



A Quarter Century of International Development Cooperation at the Institute of Environmental Rehabilitation and Conservation: Achievements and Future Challenges to Education for Sustainable Development

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Abstract Education for Sustainable Development (ESD) aims to empower learners to make informed decisions and to take responsible actions for environmental integrity, economic viability, and social and community development for present and future generations. ESD is holistic and transformational and enables people and local communities to learn the values, behaviors, and lifestyles required for positive societal transformation and a sustainable future. From its inception in 2000, the Institute of Environmental Rehabilitation and Conservation (ERECON) began promoting ESD through its multiple extension and research activities. ERECON continued these efforts and supported the United Nations Decade of Education for Sustainable Development from 2005 to 2014, including the establishment of the Regional Center of Expertise, Greater Phnom Penh (RCE GPP) in 2009. ERECON collaborates with multiple formal and informal educational organizations in Asian countries to promote ESD. ERECON's extension projects collaborate with RCE GPP and are related to afforestation and organic farming based on natural resource circulation, which aims to promote carbon capture and storage in forest and agricultural areas as well as sustainable rural development with income generation for local communities. ESD has become the fundamental methodology for approaching and educating local populations. ERECON relies on ESD and hosts workshops and trainings with local residents and communities prior to implementing extension activities. Additionally, ERECON's Research Center focuses on and guides the academic and scientific activities of its partner, the International Society of Environmental and Rural Development, utilizing ESD's best practices. In 2025, ERECON celebrated its quarter-century anniversary. Under UNESCO's new global framework 'ESD for 2030' for the 2020-2030 period, ERECON will continue to use and promote ESD towards overcoming challenges and achieving the United Nations Sustainable Development Goals in targeted local communities in Asian countries.

Keywords international development cooperation, ERECON, ESD, SDGs

INTRODUCTION

The Institute of Environmental Rehabilitation and Conservation (ERECON) is an international, non-profit organization founded in April 2000. ERECON aims to contribute to the sustainable use of natural resources in Asian countries. The organization pursues environmental rehabilitation, conservation, and education in order to create harmony between agricultural and urban development and the natural environment. ERECON conducts four non-profit programs including programs for; 1) environmental rehabilitation and conservation, 2) sustainable use of natural resources, 3) environmental education, and 4) other programs for achieving ERECON's aims. ERECON has also conducted select extension and research projects each year since 2000, mainly related to afforestation and organic farming based on natural resource circulation to promote carbon capture and storage in forest and agricultural areas as well as sustainable rural development with income generation for local residents and communities. These projects are always guided by the tenets and best practices of Education for Sustainable Development (ESD).

In the occasion of 25th Anniversary of ERECON, this report was summarized to demonstrate the utilization of ESD as an approach and enabler for multi-stakeholder and community engagements, to highlight ERECON's quarter century of achievements and international development activities supported by ESD, and to define future challenges and recommendations.

EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD)

1. Concept of Sustainable Development

The concept of sustainable development was first discussed and defined at the United Nations Conference on Environment and Development, UNCED, also referred to as the 'Earth Summit,' which was held in Rio de Janeiro, Brazil in June 1992. The UNCED was held on the occasion of the 20th anniversary of the first 'Human Environment Conference' which was held in Stockholm, Sweden in 1972, and brought together political leaders, diplomats, scientists, media representatives, and representatives of non-governmental organizations (NGOs) from 179 countries to focus on the environmental impact of human socio-economic activities. At the same time, the 'Global Forum' of NGOs was held in Rio de Janeiro, bringing together representatives of various NGOs, who presented their visions for the world's future in relation to the environment and socio-economic development.

