



FY 2010
Environmental Report
Abridged version

National University Corporation
Hokkaido University

Replicating connections across the university and expanding the circle of sustainability to encompass society as a whole



Takashi Mikami

Executive Director, Office for a Sustainable Campus

Universities are widely expected to view their campuses as mini towns and to make them sustainable by drawing on their characteristics, as well as to act as models for environmental impact reduction. We established the Office for a Sustainable Campus in response to the need for a new campus-wide environmental management system that encompasses educational and research programs for the implementation of campus sustainability assessment.

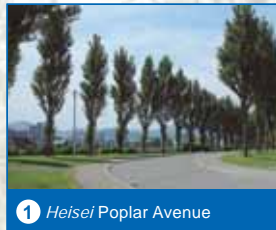
One of Hokkaido University's main characteristics is its status as the country's northernmost national university. Another feature is its 65,000 hectares of land resources located throughout Hokkaido, including experimental forests, a livestock farm, an experimental farm and marine research stations. These areas give the university an environment ideal for activities that involve locals, including children. However, to carry out such activities, the university needs to harness the strength of its students.

The Office for a Sustainable Campus listens to the ideas of students and departments across the university and plans new events in addition to providing overall coordination and direction. Another major role of the office is to promote campus-wide cooperation by eliminating generational barriers between students and faculty members and by creating horizontal ties among departments across the university.

The circle of sustainability is expected to expand and encompass society as a whole if students can go out into the world and act to make positive changes toward this goal based on their experience at the university. We remain committed to our contribution to global efforts for sustainability by producing an environment in which such individuals can flourish.

Sapporo campus map of environmental facilities

Hokkaido University is located in the center of Sapporo (pop. 1.9 million). Our campus is widely known and popular with residents as it retains a lush greenery despite its proximity to the business district. The environment is valued as an asset inherited from our ancestors. We are therefore dedicated to conserving the campus environment while making improvements in the research facilities related to the reduction of environmental impacts. Notable facilities and spaces on campus are introduced here.



1 Heisei Poplar Avenue



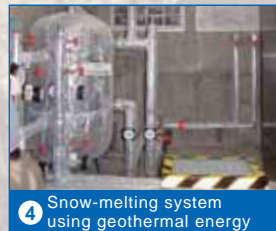
3 Bio Toilet



5 Hokkaido University Museum



2 Poplar Avenue



4 Snow-melting system using geothermal energy



6 Relaxing Area (central lawn)



11 Environmental Preservation Center (Inorganic waste liquid treatment system)



9 Sakushukotani River



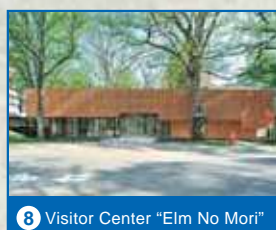
12 Yellow star-of-Bethlehem in the Site of Old Village

Outline of the Sapporo Campus

Land area: 1,776,248 m²
 (2.3 km from north to south, 1.2 km from east to west)
 Total floor area of buildings: 714,683 m²
 No. of staff: 3,842
 No. of students: 17,285



7 Graduate School of Environmental Science



8 Visitor Center "Elm No Mori"



10 "Low-energy house" experimental housing



13 Biogas plant

Seamless integration of educational and research activities

Educational and research programs aimed at helping to build a sustainable society require the integration of knowledge and expertise across a wide and diverse range of fields. In this regard, Hokkaido University has launched cross-disciplinary projects and established hubs to promote educational and research programs that transcend the boundaries of different areas of specialization.

Sustainable Low-carbon Society Project

This project aims to support the creation of a low-carbon society by promoting CO₂ emission reduction, renewable energy usage and campus sustainability activities. Its main programs include public lectures, research and investigation involving students, and the presentation of research results at the Sustainability Weeks and other events. This

section focuses on two researchers who support these programs by leading forums for discussion among scientists in various fields on campus and elsewhere, and leverage on-campus research activities to foster outstanding individuals capable of playing significant roles in the international community.

Querying the future of energy on campus and elsewhere with a focus on renewable sources



Fumikazu Yoshida

Professor, Graduate School of Economics and Business Administration

Dr. Yoshida views universities as business establishments that consume large amounts of energy, and believes they should contribute to society by promoting research projects designed to lower environmental burdens across the whole of Japan. Today, he is committed to a variety of research projects on the practical use of renewable energy, which he sees as a burning challenge to be tackled immediately. Such research encompasses a wide range of areas, from technical aspects of renewable energy to social problems needing resolution to enable the promotion of its widespread use. In 2010, Dr. Yoshida helped to host the International Symposium on Renewable Energy during the university's Sustainability Weeks event, and discussed the present situation and future outlook of renewable energy with researchers and energy policy makers in Japan and elsewhere. He believes he has a role to play in conjunction with universities to provide researchers with opportunities to present research results and share/discuss opinions, and to offer information to the public to support decisions on future energy policy.





