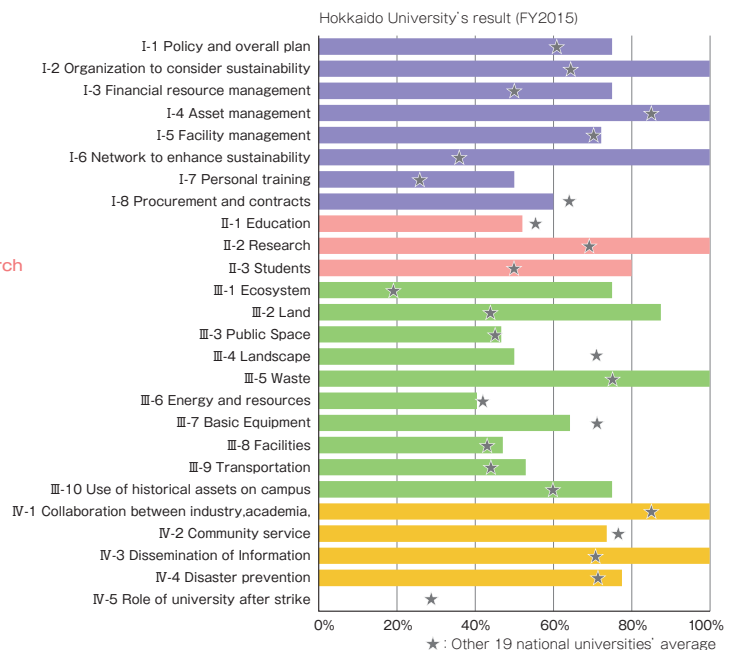


Fig. 2 Score percentages of Hokkaido University by area

# Steps toward a Sustainable Campus

## 1 Progress and Achievements

### Looking back from the start Environmental Activities of Hokkaido University

HU established the Department of Health Engineering, which is focused on education and research of the environment, as the first department of its kind in Japan in 1957. Since then the university has conducted a number of pioneering activities with the aim of creating a sustainable society. Here we overview plans, declarations, organizations and other efforts related to HU's Sustainable Campus initiatives.

#### History of environmental activities

- 1957 **The Department of Health Engineering is established in the School of Engineering.**
- 1988 [International] Intergovernmental Panel on Climate Change (IPCC) is established.
- 1993 [Japan] The Basic Environment Law is enacted.
- 1995 [International] The United Nations Framework Convention on Climate Change (UNFCCC) First Conference of the Parties (COP1) is held. (Berlin)
- 1997 [International] The Kyoto Protocol is adopted.  
**The Campus Master Plan 96 is formulated.**
- 2001 [Japan] The Environment Agency is reorganized as the Ministry of the Environment.
- 2004 [Japan] The Law Concerning the Promotion of Business Activities with Environmental Consideration by Specified Corporation, etc., by Facilitating Access to Environmental Information, and Other Measures is enacted.
- 2005 [International] UN Decade of Education for Sustainable Development (DESD) begins.  
**The Environmental Policy is formulated. The Hokkaido University Initiative on Sustainable Development (HUISD) is established.**
- 2006 **The Environmental Report is published. The International Symposium on Sustainable Development is held.**
- 2007 **The Campus Master Plan is formulated. The first Sustainability Weeks is held.**
- 2008 **The G8 University Summit is held.**  
[International] The Hokkaido Toyako Summit (34th G8 Summit) is held.
- 2010 **The Office for a Sustainable Campus is established.**  
**A Proposal for Reducing Environmental Footprint: Toward a Campus Operation Contributing to the Creation of a Sustainable Society is formulated.**
- 2012 **The Action Plan 2012 for Sustainable Campus is formulated.**
- 2013 **The Assessment System for Sustainable Campus (ASSC) is formulated.**
- 2014 **The Future Strategy for the 150th Anniversary of Hokkaido University is formulated.**

■ On campus ■ Outside campus

#### Academic Plans

##### Hokkaido University's Four Basic Principles

- Frontier Spirit
- Global Perspectives
- All-round Education
- Practical Learning

##### Hokkaido University Environmental Policy Formulated on September 5, 2005

###### [Policy Statement]

Hokkaido University is a national establishment with a central role in Japan's academic research and human resource development (targeting areas such as researcher capabilities), and supports the country's knowledge foundation for the 21st century. In this role, it is committed in all its activities to protecting the environment on local and global scales and to building a sustainable society.