The UNCED highlighted how different social, economic, and environmental factors are interdependent and evolve together, and how success in one sector requires action in other sectors so that successes can be sustained over time. The conference stated that the concept of sustainable development (Fig. 1) was an attainable goal for the world's population regardless of whether they were urban or rural dwellers, and whether challenges were addressed at the local, regional, national, or international level. It also recognized that integrating and balancing economic, social, and environmental concerns in meeting short- and long-term needs is vital for sustaining human life on the planet and that such an integrated approach is possible. The conference further recognized that integrating and balancing economic, social, and environmental dimensions required new perceptions of the way we produce and consume, the way we live and work, and the way we make decisions.

The conference noted the criticality and importance of producing a broad agenda and a new blueprint for international action on environmental and development issues to help guide international cooperation and development strategies and directions for the twenty-first century (United Nations, 1992). ERECON fully embraced this UNCED perspective and has upheld it for the past twenty-five years.

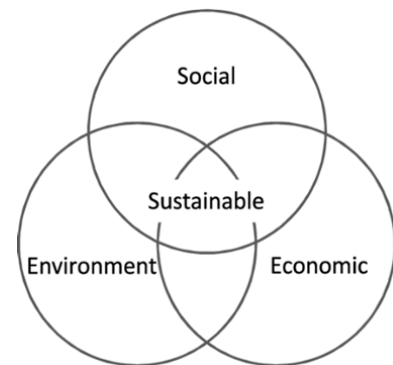


Fig. 1 Concept of sustainable development

2. Education for Sustainable Development

Table 1 highlights ERECON's achievements corresponding to the United Nations (UN) and more specifically, related to ESD. The United Nations Decade of Education for Sustainable Development (DESD), (UNESCO, 2005), established by the UN General Assembly in December 2002, ran from 2005 to 2014 and was led by UNESCO with a focus on integrating sustainable development principles into education worldwide. Its efforts continue to this day under the Global Action Program on ESD, 2015 - 2019 (UNESCO, 2015). The goal of the initial DESD proposed by the Japanese government and recommended by many Japanese NGOs was to integrate sustainable development principles into all aspects of education and learning. This goal was reinforced by ERECON and other Japanese NGOs at the World Summit on Sustainable Development (WSSD) held in Johannesburg in 2002. Subsequently, the Regional Centers of Expertise (RCE) on the ESD movement were launched by the United Nations University.

In 2015, the Global Action Program on ESDs was broadened to focus on education's role in achieving relevant Sustainable Development Goals (SDGs) established by the United Nations. SDG 4.7 is directly supported by ESD, and it states that 'by 2030, ensure all learners acquire knowledge and skills needed to promote sustainable development, including among others through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, and appreciation of cultural diversity and culture's contribution to sustainable development.' (citation?)

The current DESD framework for achieving the 17 SDGs by 2030 is steered by the United Nations Educational, Scientific and Cultural Organization, UNESCO (UNESCO, 2020).

Table 1 ERECON's achievements corresponding to United Nations and ESD events

Year	United Nations / ESD Events	ERECON Achievements
1972	United Nations Conference on the Human Environment	Researchers were conducting research and education at the University of Tokyo, the Tokyo University of Agriculture, and the Tokyo University of Agriculture and Technology
1992	United Nations Conference on Environment and Development, UNCED	
2000	ERECON Initiatives/ Institutional Structuring towards ESD capacity.	ERECON was founded as an NGO, independent of universities and other stakeholders
2002	World Summit on Sustainable Development	ERECON was registered as a Non-Profit Organization (NPO) by the Tokyo Metropolitan Government, Japan
2005-2014	United Nations Decade of Education for Sustainable Development, DESD	ERECON led and implemented multiple extension programs for sustainable development in Asia
2009	ERECON Initiatives/ Institutional Structuring towards ESD capacity.	ERECON established the Regional Center for Expertise, Greater Phnom Penh, partnering with the Royal University of Agriculture (RUA) and Tokyo University of Agriculture (TUA)
2010	ERECON Initiatives/ Institutional Structuring towards ESD capacity.	ERECON established The International Society of Environmental and Rural Development (ISERD) to promote ESD partnering with RUA and TUA
2013	ERECON Initiatives/ Institutional Structuring towards ESD capacity.	ERECON Headquarters registered its Research Center with the Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan as an official research organization
2015-2030	Creation of Sustainable Development Goals, SDGs	ERECON supports and implements multiple extension and ESD programs with various research partners focusing on sustainable development in Asia
2020-2030	Decade of Education for Sustainable Development, ESD	

