Efforts of UNESCO Chair at Okayama University for Realizing a Sustainable Society

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Abstract
The Okayama region was acknowledged as a Regional Center of Expertise (RCE) in June 2005. In advance of the acknowledgement, experts and leaders in Okayama City reached an agreement to work together for the promotion of Education for Sustainable Development (ESD). The Okayama ESD Project began in April 2005. At the same time, Okayama University submitted a proposal for a UNESCO Chair Programme on ESD to UNESCO and received accreditation in April 2007. Consequently, a cooperative relationship for the promotion of ESD was established among main stakeholders: administrative bodies, citizens’ groups and nongovernmental organizations (NGOs), and higher educational institutions. This study presents an overview of the efforts made by Okayama University to introduce ESD into its curricula, with particular emphasis on the development of partnerships between the university and local stakeholders. It concludes by presenting a discussion on the new direction of university education for realizing a sustainable.

Keywords Graduate school education, Environmental science, Regional Center of Expertise, UNESCO chair

Introduction
Okayama Municipal Government started the Environmental Partnership Project in April 2001 to promote voluntary environmental activities by citizens and private companies. The project also aims at increasing the awareness of environmental conservation efforts. In 2005, the municipal government determined that more than 10 percent of the population was involved in activities aimed at making society sustainable; of this group, about 30,000 people were engaged in environmental protection, about 34,000 in the promotion of gender equality, and about 7,000 in health promotion (Okayama ESD Promotion Commission, 2006).

In April 2005, an agreement was reached among experts and leaders, including university researchers in Okayama City to work together for the creation of a local base for the promotion of ESD. The result was the establishment of the Okayama ESD Promotion Commission. The United Nations University recognized Okayama as one of seven initial Regional Centres of Expertise (RCE) at the UNU/UNESCO International Conference “Sustaining the Future—Globalization and Education for Sustainable Development,” which was held on 28-29 June 2005 in Nagoya City, Japan.

In Okayama City, various initiatives, especially in the spheres of “environment” and
“international understanding,” have been carried out. The central stakeholders are local NGOs. The NGOs and the relevant organizations in Okayama have held thirteen annual international conferences aimed at resolving issues related to the creation of a sustainable society. At the last three conferences, ESD was the main theme.

Another feature of ESD efforts in RCE Okayama is kominkan-based activities. A kominkan is a type of community center in Japan that provides opportunities for lifelong education in local communities. Many kominkan in Okayama City are now being engaged in ESD activities and play important roles in disseminating ESD to the whole community.

Okayama University is the largest higher education institution in the Okayama region. It established the Faculty of Environmental Science and Technology in October 1994 and the Graduate School of Environmental Science in April 2005. Consequently, special focus is being given to research and education in environmental science by the university.

In order to enhance research and education for a sustainable society, Okayama University submitted a proposal for a UNESCO Chair Programme on ESD to UNESCO in 2006 and received accreditation in April 2007. The proposed Chair has been collaborating with RCE Okayama, local governments, NGOs, the University Consortium of Okayama, and other stakeholders to promote ESD activities in Japan and in the Asia-Pacific region.

This study presents an overview of the efforts by Okayama University in support of ESD, with an emphasis on the introduction of ESD into its curricula as well as the development of partnerships among local stakeholders. It concludes by presenting a new direction for university education in the realization of a sustainable society as well as the challenges facing educational reform at Okayama University.

Okayama University and Research and Education in Environmental Science

Schools of Environmental Science at Okayama University

Okayama University is one of Japan’s leading universities and is located in the center of western Japan. The university has 11 faculties and 7 graduate schools with 3,397 graduate students, 10,443 undergraduate students and 2,586 academic staff (including 1,289 teaching staff) (as of May 1, 2009).

Okayama University, as an official educational institution of knowledge, is committed to the middle-term goal of “Building up a new paradigm for the sustainable evolution of human society” in order to provide substance to our society’s commitment to knowledge. Education and research activities in environmental fields are key components in the effort to realize the university’s goal.

