



# A Key Research Case for Promoting Education for Sustainable development: The Case of Okayama, Japan

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## ABSTRACT

This paper explores the productive efforts of Okayama City, Japan, in advancing education for sustainable development (ESD). Focusing on two significant initiatives, the Marine Conservation Education Program and RCE Okayama, the paper explores how these programs integrate formal, non-formal, and informal education to foster sustainable practices. The Marine Conservation Education Program, a collaboration between schools and local fishermen, involves experiential learning to instill marine conservation principles among students, yielding significant shifts in their attitudes towards ocean protection. RCE Okayama, recognized globally, collaborates with various organizations to promote ESD within the community, offering programs and training to enhance understanding and implementation of sustainable practices. The paper emphasizes the synergy of formal and non-formal education, highlighting the broader impacts of Okayama's ESD efforts on developing a sustainable society.

## KEYWORDS

Education for Sustainable Development (ESD); Marine Conservation; Community Engagement.

## 1. INTRODUCTION

Okayama City, situated in Okayama Prefecture and located 700 miles west of Tokyo, is renowned as one of Japan's most livable cities. Its immunity to frequent natural disasters such as earthquakes and typhoons, coupled with its pleasant climate, contributes significantly to its high livability score. Following the feudal period, Okayama experienced substantial growth and transformation, evolving into a city with robust infrastructure and a sophisticated system across various sectors. However, this development has not been without its challenges.

The city grapples with several pressing issues, notably the aging population, which presents significant socio-economic challenges. Additionally, the city faces urban sprawl, which has led to the encroachment on vast tracts of agricultural land and fields, thereby disrupting local ecosystems. Another significant concern is the environmental impact due to the overuse of private vehicles, which has resulted in severe traffic congestion and a substantial increase in vehicle emissions, contributing to air pollution and environmental degradation.

In an effort to address these complex challenges, the local government has adopted a collaborative approach, engaging with schools, corporations, and non-governmental organizations. This cooperative strategy integrates formal and informal educational programs aimed at fostering sustainable practices among residents and reversing negative urban and environmental trends.

This paper will subsequently examine two exemplary cases that highlight Okayama's proactive efforts and successes in the field of education for sustainable development (ESD). These cases

demonstrate the efficacy of strategic partnerships and holistic educational initiatives in addressing and mitigating urban and environmental issues, thus contributing to the city's ongoing efforts to enhance its livability and sustainability.

## **2. TWO CASE STUDIES**

### **2.1. A Marine Conservation Education Program in Okayama**

Hinase, situated along the Seto Inland Sea in Okayama Prefecture of western Japan, is a quaint town with a rich fishing heritage. The town's proximity to the sea has historically made it a hub for local fishermen. In the 1950s, these fishermen faced significant challenges as the Inland Sea suffered from red tide and eutrophication, leading to decreased fish catches. To combat this, they began planting eelgrass, creating nurseries and shelters for fish. This initiative, which started modestly in 1985 with 12 hectares, expanded impressively to cover 120 hectares by 2018, significantly boosting biodiversity and fish yields, as noted by Tanaka (2014).

Since the year 2000, Hinase Junior High School has partnered with these dedicated local fishermen to integrate a marine conservation education program into its formal curriculum, as highlighted by Sakurai and Uehara (2020). This program offers a rich array of experiential learning activities designed to deepen students' connection with their maritime environment. These activities range from affixing oyster seeds to scallop shells, to collecting and analyzing drifting eelgrass, engaging in discussions with fishermen and marine experts, and meticulously sorting and planting eelgrass seeds. The objectives of this hands-on learning approach are multifaceted: it aims to help students comprehend their living environment, understand the pivotal role of eelgrass in local ecological restoration, appreciate the significance of their contributions, foster a sense of responsibility, and encourage meaningful interactions with the community's fishermen.

Sakurai and Uehara's three-year longitudinal study reveals the transformative impact of this program on students' perceptions and behaviors. Initially, many first graders viewed the sea as polluted and uninviting. However, by the time they reached third grade, their perspectives had evolved remarkably. They began to recognize the diversity of marine life, acknowledge the ongoing efforts to clean the sea, and understand the critical role of eelgrass in providing habitats for fish. This shift in mindset from a passive concern for marine protection to an active desire to safeguard their local seascape is notable. Students emerged from the program with a clear sense of purpose and a deep understanding of the steps needed to preserve their marine environment, all gained through direct interaction and learning from the seasoned fishermen of their town.