Working with students and researchers to make Hokkaido University a zero-emissions campus



Masahiko Fujii

Associate Professor, Faculty of Environmental Earth Science

Dr. Fujii takes a bottom-up approach toward campus sustainability. His major focus is the development of an on-campus resource circulation system through initiatives including a composting project called “Boys, make compost!” (an echo of the famous “Boys, be ambitious!” call of Hokkaido University founder Dr. William S. Clark). His challenging goal is to replicate the system in Hokkaido’s industries of agriculture, forestry and fisheries and in society as a whole. He believes that he and the Graduate School of Environmental Science have a duty to take the lead in various endeavors to draw out intramural collaboration with undergraduate and graduate schools. He also expects research programs involving students to help enhance their environmental awareness and to produce individuals who will promote such awareness in society after they leave the university and join other communities.



Students involved in the “Boys, make compost!” project

Sustainability Weeks 2010

The Sustainability Weeks event provides a forum for spreading the word about Hokkaido University’s educational and research programs on sustainability, including the Sustainable Low-carbon Society Project. The university has hosted the event every year since 2007 so that researchers, educators, students and citizens from Japan and elsewhere can come together to share and discuss cutting-edge scientific matters at symposiums, lecture meetings, workshops, exhibitions and other programs.

Sustainability Weeks 2010 was the fourth event of its kind, and its 47 individual sessions highlighted the action required to achieve physical, mental and social well-being in order to ensure a high quality of life for people in the future.



2010 Data

Number of events: 47
 (incl. 4 run by students and 3 run collaboratively by students and faculty members)
 Number of participants: 11,196
 (incl. 267 from overseas)
 Number of events jointly planned with partner institutions: 5
 (9 universities)

The road to campus sustainability

Universities are required to contribute to global efforts toward sustainability through research and education while acting as role models for a sustainable society by using campuses as living laboratories. Hokkaido University runs the Office for a Sustainable Campus to promote campus sustainability as a focal point for such efforts.

Activities of the Office for a Sustainable Campus

Hokkaido University's Office for a Sustainable Campus was established in November 2010 as the institution's hub for the establishment of a campus-wide sustainability management system. Its two main aims are to minimize the University's environmental impacts toward the achievement of zero emissions by harnessing natural and recycled energy, and to become a leading university in

terms of efforts to create a sustainable society.

The office has two divisions and one center (the Campus Assessment Division, the Environmental Impact Reduction Division and the Environmental Preservation Center), which work together closely to plan green campus development. This section introduces ongoing activities to create a green campus.

Thorough implementation of energy conservation design for buildings

The university has made efforts to reduce environmental burdens through green building design since 2008, focusing on 14 energy conservation design considerations when campus buildings are constructed, remodeled or repaired. These cover heat insulating materials, heating equipment, sensor-based lighting, and the use of energy-friendly LED lighting to replace conventional lights.

The main Faculty of Agriculture building, where retrofitting was implemented in 2008, was chosen for the Building and Equipment Long-life Cycle Association (BELCA) Award in the Long Life category. The BELCA Awards are intended to highlight existing buildings that contribute to the quality of building stock as a result of favorable maintenance and effective retrofitting.

Green buildings completed in FY 2010



Information Center



Minamishinkawa International Residence No. 2



School of Medicine Lecture Building



Specimen storage building for the Botanical Garden of the Field Science Center for Northern Biosphere



Center for Promotion of Platform for Research on Biofunctional Molecules



Model Project for Environmental impact Visualization

Hokkaido University strives to maximize energy efficiency by lowering energy consumption and publishing related data through the institution's visualization initiative. Looking at the effects of efforts implemented to date, it is estimated that campus-wide simultaneous energy-saving endeavors will lead to a reduction of power consumption by 8 million kWh and gas consumption by 900,000 m³, representing a CO₂ reduction equivalent of 5,600 tons.

Facilities covered by the project and related effects

School of Law Research Building (February 1–March 7, 2010)
Maximum annual reductions: power: 13%; gas: 28%; CO₂: 20%

Faculty of Engineering Materials and Chemicals South and Laboratory buildings (February 7 – March 6, 2011)
Maximum annual reductions: power: 8%; CO₂: 8%

Institute of Low Temperature Science main and new buildings (new building: February 7 – March 6, 2011)
Maximum annual reductions: power: 9%; gas: 23%; CO₂: 14%

Communication through stakeholder meetings

The university runs stakeholder meetings to solicit opinions on the institution from locals, and reflects the views gathered in its future activities. The sixth such meeting, which was held in FY 2010, focused on the university's measures to reduce environmental impacts and on educational/research programs for sustainability, and parties involved with the related endeavors expressed their expectations in regard to these measures/programs and their opinions on areas where improvement is needed. Measures taken in response to opinions expressed at the fifth meeting are reported in the Japanese version of the institution's FY 2010 Environmental Report.



Partnerships with students engaging in campus sustainability activities

Hokkaido University students come up with unique ideas and form groups to implement activities for campus sustainability. The University runs a system to support voluntary student activities such as those implemented under the Hokudai Genki Project. In collaboration with the Student Council for Sustainable Development (SCSD; a student organization) and the Hokkaido University Campus Visit Project (HCVP), the Office for a Sustainable Campus plans to continue holding related events, including the Sustainable Campus Contest, Candle Night and the Sustainable Campus Tour.



