



United Nations
Educational, Scientific and
Cultural Organization



UNESCO Chair in Research and
Education for Sustainable Development,
Okayama University, Okayama City, Japan



ATECCE

RESEARCH PLAN

1. Research title

Promoting Teacher Education for Climate Change Education through Collaboration between Asian Centres of Excellence on Education for Sustainable Development

2. Organizer

Okayama University ESD Promotion Centre/UNESCO Chair in Research and Education for Sustainable Development

3. Sponsor

Fund for the Promotion of Joint International Research, Japan Society for the Promotion of Science (JSPS)

4. Cooperation with

UNESCO Bangkok

5. Duration

November 2020 – March 2024

6. Research team

China

Zhang Jing, Deputy Secretary-General, Asia-Pacific ESD Institute

India

Srishti Singh, Programme Coordinator, Environmental Education Centre

Indonesia

Ari Widodo, Vice Dean/Professor, Faculty of Mathematics and Science Education, Indonesia University of Education

Eko Hariyono, Associate Professor, Faculty of Mathematics and Natural Sciences, Surabaya State University

Japan

Hiroki Fujii, Director/Professor, Okayama University ESD Promotion Centre (Principle Investigator)

Hiroko Shibakawa, Assistant Professor, Okayama University ESD Promotion Centre

Kiichi Oyasu, Director, Educational Cooperation, Asia-Pacific Cultural Centre for UNESCO

Tomonori Ichinose, Professor, Miyagi University of Education

Kazakhstan

Marzhan Tajiyeva, Director, Department for International Cooperation, Abai Kazakh National

Pedagogical University

Malaysia

Munirah Ghazali, Professor, School of Educational Studies, Universiti Sains Malaysia

Irina Safitri Zen, Deputy Director, Sejahtera Centre for Sustainability and Humanity and Assistant Professor, Kulliyah of Architecture and Environmental Design, International Islamic University Malaysia

Mongolia

Dulguun Jargalsaikan, Lecturer, School of Arts and Sciences, National University of Mongolia

Uuriintuya Dembereldorj, Head, Office of International Relations, Mongolian National University of Education

Philippines

Jestoni P. Babi, Dean/Professor, College of Education, University of San Jose – Recoletos

Amor Q de Torres, Vice President for Academic Affairs, Capitol University

Felina P. Espique, Dean, School of Teacher Education and Liberal Arts, St. Louis University

Thailand

(TBC)

7. Academic background

Education for Sustainable Development (ESD) which is stipulated in SDG 4.7, is a new area of education that pursues the sustainability of life and society on earth, with themes such as climate change, renewable energy, biodiversity, disaster risk reduction and sustainable consumption and production. The *Action for Climate Empowerment: Guideline for Accelerating Solutions through Education, Training and Public Awareness* (2016), a guide jointly edited by UNESCO and United Nations Framework Convention on Climate Change (UNFCCC), emphasizes that an appropriate educational process of planning, implementation and monitoring/evaluation/reporting is essential to encourage people to take concrete actions against climate change.

This international joint research will focus on climate change in relation to all of these themes, and will develop the “Asian Framework of Teacher Education Programme for Climate Change Education” and a guide for its dissemination through the collaboration of Asian centres of excellence on ESD.

The rationale of this research initiative is, first, our current situation in which climate change education in teacher education is limited to the development of teaching materials and classes, and the development of systematic educational programmes has made little progress, in response to global calls for climate change education (for example, Merrill, M. Y. et al. (Ed.) (2018). *Education and Sustainability; Paradigms, Policies and Practices in Asia*. Oxon: Routledge.). Accordingly, the competencies required for teachers practicing climate change education and the educational directions to develop them have been not yet adequate to meet this global challenge.

Second, in order to develop a framework of teacher education programmes for climate change education that can be adapted and applied by many teacher education institutions, further

collaboration of centres of excellence on ESD is absolutely required. In particular, such a system of the collaboration needs to be strengthened in Asia. This is in contrast to the collaboration system in Europe (for example, a network of teacher education institutions for ESD in German-speaking countries, Deutschsprachiges Netzwerk "LehrerInnenbildung für eine nachhaltige Entwicklung.")

This research is built on a prior project on school education programmes for climate change education, jointly carried out by Japanese researchers and co-researchers in Asian countries under the support of the JSPS Grants-in-Aid for Scientific Research (FY 2018-2020). The research identified the competency requirements of teachers who implement the climate change education programmes and it was found that the competencies can be fully utilized for the development of teacher education programmes for climate change education.