### **2.2. Case of Regional Centres of Expertise (RCE)-RCE Okayama**

#### **2.2.1. Regional Centres of Expertise (RCE)**

REC is a network that brings together formal, non-formal and informal education to help regional and local communities around the world make effective efforts for sustainable development. REC has four goals for ESD. First, to integrate sustainable development and education for sustainable development into teaching and learning and to make them part of the formal curriculum. At the same time, the program is tailored to each local context. Second, to give quality resources where they are most needed. And Third, provide professional training, planning and learning materials for trainers. Fourth, make the public understand the important role that educators play and the importance of ESD in achieving sustainable development. Environmental stewardship, social justice, and improving quality of life are all long-term goals of RCEs to promote sustainable development.

### 2.2.2. RCE OKAYAMA

In 2005, coinciding with the launch of the UN Decade of ESD (2005-2014), the Okayama ESD Promotion Commission was established within the Okayama Municipal Office. Tasked with crucial roles such as policy formulation, strategic planning, providing support to member organizations, and enhancing their operational capacities, the Commission quickly became a cornerstone of the city's sustainability efforts (Mochizuki and Fadeeva, 2008). Following the establishment, the Commission undertook the development and implementation of The Okayama ESD Project Plan, initiating a series of activities aimed at fostering education for sustainable development throughout the city. This initiative not only addressed immediate environmental concerns but also laid the groundwork for long-term sustainability projects, leading to the Commission's recognition as one of the inaugural RCEs globally.

RCE Okayama is dedicated to creating a dynamic and sustainable learning environment that facilitates collaboration among schools, businesses, NGOs, and community learning centers, particularly the Konominkans (Oikawa, 2014). These Konominkans, integral to the local community, provide extensive learning opportunities and resources to both residents and visitors, fostering an inclusive educational atmosphere. Through its partnerships, RCE Okayama endeavors to deepen the understanding of sustainable development education, utilizing a range of teaching methodologies and formats to cater to diverse learning needs (Yamamoto, 2015). With a focus on areas such as the natural environment, agriculture, and community development, RCE Okayama continually works to empower sustainability organizations, helping them to leverage their strengths and enhance their contributions to the broader goals of ESD.

### 2.2.3. Achievements

First, since its inception, RCE Okayama has partnered with multiple organizations in order to promote education for sustainable development in the community, and as of November 2022, the number of participants has increased from 19 at the beginning to 358 (RCENETWORK). Secondly, RCE Okayama and its participants have received many influential awards in ESD and SDGs, such as Okayama City received the 'UNESCO Learning City Award' (2017), Okayama City was designated as a 'SDGs Future City' (2018) and Okayama City received the 'Hall of Fame of Best of Best Cities, APLC (Alliance for Asia Pacific Learning Cities)' (2021). In 2015, RCE Okayama established the 'ESD Okayama Award' to honor outstanding sustainability education projects around the world. Since its establishment, more than 700 outstanding ESD projects have submitted their applications (RCENETWORK).

## 3. CONCLUSION

The Okayama Marine Conservation Education Program and RCE Okayama are two programs that show that Okayama City is very productive in terms of sustainable education development. The Marine Conservation Education Program is a collaboration between schools and local fishermen that incorporates knowledge of marine conservation into a variety of activities. Through experiential learning, students not only learn about marine conservation in the classroom, but also learn how to apply what they have learned to marine conservation in real life with local fishermen. The students also learned what they could do to protect the oceans in their neighborhoods through interaction with fishermen. Research studies have also shown that the students' mindset and behavior towards ocean conservation have changed dramatically over the three years of study. For the RCE Okayama program, the focus is on community education. It is not limited to schools, but also works with community learning centers, NGOs and other related organizations. First, local residents are given the opportunity to understand and learn about education for sustainable development, so that they can understand the importance of EFS. What they need to do in order for their children and grandchildren to live in a

good environment. Second, in order for these ESD-related organizations to fulfill their role, RCE Okayama will provide training and programs for these organizations to help them develop better.

These two programs are formal education for schools and non-formal education in partnership with the community. This shows that Okayama's ESD efforts are not just formal education for students, but also incorporate informal education in the hope that residents can achieve the goal of lifelong learning. By developing both aspects simultaneously, the effectiveness of ESD is greatly enhanced. At the same time, it also makes ESD more widespread. We can learn a lot from the Okayama case. Firstly, we should combine formal, non-formal and informal education. At the same time, we should cooperate with different institutions to promote ESD. This will lead to the development of a sustainable society. Secondly, we should learn from a wide range of sustainable development organizations around the world and develop programs that are tailored to national and regional specificities to help societies develop sustainably. Although Okayama's ESD is already at the top, not all ESD levels around the world are as good as Okayama. We hope that Okayama will spread its experience to other regions in need and help them achieve breakthroughs in the field of ESD.

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