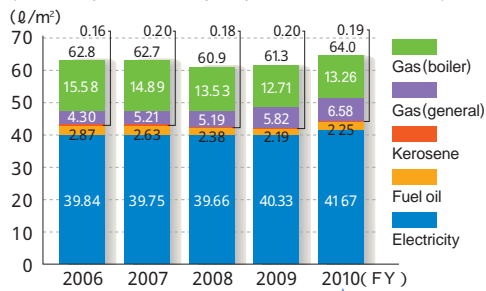
The Campus on Canvas event planned and run by the HCVP



Candleize 2010 – the Candle Night event organized by the SCSD

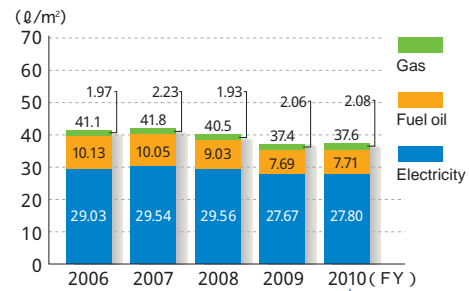
Major indicators

Energy consumption on the Sapporo Campus
(crude oil equivalent in liters per square meter of total floor area)



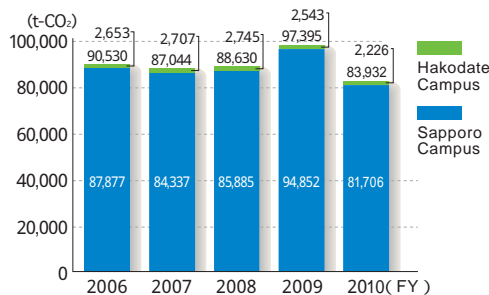
An increase of 4.4% on the previous year
(Energy consumption increased due to the operation of energy-consuming research facilities and the impacts of an extremely hot summer/cold winter. Efforts will be made to change the mindset of people on campus regarding the use of air-conditioning.)

Energy consumption on the Hakodate Campus
(crude oil equivalent in liters per square meter of total floor area)



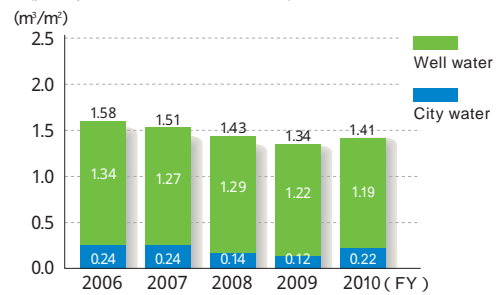
An increase of 0.5% on the previous year

Greenhouse gas emissions



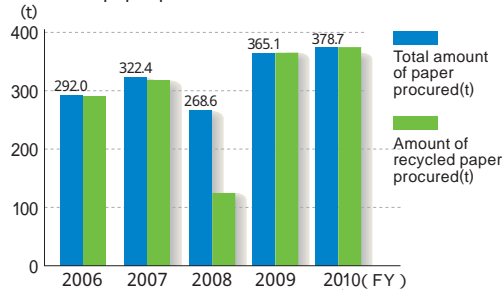
A decrease of 13.8% on the previous year
(CO₂ emissions increased in FY 2009 due to a change in the CO₂ emission intensity of electric power generation.)

Water consumption on the Sapporo Campus
(per square meter of total floor area)



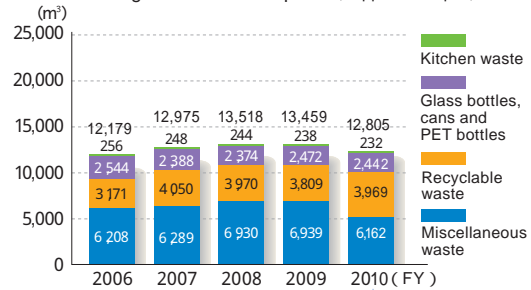
An increase of 5.2% on the previous year
(While less well water was consumed, city water consumption rose due to increased installation of equipment that uses this type of water.)

Amount of paper procured



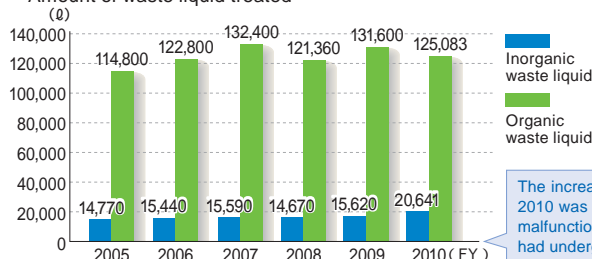
An increase of 3.7% on the previous year
(Further promotion of paperless operations/processes is necessary.)

Amount of general waste disposal (Sapporo Campus)



A decrease of 4.9% on the previous year
(Efforts to reduce waste and promote waste separation have begun to produce results.) Note: Kitchen waste is discharged from university hospital catering facilities.

Amount of waste liquid treated



The increase in the amount of inorganic waste liquid treated in FY 2010 was caused by the treatment of liquid stored after equipment malfunction at the Environmental Preservation Center, where it had undergone intermediate treatment until FY 2009.



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