Furthermore, through the JSPS Core-to-Core Programme (FY 2017-2019) and Japanese Official Development Assistance (ODA) Grants for UNESCO Activities (FY 2018-2019) organized by the research team of this research, several universities in Asian countries have grown as centres of excellence on ESD (See <http://ceteesd.ed.okayama-u.ac.jp/>). They are ready to develop teacher education programmes for climate change education. Through these research projects, the numbers of young researchers who will be key figures in the next generation, are growing in each centre of excellence, allowing research teams to play a central role in programme development in this area.

8. Research questions

The overall research question is, "What kinds of teacher education programmes are appropriate since teachers are powerful agents to promote climate change education, in response to global calls for climate change education?" Specifically, we address the following questions: 1) What is needed for teachers practicing climate change education, with particular focus on their competencies; 2) What kind of systematic education programmes should be prepared for teacher education of climate change education in order to develop their competencies; and 3) How should the results of teacher education programmes for climate change education be verified?

Though UNESCO and UNFCCC have promoted the importance of climate change education, the above cited questions have not been resolved, and thus, the educational process in teacher education is still being explored. This research is an attempt to resolve these questions through the collaboration between Asian centres of excellence on ESD. This research intends to derive some solutions from Asia.

9. Research purpose and academic uniqueness and creativity

The purpose of this research is to develop the "Asian Framework of Teacher Education Programmes for Climate Change Education," and its dissemination guide through the collaboration between centres of excellence on ESD in nine Asian countries: China, India, Indonesia, Japan, Kazakhstan, Malaysia, Mongolia, Philippines and Thailand.

To date, climate change education has been limited to the development of teaching materials and classes, and there are not enough teacher education programmes focused on practicing climate change education. This research seeks to remedy this situation, which constitutes the creativity of the research.

The uniqueness of this research is that it is the first to develop a framework of teacher education programmes for climate change education through joint research between Asian countries. Upon

the announcement of UNESCO's new ESD policy *Education for Sustainable Development: Towards achieving the SDGs (ESD for 2030)* in November 2019, Japan is expected to continue to demonstrate a leadership role in promoting ESD. This research will embody such a leadership in teacher education, create a widely applicable framework for teacher education programmes through the collaboration in Asian countries and disseminate it from Asia to other regions.

Moreover, this research will not only present a framework of teacher education programmes for climate change education, but also develop a guide for its effective dissemination. The guide will be informed and disseminated to teacher education institutions in Asian countries, UNESCO regional offices and/or national commissions for UNESCO and the Ministries of Education (divisions of teacher education), for mainstreaming climate change education in the existing teacher education programmes. The other uniqueness of this research lies in its spillover effect on society.

10. Research method

- 1) Review and systematizing teacher education programmes for climate change education (November 2020 to September 2021)

Based on the “Asia-Pacific ESD Teacher Competency Framework” (Figure. 1) and school education programmes of climate change education already developed by the research team, the competencies required for teachers to practice climate change education will be reviewed and systematized through curriculum analysis, field work and workshops. Subsequently, teacher education programmes to promote the competencies will be identified and adapted at the centres of excellence in each country. Specifically, objectives, content, teaching methods and evaluation methods of the programmes will be defined.

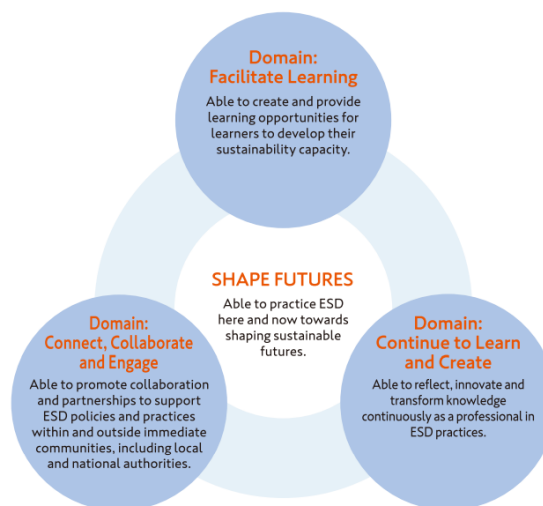


Figure 1. Overview of the Asia-Pacific ESD Teacher Competency Framework

- 2) Implementation and evaluation of the developed teacher education programmes for climate change education (October 2021 to September 2023)