###### [Basic Principles]

Hokkaido University shall establish an Environmental Management System to implement the goals of its Policy Statement, and shall set and achieve environmental objectives as outlined below in conjunction with university staff, students and everybody else on campus. The university shall also make efforts to ensure that ongoing environmentally friendly activities take root by publicizing them on campus and providing relevant information to the public.

###### 1.Consideration for the global and local environment via education and research

Hokkaido University shall foster the development of individuals with high degrees of specialization through the promotion of a wide variety of educational and research activities relating to global and local environments, and shall produce outstanding research achievements.

###### 2.Social contribution via the provision of information on the environment

Hokkaido University shall help to raise awareness of the need for environmental consideration in local communities and society as a whole through efforts to educate and to make people aware of environmental education and research program results.

###### 3.Reduction of the university's environmental footprint

Hokkaido University shall make efforts to reduce its environmental footprint via the promotion of energy and resource conservation, cyclical resource usage and green purchasing along with thorough implementation of chemical substance control and other measures.

##### Future Strategy for the 150th Anniversary of Hokkaido University Formulated in March 2014

Hokkaido University will celebrate its 150th anniversary in 2026. The following objectives have been set to advance its reforms for contribution to the resolution of global issues.

1. Hokkaido University will promote world-class research to resolve a variety of issues and sustain future generations.
2. Hokkaido University will produce graduates who will play a leading role in contributing to the development of a global society. As specialists in their fields, they will possess sound judgment and deep insight, along with the ability to understand and communicate with different cultures.
3. Hokkaido University will continue to transmit knowledge and promote social advancement through outside collaboration, providing assistance to regions and communities in Japan and overseas by addressing and resolving issues that concern them.
4. Under the leadership of the President, Hokkaido University will carry out reforms of our organizational, personnel, and budget systems, establish an infrastructure that enables members to carry out their tasks with a sense of pride and fulfillment, and implement administrative policies with a focus on sustainable development.
5. Hokkaido University will establish a global presence by actively publicizing the fruits of its education and research through strategic marketing.

## Sapporo Sustainability Declaration

### Adopted on July 1, 2008

Hokkaido University served as a host institution for the G8 University Summit from June 29 to July 1, 2008, prior to the G8 Hokkaido Toyako Summit. Presidents and representatives from 27 universities from the G8 member countries gathered and were joined by those from eight universities from six other countries and the United Nations University. Responsibilities and efforts of universities for the realization of sustainability were discussed and the Sapporo Sustainability Declaration was adopted. The following is a summary of the declaration.



#### Joint affirmations (outline)

1. Sustainability is the most important concept in the 21st century.
2. Sustainability has become a political concern rather than merely a scientific issue involving the environment.
3. The role of universities in ensuring that policy makers and researchers work closely together is increasing in terms of efforts to resolve sustainability issues.
4. Scientific knowledge gained by restructuring subdivided research fields and an integrated approach is required.
5. A network of networks (NNs) is necessary to develop a new scientific knowledge framework.
6. It is important for researchers to communicate with citizens and policy makers to support social change.
7. Universities have a role to foster human resources, who will solve local problems in each region, through higher education.
8. Universities can provide new sustainability models by using their campuses as experiment fields.





## Hokkaido University Campus Master Plan

The Hokkaido University Campus Master Plan is a basic environmental policy to improve and utilize the university's campuses, which serve as a base for education and research. The university is currently working on formulating a new plan based on the verification of previous plans.

### Campus Master Plan 96 Formulated in February 1997

• This plan was formulated to define the basic policy on facility construction to realize the institution's future vision toward the 21st century. HU was a pioneer in the creation of a campus master plan among national universities in Japan.

#### [Main points of the plan]

- Positioning of the campus as a place for people engaging in research and education
- Development to create a campus that is relevant to society
- Positioning of the campus as an urban space
- Preservation of distinctive landscapes
- Preservation and development of historical campus composition
- Facility and environmental improvement to allow global research and competition



### Campus Master Plan 2006 Formulated in March 2007

• This plan was developed by incorporating the basics of the Campus Master Plan 96 and adding new perspectives. The plan focuses on sustainable development, which is enabled by space development to accommodate various changes, and flexible facility/environmental management to support university administration.

• This plan consists of a Framework Plan for implementing academic plans and a step-by-step Action Plan. Specific development plans and related details are examined and crystallized in a Realization Program after discussion and formulation of these two sub-plans.