Okayama University established the Faculty of Environmental Science and Technology in 1994. It is the first faculty specializing in environmental science at a Japanese public university. The faculty consists of four departments (Environmental and Mathematical Science, Environmental and Civil Engineering, Environmental Management Engineering, and Environmental Chemistry and Materials) and has 63 teaching staff and 692 undergraduate students (as of May 1, 2009).
In order to further accelerate its support for environmental science, on April 1, 2005, Okayama University established the Graduate School of Environmental Science, which gathered together its environmental-studies scholars and resources in the fields of natural and social science, humanities, and medicine.

The curriculum is organized into three majors or specializations: the Division of Social Engineering and Environmental Management, the Division of Biological and Human Environments, and the Division of Sustainability of Resources, all of which have the realization of a sustainable society as their aim. The school has 68 teaching staff and 283 graduate students (208 in the master’s course and 75 on the doctoral track) (as of May 1, 2009).

Research and Education Projects in Environmental Science

In FY2003, Okayama University’s “Strategic Solid Waste Management for Sustainable Society” program was chosen as one of the 21st century Centers of Excellence (COE) programs by the Ministry of Education, Culture, Sports, Science and Technology (MEXT). The university’s Graduate School of Environmental Science began to support “studies on the creation of a sound material-cycle society,” which systemized various academic fields related to solid-waste management, while at the same time developing researchers with an advanced level of expertise in that area.

In FY2005, another Okayama University program, “Environmental Ethics—Health and Environment,” was chosen as one of the “Initiatives for Attractive Education in Graduate Schools” by MEXT. The program focused on developing environmental specialists who would engage in overseas field research programs and internships at UN agencies to prepare them to take positions at international organizations.

In FY2007, yet another program, “Development of Environmental Specialists: Program for the Creation of an International ESD Center via the UNESCO Chair,” was chosen as a Partnership Project under MEXT’s special education and research grant. Accordingly, the graduate school has undertaken ESD projects based on the “UNESCO Chair in Research and Education for Sustainable Development at Okayama University,” which was accredited by UNESCO in April 2007.

UNESCO Chair at Okayama University

An Outline of the Program

Based on the accomplishments of research and educational projects in environmental fields, Okayama University submitted a UNESCO Chair program on ESD, namely the “UNITWIN/UNESCO Chair Programme in Research and Education for Sustainable Development at Okayama University” to UNESCO and received official accreditation in April 2007.

The proposed UNESCO Chair at Okayama University relies upon the cooperation between
formal and non-formal educational bodies for building sustainable societies in Okayama and on a global level. The chair integrates local knowledge with that from the international community. The chair also strives to spread the conception of ESD and to put in practice ESD activities in Japan and in the Asia-Pacific region, realizing sustainable development through interuniversity cooperation.

Okayama University has come to a cooperation agreement with the Okayama municipal government for the promotion of ESD. The members of the UNESCO Chair have been involved in the activities of RCE Okayama.

**Collaboration between the UNESCO Chair and Local Stakeholders for ESD**

The Okayama region was designated as one of the initial seven Regional Centres of Expertise (RCE) by the United Nations University in June 2005. As illustrated in Figure 1, a feature of RCE Okayama is collaboration among civil society organizations, such as the Okayama ESD Promotion Commission, the Kyoyama ESD Promotion Commission, the Conference of Okayama International NGO Network (COINN), etc., in order to promote environmental education and international understanding.

![Figure 1. Stakeholders of RCE Okayama](image-url)
One of the distinctive features of ESD efforts in RCE Okayama is its kominkan-based activities. Kominkan, a type of community center in Japan, provides opportunities for lifelong education in local communities. Kominkans are established within local administrative units and are administrated by local Boards of Education under the 1949 Social Education Acts. Of the approximately 3,000 municipalities in Japan in 2002, 91% maintain one or more kominkans, with a total of about 18,000 throughout the country (National Kominkan Association, 2004).

Many of kominkans in Okayama City are now being engaged in ESD efforts and play important roles in disseminating ESD to the whole community. They are also expected to foster human resources that work to make the community sustainable. The UNESCO Chair at Okayama University is actively cooperating with ESD activities in Kyoyama Kominkan.

Local NGOs also play significant roles in ESD. The Okayama Topia for International Contribution (OTIC) was established in 1994 to promote international collaboration and contributions aimed at supporting five key themes in ESD: medical care, education, religion, the environment, and social welfare. Since its inception in 1994, the OTIC concentrated mainly on holding the Okayama NGO Summit for International Contribution every year, by inviting worldwide delegations as well as local representatives.