3. Regional Centers for Expertise, RCE

Regional Centers for Expertise (RCE) is an approach for multi-stakeholder and community engagement and for networking among educational institutions, community, governmental and non-governmental agencies, businesses, and other organizations that work together to advance ESD. 'Centre' refers to an entire region's designation as possessing expertise in ESD as determined by the United Nations University (UNU). The UNU currently supports 154 RCEs around the world.

Specific to Cambodia, the recent and rapid population increase caused many challenges to the environment and the quality of life, education, and health of its citizens. Approximately 75% of the Cambodian population lives in rural communities with approximately 65% of the rural population engaged in agricultural production primarily centered on smallholder farms. Many smallholder

farmers have limited financial success and limited education, and many are living near or in poverty. Many school-age children work on family farms and their education opportunities are limited. The quality of education in rural schools is poor and insufficient compared to urban schools and few rural children achieve academic success. The child and family's livelihood are dependent on agriculture including its current challenges and the evolving challenges of climate change, population growth, and related. Farmers' technological capabilities and adoption are limited especially related to pesticide or inorganic fertilizers with chemicals released from farmlands to downstream water sources causing multiple problems for the natural environment and human health. As such, ESD in Cambodia's agricultural sector is critically important for rural farm communities, especially for school-age children. ERECON established the RCE Greater Phnom Penh in 2009, partnering with Cambodia's Royal University of Agriculture and the Tokyo University of Agriculture, to ensure and increase opportunities to build the public's awareness and perception of the importance of harmony between agricultural practices and natural environment conservation (Mihara et al., 2012; Tabucanon and Mihara, 2016).

The 'Roadmap for the RCE Community 2021-2030' developed by the UNU-IAS, defines the long-term vision and mission of the RCE community (UNU-IAS, 2022). The roadmap highlights four strategic priority areas for the current 10-year period including, 1) serving as local and regional ESD hubs and demonstrating and teaching leadership for innovation, 2) strengthening the association of RCE activities with the ESD framework and achievement of SDGs, 3) expanding knowledge sharing and outreach, and 4) monitoring the progress of RCE achievements. Accordingly, ERECON's management of the RCE Greater Phnom Penh remains critical with continued efforts to generate, accelerate, and mainstream ESD, and to contribute to the realization of the UN's SDGs in Greater Phnom Penh.

ERECON'S EXTENSION AND RESEARCH PROGRAMS FOR PROMOTING ESD

Since its inception, ERECON promoted ESD through its extension and research activities (ERECON, 2023; 2024), and since 2009 in collaboration with the RCE GPP.

1. ERECON's Extension Programs

ERECON's extension projects are primarily related to afforestation and organic farming based on natural resource circulation, which aims to promote carbon capture and storage in forest and agricultural areas as well as sustainable rural development with income generation for local people and the community. ESD is the fundamental methodology and approach for partnering with teaching and training local populations. ERECON holds local workshops and trainings with people and community stakeholders before implementing extension programs. ERECON's notable extension program achievements from 2023 to 2024 are highlighted below.