#### [New perspectives]

- **Sustainable development**  
Maintenance and management of the environment, including cultural resources
- **Development of an environment supporting academic innovation**  
Development of an environment supporting enriched, high-quality campus life
- **Development of foundations for outstanding academic research**  
Development of competitive facilities and environments for global research and education programs
- **Facility and environmental management**  
Improvement of facility/environment quality in line with the policy for university administration and planned goals

#### Framework Plan

- Space planning
- Flow planning
- Facility and environmental management

#### Action Plan

- Public space development planning
- Traffic planning
- Guidelines for green space conservation and utilization
- Guidelines for historic buildings and underground cultural properties



#### Realization Program



### Achievements of the Campus Master Plans 96 and 2006

The achievements of the Campus Master Plans 96 and 2006 include, among others, the improvement of the Sakushukotoni River, renovation of historical buildings (including important cultural properties), and new construction/renovation of the Veterinary Teaching Hospital of the School of Veterinary Medicine.

**[Example 1]****Promotion of industry-academia collaboration with a strategic zoning plan**

The Second Experiment Farm located at the north end of the Sapporo Campus was positioned as a zone for the formation of an advanced academic base to promote industry-academia collaboration in the Campus Master Plan 96. In 2002, the Hokkaido University Research & Business Park Plan was prepared with a primary focus on the northern campus area by the Hokkaido Government, City of Sapporo, Hokkaido University, Hokkaido Economic Federation and other related organizations. The area is now home to research facilities, including the Creative Research Institution, and facilities to support industry-academia-government collaborations such as the Hokkaido Industry-Academia-Government Collaboration Center, while also playing the role of growing grass for research animals. The Second Experiment Farm has also been designated as a broad-area evacuation site by the City of Sapporo, serving as a place to secure the safety of local residents.



A complete view of the northern campus area (present)

**Campus Master Plan 2017 (tentative title) Currently under planning**

## Office for a Sustainable Campus

The Office for a Sustainable Campus was established on November 1, 2010 with the aim of realizing an environmentally conscious campus (sustainable campus) to contribute to the development of a sustainable society. Working with other on-campus organizations and cooperating with overseas universities, the office engages in various activities.

### Objectives

- Creation of a low-impact campus
- Creation of a campus that contributes to the development of a sustainable society

### Goals

- To achieve zero emissions for the entire university through energy savings, the use of renewable energy sources and other efforts.
- To develop and implement a sustainable social model using the campuses as a demonstration field and provide knowledge and human resources that meet the needs of society.

### Achievements

- Finalization and implementation of an energy-saving plan
- Incentive programs to promote energy-saving activities
- Development and operation of the Assessment System for Sustainable Campus (ASSC)
- Networking with domestic and overseas universities
- Compilation of the Environmental Report, others

### Future-oriented projects

- Formulation of new action plans
- Formulation of project plans to achieve targets for new energies
- Implementation of the 3R (reduce, reuse and recycle) and waste compaction projects
- Organization of workshops for the formulation of a campus master plan
- Gathering of international information and sending of information about HU's achievements through the International Sustainable Campus Network (ISCN), others

# Steps toward a Sustainable Campus

## 2 Formulation of a New Campus Master Plan

What will be the focus of the new plan following the Campus Master Plans 96 and 2006? Workshops have been organized for faculty members and students who are not directly involved in the formulation of the new campus master plan to ensure that their own ideas and thoughts, as well as those of the people around them, are included in the plan. Introduced here are summaries of the workshops.

### New Campus Master Plan Support Workshop (for faculty) Vol. 1

■ June 6, 2016 ■ Enyu Gakusha Community Hall

■ Organized by: Office for a Sustainable Campus

#### [Participants]

There were a total of 38 participants, ranging from young teaching staff to those in senior level positions. In addition to researchers from each school, Environmental Impact Reduction Assistants, the Administration Bureau Director's Meeting, the Facilities Department and the Office for a Sustainable Campus, the City Development Policy Planning Bureau of the City of Sapporo also participated in the workshop.

#### [Objectives]

- To help campus users from within and outside the campus deepen their understanding of the Campus Master Plan.
- To encourage campus users to discover and bring out the strengths and weaknesses of the campus.
- To clarify elements expected to be included in the Campus Master Plan.







**[Workshop process]**

After the Office for a Sustainable Campus explained the purpose of the workshop, participants were divided into five groups for discussion. The groups discussed various themes, including feedback regarding previous Campus Master Plans and points they expected to be included in the new Campus Master Plan, and organized comments on large sheets of paper. Once the participants were all together again and comments from the discussions were presented by each group, they voted for the comments they agreed with by placing dot stickers next to them.