The NGO summits have been successively organized by the Conference of Okayama International NGO Network (COINN), which was established in 1991 with the participation of some 60 organizations for international cooperation in Okayama Prefecture. The Graduate School of Environmental Science and the UNESCO Chair at Okayama University have jointly hosted the NGO Summits since 2006.

Reinventing Curricula to Contribute to a Sustainable Society

Participation in the Networks of Higher Education for Sustainable Development

The Interministerial Meeting of Japanese Government on the “United Nations Decade of Education for Sustainable Development” published Japan’s Action Plan in 2006. It addresses the important roles of higher education institutions in the first stage of the UN decade of ESD and proposed the introduction of ESD-related education in the process of nurturing professionals in each field (Interministerial Meeting on the UN-DESD, Japan, 2006).

A higher education for sustainable development (HESD) network enables the shared use of information and experiences on ESD among higher education institutions. Japan’s Ministry of the Environment (MOE) has been working jointly with United Nations University Institute of Advanced Studies (UNU-IAS) to develop a network of higher education institutions that are committed to integrate sustainability in their postgraduate education and research programs (Ministry of the Environment, Government of Japan, 2008).

The network for the Promotion of Sustainability in Postgraduate Education and Research (ProSPER.Net) is a network of several leading higher education institutions in Asia and the Pacific that have committed to work together to integrate sustainable development into postgraduate courses and curricula. It was launched in June 2008 by eighteen founding
universities in the Asia-Pacific region under the support of the MOE and UNU-IAS. Okayama University has participated in ProSPER.Net as an initial member.

Okayama University has also participated in the domestic networks of HESD: the Forum of Higher Education for Sustainable Development (HESD Forum) and the Interuniversity Network Supporting the UNESCO Associated School Project Network (ASPUnivNet).

The HESD Forum held the first meeting at Iwate University in December 2007 with sixteen Japanese higher education institutions, followed by the second meeting at Rikkyo University in December 2008. The forum aims to enhance the exchange of information and practices on ESD among higher education institutions in Japan.

The UNESCO Associated Schools Project Network (ASPnet) was founded in 1953. It has been serving a global base for fostering and delivering quality education in pursuit of peace, liberty, justice, and human development in order to meet the pressing educational needs of children and young people throughout the world. Today, some 8,500 educational institutions in 179 countries have joined ASPnet.

In September 2009, ASPUnivNet was formed by eight Japanese universities at the proposal of the Miyagi University of Education, aiming at supporting the UNESCO Associated School network. In Okayama Prefecture, Yakage High School and Okayama Ryukoku High School joined the network of UNESCO Associated Schools, in collaboration with the UNESCO Chair at Okayama University.

The Human Resource Development Program for Environmental Rehabilitation in Asia

In FY2008, a new program of the Graduate School of Environmental Science, “The Human Resource Development Program for Environmental Rehabilitation in Asia: The Integration of Studies for the Establishment of a Sound Material-Cycle Society and Education for Sustainable Development” adopted by MEXT for its “Support Program for Improving Graduate School Education.” Figure 2 illustrates the background of the program.

The development of environmental specialists capable of contributing to the creation of a sound material-cycle society requires them to cultivate practical capacities, through which the relationship between the environment and society may be understood from an interdisciplinary and global perspective, and which bring about socioeconomic changes.

The “Special Course on Environmental Rehabilitation in Asia” established under the MEXT’s program aims to foster the practical capacities needed to take the lead in making socioeconomic changes. This is achieved by incorporating ESD approaches and project research on university, community, and international levels into its curriculum, in addition to the Graduate School of Environmental Science's interdisciplinary curriculum, which combines environmental studies in the fields of science, humanities, and medicine.
Figure 2. Background of the New Graduate Course

Figure 3 describes the master’s course program. The existing curriculum of the Graduate School of Environmental Science has been restructured from the perspective of creating a sound material-cycle society, which takes into account “economy and society, technology, and materials and resources” and the system of “problem identification and cycle analysis, technology, planning, and policies.” In addition to advanced knowledge and technology concerning the creation of a sound material-cycle society, a “Practical Theory on ESD” and “university, community, and international project research” have been introduced with the goal of assisting students in acquiring the practical capacities required to take the lead in making socioeconomic changes.