Program on Environmental Rehabilitation and Conservation:

- Project on Greening for Satoyama Regeneration in Eastern Cambodia
- Project on Promoting Reforestation for Rehabilitating the Rural Environment in Kampong Cham Province, Cambodia

Program on Sustainable Use of Natural Resources:

- Project of Community Development through School Construction and Renovation in Tboung Khmum Province, Cambodia (Fig. 2)

Program on Environmental Education:

- Project on Promoting School Environment Greening aiming for Forest Environmental Education in Tboung Khmum Province, Cambodia
- Project on Promoting Reforestation and Education for Sustainable Development in Siem Reap Province, Cambodia (Fig. 3)
- ESD Training through Reforestation in Cambodia
- International Green Volunteer Training in Cambodia



Fig. 2 School construction for community development in Tboung Khmum Province



Fig. 3 Forest resource mapping by local residents in Siem Reap Province development

2. ERECON's Research Programs

In March 2013, Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT) registered the Research Center of ERECON Headquarters as an official research organization. In order to support ERECON's extension programs, various research projects have been conducted by the ERECON Research Center. Multiple research projects, including three Grant-in-Aid for Scientific Research (KAKENHI) projects, were conducted in the 2023-2024 program year including:

Promoting Research for ERECON Extension Programs in Program on Research Promotion:

- Research on the Effects and Challenges of Community Development in International Cooperation Projects through School Construction
- Monitoring School Plantation Site from GIS Application to Monitor the Health of the Planted Species
- Tourism Development Impact Evaluation from a Land Use Perspective: Relationship Between Ecotourism and Ecosystem Services
- Practical Study on Formation of Low-Carbon and Recycling-Oriented Society for Carbon-Neutral Initiative
- Research on Effects of Forest Environmental Education on Awareness and Attitudes of Local Students in Relation to Tree Survival Rate
- Study on Assessment of Deforestation and Community Impact: Lessons from an Environmental Awareness Program in Siem Reap Province, Cambodia

Managing ISERD and Organizing ICERD for the Program on Research Promotion:

In 2010, the International Society of Environmental and Rural Development (ISERD) which was established with ERECON support, served as a founding member. ERECON leverages its Research Center to serve as the ISERD Secretariat which it has successfully led since 2010. Additionally, the Research Center of ERECON Headquarters has functioned as the organizer or co-organizer of the annual International Conference on Environmental and Rural Development (ICERD) in collaboration with ISERD and other partner organizations (Fig. 4). Information which has been shared at the ICERD conferences can be applied and adapted by local residents in the target areas of implementing extension projects.



Fig. 4 Opening ceremony of the 15th ICERD held in Khon Kaen, Thailand

Editing and Publishing IJERD for the Program on Research Promotion:

The International Journal of Environmental and Rural Development (IJERD) is a multidisciplinary, peer-reviewed journal published semi-annually by the Research Center of ERECON Headquarters. IJERD is dedicated to publishing peer-reviewed, original research papers and technical reports covering topics such as the environment, agriculture, forestry, ESD, and sustainable rural development. IJERD is edited by an Editor-in-Chief and Managing Editors, and is guided by Editorial Advisory Board Members affiliated with various reviewers from ISERD. All research articles published in IJERD Volumes 1 to 15 were uploaded to J-STAGE with assigned Digital Object Identifiers (DOIs). The articles have provided many scientific outcomes, beneficial information, and recommendations applicable not only to research but to various extension activities including local and regional projects supported by ESD and involving local people and communities.

3. Lessons Learned and Challenges for ERECON's Extension and Research Programs

Current educational opportunities in the rural areas are insufficient, and the poverty of farmers is a barrier for children to continue their study at elementary or secondary schools. Also in rural communities, agricultural chemicals from inorganic fertilizers are released from farmlands to downstream water sources, causing environmental and health problems. As such, ESD in the agricultural sector is vital for local communities. Accordingly, ERECON has been implementing ESD projects in agricultural fields supported by RCE Greater Phnom Penh. Although these projects provide opportunities to increase the public's awareness and perception of the importance of the harmony between agricultural practices and natural environment conservation, the low literacy rate of senior residents challenges the outreach, success, and outcome of these projects.

CONCLUSIONS

ERECON celebrated its quarter century anniversary in 2025. Under the new global framework 'ESD for 2030' promulgated by UNESCO for the period of 2020-2030, ERECON continues to embrace and promote ESD toward achieving SDGs in the targeted local communities in Asian countries.

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