**[Future plans]**

The workshop will communicate with the Working Group for Campus Master Plan Formulation (see the diagram on page 18) to utilize each other's feedback for further discussions.

**Comments from the group work and voting results (top-ranking items)**

Points expected to be included in the new Campus Master Plan	Voting results (stickers gained)
To create a campus that is truly loved by students, faculty and other staff	●●●●●●●●●●
Efforts to make the entire university wiser and more advanced	●●●●●●●●
A class for learning about the Campus Master Plan: I Love Hokudai	●●●●●●●
An expansive campus with easy access from north to south and vice versa	●●●●●●
Definition of a vision for campus creation	●●●●●●
Collection of admission fees from tourists	●●●●●●
Shortage of money	●●●●●●
Multicultural environment	●●●●●
Realization of a safe, peaceful campus	●●●●
Clearly defined zoning	●●●●
Separation of vehicle and bicycle lanes and sidewalks (restrictions on bicycle users from outside campus)	●●●●
Restrictions on cars entering the campus (entrance charges: 500 yen for HU students and employees; 1,000 yen for people from outside the campus)	●●●●
Attractiveness as a knowledge base	●●●●
Internet video delivery to disseminate information about HU	●●●●
Development of a mini smart city utilizing information technology	●●●●



## New Campus Master Plan Support Workshop (for students) Vol. 1

■ July 23, 2016 ■ Conference Hall  
 ■ Organized by: Office for a Sustainable Campus

### [Participants]

There were a total of 19 participants (undergraduate and graduate students). Participants were comprised of student members of the Hokkaido University Co-op and members of the Students Council for Sustainable Development (SCSD) who are actively involved in environmental activities.

### [Objectives]

- To help students deepen their understanding of the Campus Master Plan.
- To encourage students to discover and bring out the strengths and weaknesses of the campus.
- To encourage students to think about what is necessary to enhance

enjoyment of HU campuses.

### [Workshop process]

After learning about the Campus Master Plan through a lecture, students were divided into four groups of Spring, Summer, Autumn and Winter for discussions. They exchanged various ideas for experiences and opportunities they would expect on campus with key words such as "fun," "informative" and "cozy" and organized the ideas on large sheets of paper. Once the participants were all together again and ideas from the discussions were presented by each group, they voted for the ideas they agreed with by placing dot stickers next to them.