Figure 4 represents the doctoral program. The curriculum is designed to have a circular structure with “studies on the management of a sustainable society” at its core and “society and the environment,” “materials and the environment,” and “urban and rural communities” as parallel key themes. In addition, field research in developing countries in Asia and internships at international bodies will be offered.

Examples of Innovative ESD Efforts at the Graduate School

Internship Projects with the Stakeholders of RCE Okayama

Under the programs of the UNESCO Chair and the “Special Course on Environmental Rehabilitation in Asia,” the graduate school, within its formal curriculum, provides graduate students with internship projects, which are planned and implemented in cooperation with civil society organizations, municipalities, and kominkans in RCE Okayama.
The participating students are required to engage themselves in community-based ESD activities for two to four months in a semester, while being supported by their academic supervisors. The focus of their activities depends on the students’ interests and the context of the partner organizations. The focus is determined by the student in consultation with supervisors and stakeholders of the internship.
The main purpose of internship projects is to provide students with an opportunity to gain practical experience of using their own knowledge and expertise in the implementation of ESD activities in local communities, as well to develop their ability to communicate with local people from diverse generations.

**Workshop for the Development of Environmental Leadership**

One of the internship projects in FY2008 was to hold a series of workshops aimed at developing leadership for the future (say, 2050). This project was jointly proposed by Bizen Green Energy Corp. and the Okayama municipal government and aimed at providing graduate students with an opportunity to organize workshops for high school students to consider the future of their region and the world.

The workshops were planned to help high school students to acquire appropriate perspectives for becoming leaders capable of building a sustainable society both at the global and local levels. The graduate students set up workshops under this scheme together with the supervision of proposers and supervisors, including invited lecturers who became resource persons in possible workshops. The graduate students drafted the advertisement posters and recruited possible participants from high schools around Okayama City.

In case of the project in FY2008, the graduate students held four consecutive workshops with proposers and participating high school students to formulate their plans for a sustainable society in 2050. One of the achievements was that the graduate students had opportunities to solve challenges in the team and to improve their communication skills. Another achievement was that the graduate students considered how they could use their expertise to build a sustainable society.

**Collaboration with Local Residents for Sustainable Community**

Another project is concerned with urban and environmental planning at the community level (in particular, Ezu-cho district in Okayama City). This project started in December 2007. The residents in the Ezu district desired to improve their environment surrounding them through the redevelopment of an irrigation stream and roads alongside the stream. They also wanted to create and maintain a safe residential environment for their children and descendants.

The Kyoyama ESD Promotion Commission, based at Kyoyama Kominkan, collaborated with residents on the planning and realization of the proposals. The UNESCO Chair and the students at Okayama University joined the project upon request of the residents and the Kyoyama ESD Promotion Commission.

The participating university students conducted various surveys in the Ezu district and held a series of workshops aimed at sharing the project’s vision with local people. Afterwards, the students utilized their own expertise in urban and environmental planning to draw up a concrete plan based on the residents’ proposals. The plan was submitted to the Okayama municipal government and has been reviewed by relevant sections of the government.
Conclusion
Japan’s Ministry of the Environment released a report entitled “A Vision for Environmental Leadership Initiatives for Asian Sustainability in Higher Education” in March 2008. It stresses the importance of “T-shaped skills” for environmental leaders, that is, skills that couple a deep understanding of a specialized field with a holistic and interdisciplinary perspective on sustainability.

The education system of the Japanese universities is now undergoing a pedagogical change that involves shifting from the conventional, passive-learning approach of the traditional classroom to an interactive approach to learning that incorporates debates, field studies, internships, community-based activities, and so on.

The Graduate School of Environmental Science and the UNESCO Chair at Okayama University have been promoting educational reforms in cooperation with stakeholders in RCE Okayama. The new graduate course “Special Course on Environmental Rehabilitation in Asia” presents an innovation in higher education for training leaders who will be able to contribute to the realization of a sustainable society at the local, regional, and global level. The future challenges are the evaluation of results achieved by the educational reforms as well as the mainstreaming of ESD into the whole curricula of the university.

References

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