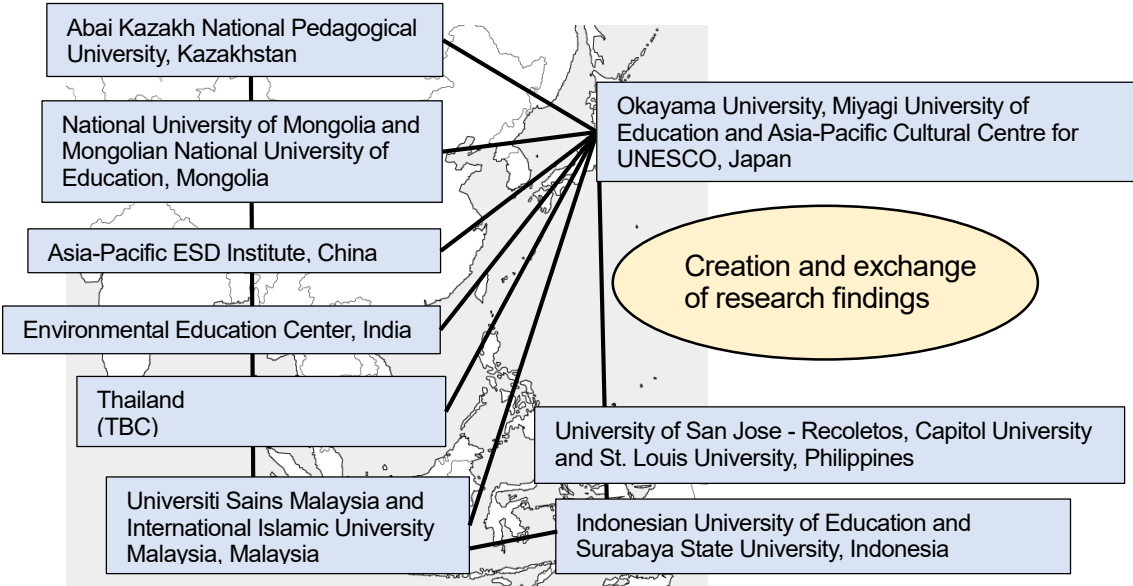
The teacher education programmes will be implemented by participating institutions and a longitudinal survey and analysis of the process of promoting the competencies for pre- and in-service teachers as the programmes are undertaken.

- 3) Developing an “Asian Framework of Teacher Education Programmes for Climate Change Education” and its dissemination guide (October 2023 to March 2024)

The programmes will be evaluated in terms of content, process and effectiveness and the results will be summarized, which will be compiled as an “Asian Framework of Teacher Education Programmes for Climate Change Education” for adoption by teacher education institutions in Asia. At that time, the framework will be externally evaluated by researchers at ESD-related research and education centres in Europe, North America and other countries to examine its international applicability.

Furthermore, a guide for the effective dissemination of the framework will be created. In order to contribute to the programme development of many teacher education institutions in Asia, the experience of programme development at centres of excellence in each country as well as its merits and values will be specifically incorporated in the guide. The guide will be informed and disseminated to teacher education institutions in Asian countries, UNESCO regional offices and/or national commissions for UNESCO and the Ministries of Education (divisions of teacher education) that have collaborated with the research team, and will contribute to the wide spread of teacher education for climate change education in Asia.

11. Roles of each researcher



1) Developing an “Asian Framework of Teacher Education Programme for Climate Change Education”

In the basic design of the programme, what is required for teachers practicing climate change education, in particular competencies, will be reviewed, identified and adapted based on the existing ESD teacher education competencies. Utilizing these competencies, the researchers will develop, implement and evaluate the programmes at each teacher education institution. At that time, participating institutions and researchers will collaboratively conduct field surveys, participatory observations and workshops to enhance the quality of the programmes. In creating the Asian framework of the programme, they will integrate the results of programme development and prepare basic data for creating the framework. Finally, they will examine the structure and contents of the framework and complete it.

2) Developing a dissemination guide for an “Asian Framework of Teacher Education Programme for Climate Change Education”

In the basic design of the guide, the researcher will synthesize main project findings and outcomes as key components for the dissemination of the framework at three levels (institutional, national and international). They will create a guide based on the key components, incorporating the experiences, merits and values of their own programme development. This incorporation will contribute to the programme development of many teacher education institutions in Asia. In order

to disseminate the guide, the researchers will inform teacher education institutions in their own countries, UNESCO regional offices and/or national commissions for UNESCO and the Ministries of Education (divisions of teacher education).

Collaborating with Japanese researchers, the researchers of each country will form a research team consisting of researchers from their institutions to coordinate the above research.

12. Secretariat

Hiroki Fujii, Director/Professor, Okayama University ESD Promotion Centre

Email hfujii@okayama-u.ac.jp Telephone +81-86-251-7637

Hiroko Shibakawa, Assistant Professor, Okayama University ESD Promotion Centre

Email hirokoshibakawa@okayama-u.ac.jp Telephone +81-86-251-7723

Megumi Hasegawa (Ms), Secretary, Okayama University ESD Promotion Centre

Email hasegawa-m@okayama-u.ac.jp Telephone +81-86-251-7637