### Examples of top-ranking ideas

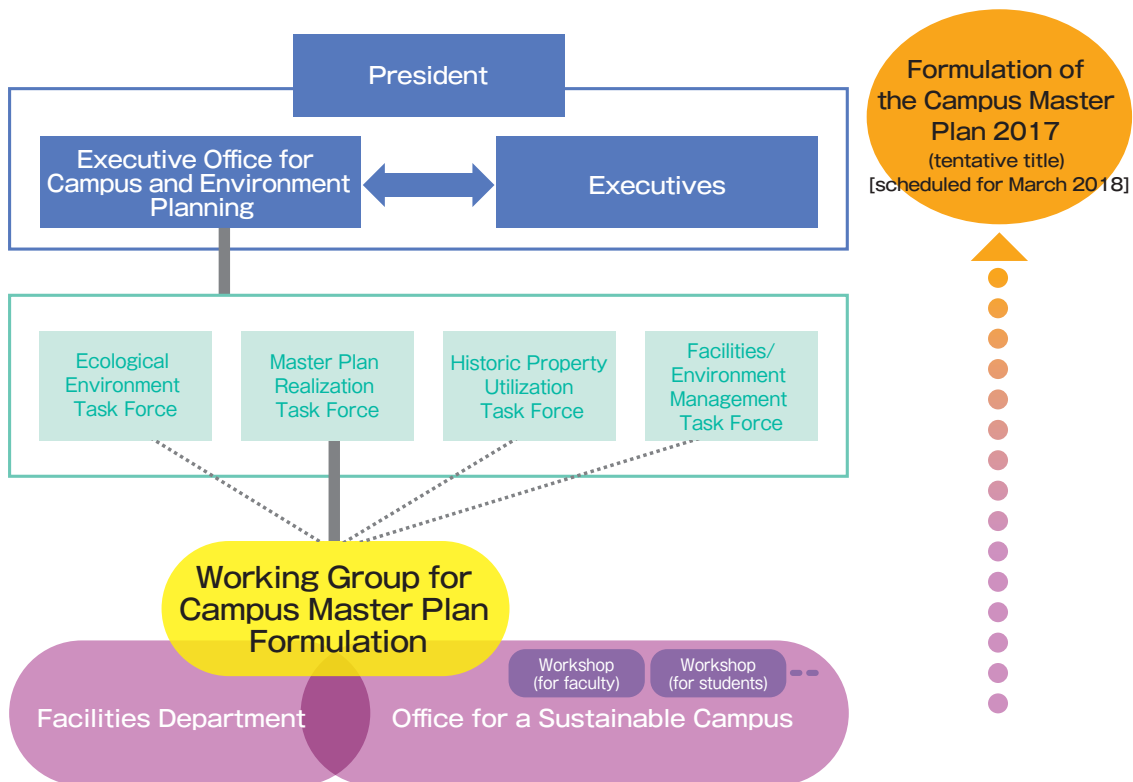
<p>●●●●●●●●</p> <p>Connect Schools to Subway Stations</p>	<p>●●●●●●●●</p> <p>Create an enormous indoor space open to everyone</p>	<p>●●●●●●●●</p> <p>A space for being alone</p>	<p>●●●●●●●●</p> <p>Install a sidewalk road heating system</p>	<p>●●●●●●●●</p> <p>Spaces open around the clock</p>
<p>●●●●●●●●</p> <p>Create hot springs for bathing</p>	<p>●●●●●●●●</p> <p>Spaces where eating and drinking is allowed</p>	<p>●●●●●●●●</p> <p>Spaces for drinking alcoholic beverages and chatting</p>	<p>●●●●●●●●</p> <p>Communication spaces (e.g., small meeting rooms) placed everywhere on campus</p>	<p>●●●●●●●●</p> <p>Inter-class/inter-school snow festivals and sports festivals</p>
<p>●●●●●●●●</p> <p>Wi-Fi connection available anywhere on campus</p>	<p>●●●●●●●●</p> <p>An enormous outdoor space that can be used for any purpose</p>	<p>●●●●●●●●</p> <p>A campus utilizing seasonal beauty</p>	<p>●●●●●●●●</p> <p>Events and places for interaction with people from different schools and of different ages</p>	<p>●●●●●●●●</p> <p>Facilities (e.g., sound facilities) for arts clubs</p>

### [Future plans]

The Office for a Sustainable Campus will review various aspects of the workshop, including participants, workshop themes and styles, and facilitate discussions to summarize student opinions.



Conceptual diagram for the formulation of the new Campus Master Plan



## Changes in environmental data

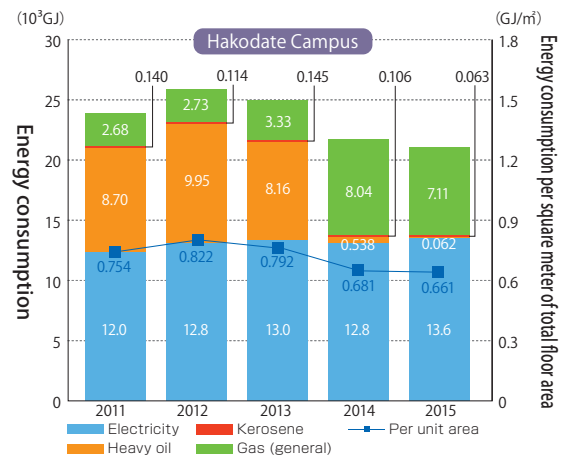
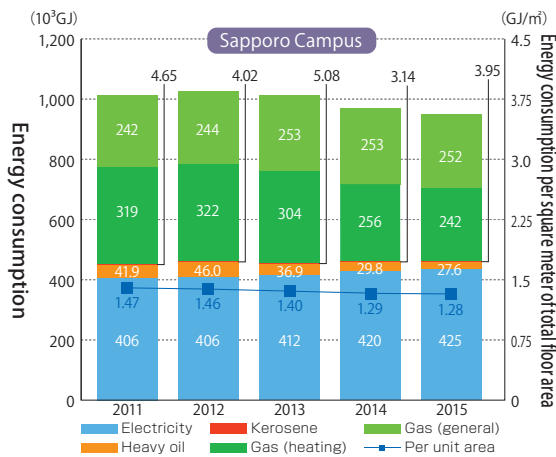
HU is working toward environmentally friendly campus improvement focused on the reduction of environmental impact from university operations and a final goal of zero emissions to be achieved through the use of renewable and natural energy sources and other means. In the second phase of its Medium-term Goals, which covered academic 2010 to 2015, the university set a target of reducing annual greenhouse gas (GHG) emissions by 2% from 91,270 tons in the base year of 2005. The university has also set its medium- and long-term

goals to reduce GHG emissions by 20% by 2020 and 35% by 2030 compared to the base year. However, due to the situation outlined below, alternative target items and numerical values for replacing GHG in the third phase of the Medium-term Goals (academic 2016 – 2020) will be defined within academic 2016.

### ◆ Energy consumption

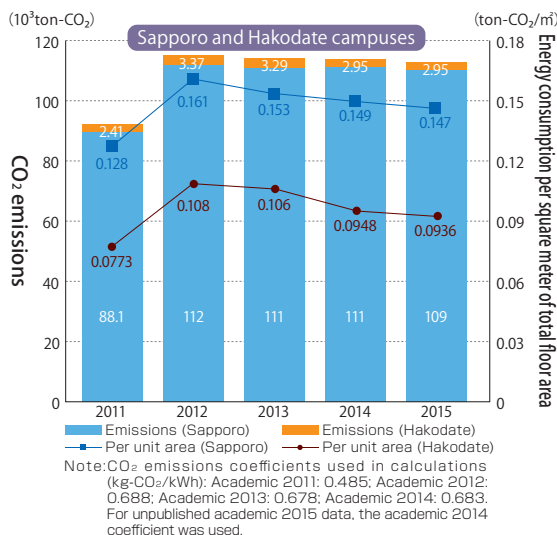
Based on measures taken after the Great East Japan Earthquake, HU has implemented build-

### ◆ Energy Consumption (the value for electricity is from direct consumption)

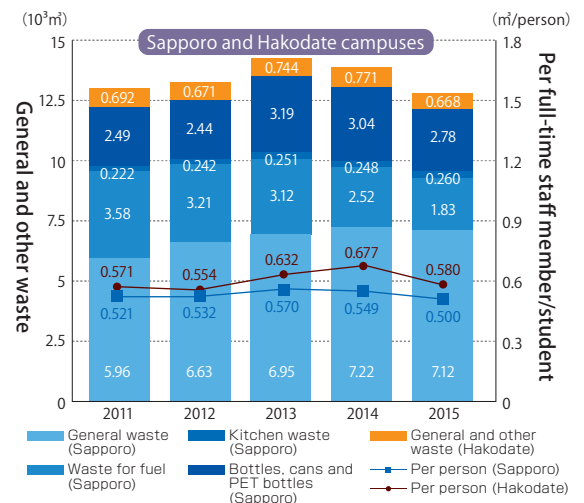


Calorie conversion factor by energy type: Electricity (direct consumption): 3.6 MJ/kWh Heavy oil: 39.1 MJ/L Kerosene: 36.7 MJ/L Gas: 46.0 MJ/m<sup>2</sup>

### ◆ Greenhouse Gas Emissions



### ◆ General and Other Waste Generation



Note 1: Kitchen waste is generated by the university hospital's food preparation facilities.  
Note 2: Full-time staff numbers include temporary staff.

ing expansion and renovation, and facility upgrading and enhancement across its campuses. As a result, as of May 1, 2015, the total floor area of the Sapporo Campus increased by 6.4% or 44,578 m<sup>2</sup> compared to the area as of May 1, 2011. Building air conditioning was changed from central heating based on the use of boilers in the power center to individual gas- and electricity-powered air conditioning with cooling function. This additional cooling function has significantly increased amounts of gas (for general purposes) and electricity use. On the other hand, gas consumption (for heating) at the power center has decreased and the energy consumption rate per square meter of total floor area has decreased by 8.7% from the 2011 level thanks to the increase of relatively efficient individual air conditioning units. Improved heat insulation performance of new buildings and the introduction of highly efficient devices have also contributed to the reduction in energy use. Electricity usage has risen due to experiment facilities with higher electricity consumption rates (kWh/m<sup>2</sup>) that are now in operation.

#### ◇Greenhouse gas (GHG) emissions

In the years following the Great East Japan Earthquake of March 2011, the CO<sub>2</sub> emissions coeffi-

cient for electricity has significantly increased due to the shutdown of a nuclear power plant in Hokkaido. This has greatly impacted CO<sub>2</sub> emissions at HU, which depends on electricity (direct consumption) for more than 40% of its energy use.

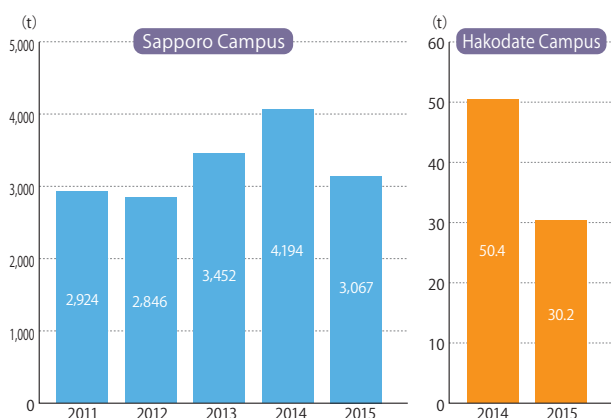
#### ◇General and other waste generation

Since the amount of general waste generation was on an increasing trend, HU changed its waste separation and collection methods in academic 2013 in an effort to reduce waste. In academic 2015, with the start of a system for selling old paper, the separation of old paper from recyclable waste has been promoted and the amount of recyclable waste has decreased.

#### ◇Water consumption

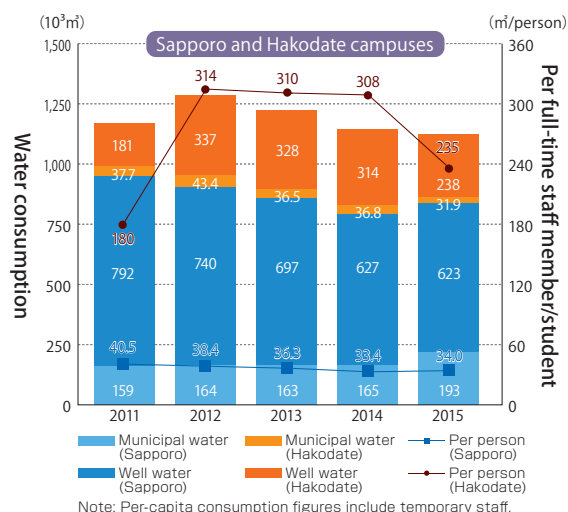
Consumption of well water has risen dramatically since academic 2012 at the Hakodate Campus as a result of improvements made to experiment facilities (experimental water tanks). However, per-capita water consumption has steadily declined due to the decrease in water used for boilers, which have been eliminated through air conditioning improvement work, in the power center and the introduction of a water-saving toilet system.

#### ◆Industrial Waste Generation



Note: The figures for the Sapporo Campus exclude waste disposed of by individual departments and other organizations (e.g., electrical appliances). Those for the Hakodate Campus include electrical appliances but exclude mixed waste and waste plastic (measured per cubic meter).

#### ◆Water Consumption



Note: Per-capita consumption figures include temporary staff.

## Expectations for Thorough Discussions on the Meaning of a Campus Master Plan for an Incorporated University

President of Hokkaido University **Keizo Yamaguchi**



### Previous campus master plans – the need for self-reflection

Hokkaido University is now on the cusp of formulating a new campus master plan. I would like everyone to begin by thoroughly discussing what a campus master plan means for an incorporated university.

The Campus Master Plan 96, which was formulated in 1996, was a groundbreaking plan with zoning and discussions for the future vision of Hokkaido University campuses. The northern campus area, which was the Second Experiment Farm, was positioned as a zone for research and research facilities, including the Creative Research Initiative “Sousei” and the Center for Food & Medical Innovation (FMI) (both adopted as national subsidy projects), were established there. However, we are still lagging behind in terms of what we initially envisioned because the infrastructure described in the campus master plan was not developed in advance and the roads constructed are not in accordance with the zoning plan.

The following Campus Master Plan 2006 was formulated in March 2007. Since 2006 was still soon after the incorporation of national universities in Japan (2004), the concept of this master plan is not a good match for an incorporated university requiring independent efforts and self-responsibility. What we must now reflect on is the fact that the traffic plan, which is the main element

of the master plan, has not yet been achieved. We must review it to understand the reasons for this setback.

### Do our stakeholders only include people on campus?

One reason I believe the Campus Master Plan 2006 has not yet been achieved is that we only carried out closed on-campus discussions. The Stakeholder Meeting is held with the participation of faculty and other university staff members. However, we must ask ourselves: do our stakeholders only include people on campus? Considering the environment of our Sapporo

Campus, which is located in close proximity to JR Sapporo station, a plan satisfying only people on our campus is pointless. We must come to the realization that we should not be making plans based solely on our own ideas and selfish logic.

I learned several things from reports presented at a regional research meeting organized by the Hokkaido Bureau of Economy, Trade and Industry last year. Currently, buildings on the Sapporo Campus are regulated under the building height control district restrictions with a limitation on absolute height (33 m). However, these restrictions will be eased and we will be able to build taller buildings if we coordinate with regional planning implemented by the City of Sapporo. In addition, a law concerning national university corporations will be revised and relaxation of land use is expected to be enforced in April 2017. In this context, it will be crucial for us to engage in discussions with the City of Sapporo and the Hokkaido government.

The Clark Memorial Student Center, Centennial Hall, and Enyu Gakusha Community Hall on campus were built with contributions mainly raised from the alumni association and are aging with each passing year. Speaking of the Clark Memorial Student Center, in particular, the accommodation facilities that originally existed in the student center when it was built have become unusable and there are other facilities that are

not being effectively used as well. The future of this center is a major issue. Since it is difficult to expect budget allocation from the national government, discussions are under way regarding the possibility of cooperation with the City of Sapporo to construct a building with convention halls and accommodation facilities. We are also discussing the possibility of introducing a public transportation system, such as buses, on campus because it is financially difficult to secure replacement buses for on-campus circulation shuttle buses, which often break down. In both cases, these discussions are one of the possible options for solving these problems. However, we will not be able to make it happen unless we engage in discussions with the City of Sapporo. This is why I believe it is no longer possible for universities to make decisions regarding the future vision of their campuses based solely on their own plans.

### The need for the Facilities Department and schools of HU to change their mindset

As a result of the incorporation of national universities, I believe that the role of the Administration Bureau's Facilities Department has also changed. Their primary task is not to request the Ministry of Education, Culture, Sports, Science and Technology (MEXT) for support to construct new buildings. Rather, their most important responsibility is the maintenance of not only buildings but also the entire campus. In fact, I feel they are on the right track when it comes to discussions for creating a sustainable campus and see them working hard to find the best way to implement conservation efforts. I hope they will be given opportunities, such as study groups, to discuss their role as an organization of an incorporated university in regard to planning their future activities, which will have to meet the needs of the times.

The approach used to secure the financing necessary for building construction and maintenance is different from what we experienced as a national university. We cannot simply wait for the government to allocate a budget for us. For committees involved in preparation of the Campus Master Plan, one of their most important roles is holding serious discussions aimed at picturing the future vision of our university and raising awareness on campus.

In the past, schools and departments were able to create plans based on their own future visions and submit individual budget requests; however, individual



budget requests are no longer accepted. Now we must negotiate with MEXT to acquire budgets by presenting an overall picture of what we as a university think as a whole and informing them of what we need to achieve our goals. The personnel of each school and department may think that their property is theirs alone. This is a mentality remaining from our days as a national university and we must now discuss the issue of charging fees to research facility users. We need money to sustain this lush green campus as a university and it is important for each school and department to have a sense that they are also responsible for ensuring we get that money. Campaigns to raise such awareness should obviously be included in the Campus Master Plan.

### Expectations for student involvement

I would like students to consider the previously mentioned question regarding stakeholders: can we only recognize people on campus as stakeholders? The Sapporo Campus is open to tourists and Sapporo residents. One major concern is bicycles. This is not only a matter of the large number of bicycles but also the terrible manners of bicyclists, which could potentially cause harm to pedestrians. This is an issue we should seriously consider.

I think students will be important supporters when it comes to maintaining our campuses. This is why we never say that these matters are only the business of the university and that students should stay out of it. I expect students to feel a sense of involvement and that they are playing a part in the formulation of the Campus Master Plan.

However, in the end, this is an issue that must be handled by management. If the plan has been created without direct discussions about funding, it is just a pie in the sky. With this in mind, I feel a real Campus Master Plan is one prepared by putting our heads together to determine how we can maintain and develop our campuses.

\*This text was edited by the Office for a Sustainable Campus based on an interview conducted in July 2016.



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## Sustainability Report Compilation

### Editorial Policy

This Sustainability Report was compiled in line with the Law Concerning the Promotion of Business Activities with Environmental Consideration by Specified Corporation, etc., by Facilitating Access to Environmental Information, and Other Measures (also known as the Environmental Consideration Act) with reference to the Japanese Ministry of the Environment's Environmental Report Guidelines 2012.

### Organizations Involved

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Sapporo Campus (incl. contracted commercial operators on campus)  
Hakodate Campus

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