

Chapter 23

Reorienting Japanese university education towards community resilience in the wake of disaster responsiveness

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Abstract

Following The Great East Japan Earthquake in 2011, environmental educators in Japan needed to face a tough introspection – what could environmental education (EE) and education for sustainable development (ESD) have done to prevent, or reduce, its disastrous damages. In this context, promoting resilience of communities to confront disasters emerged as an important mission for EE/ESD. Three cases introduced in this chapter describe the challenges of Japanese universities facilitating education for resilience with communities confronting different situations associated with natural and anthropogenic disasters. From these cases, one common key for transforming university EE/ESD towards resilience emerges – the close university-community interaction to critically address the ‘realities’ of multiple issues including social, economic, and political injustice and ecological destruction that lie behind disasters. The mission of EE/ESD is to empower people to fully participate in creating their own futures. Resilience brought about by top-down communication does not lead to true empowerment, but often to complacency, psychic numbing and apathy. The EE/ESD of universities we aim for should enable learners to lead the transformation of society for sustainability and resilience by raising their own voices, asking difficult questions and demanding answers. Thus, in order for universities to meaningfully contribute to sustainable futures they will need to facilitate active and critical community engagement that lead to mindful resilience.

Keywords: community resilience, university, EE centre, human and natural disasters, Miyagi, Fukushima, Yokkaichi

Introduction

Environmental education (EE) in Japan is now entering the third stage of its history. Its first stage was up to the 1990s, when the need for EE gradually gained recognition and its practices began to spread. The second stage occurred in the 2000s, when EE came to be institutionalized in policies and the scope of EE developed further under the United Nations Decade of Education for Sustainable Development (2005-2014). The Great East Japan Earthquake (GEJE) in 2011 opened the third stage, facilitating a critical reconstruction of EE/ESD practices and research.

Following the severe earthquake and tsunami that devastated communities and caused the collapse of Fukushima Daiichi Nuclear Power Station, environmental educators in Japan needed to face a tough introspection – what could EE and education for sustainable development (ESD) have done to prevent, or reduce, such disastrous damage. In this context, promoting resilience of communities to confront disasters emerged as an important mission for EE/ESD (Furihata *et al.* 2013). For the afflicted communities to recover, and for other communities to prepare for future disasters, resilience – defined as ‘the ability of a system to absorb disturbance and still retain its basic function and structure (Walker and Salt 2006)’ and ‘the ability not only to withstand or adapt to hardship but also to transform into something stronger (Krasny *et al.* 2011)’ – is critical.

At the UN World Conference on Disaster Risk Reduction (WCDRR) held in Japan in 2015, a team of environmental educators organized a forum to discuss education for community resilience (Japan RQ Disaster Education Center 2015). During this forum, one panellist threw out a critical question: ‘Is this truly education for resilience or education for *re-silence*? – where communities are not made to question why, not made to participate in a decision-making process, but made to accept to learn to cope and merely prepare for the next disaster’ (Guevara 2014 and 2015, italics are by the authors).

This question reminds us of the earlier experiences of EE in Japan, particularly the two important currents of Japanese EE that began to spread in the 1960s and 1970s. One of them was nature conservation education (*Shizenhogo Kyoiku* in Japanese), which in one aspect, played the role of empowering people to fight for their right to enjoy the benefits of nature, being destroyed due to Japan’s rapid economic growth. Another was pollution education (*Kogai Kyoiku* in Japanese), which facilitated learning by people who fought to protect their health and lives from serious environmental pollution also caused by economic and industrial development. In the practices of these educational currents, people themselves investigated the impacts that could threaten their lives by engaging in a learning

process, not simply accepting the explanations of the government and industries. Some EE/ESD professionals including school teachers and university faculty supported their learning by connecting them with science (Fukushima and Ando 2015).

These earlier practices show the potential of EE to empower communities under great force of pressure for them to become 're-silent,' often originating from the government and industries. In present-day Japan, sharing experiences of serious pollution in the past is still regarded as taboo in some communities due to complex power relations and the damage that is still retained to this day. The nuclear power plant collapse in Fukushima added another similar case to this history. Besides, the government projects under the Fundamental Plan for National Resilience (Cabinet of Japan 2014), developed following the GEJE, have been accused of neglecting diverse voices of local communities in its design and implementation. The role of EE/ESD to realize education for resilience as the empowerment of communities and people is now even more important.

In this chapter, the authors will discuss how higher education can promote the development of community resilience, facilitating the active and critical engagement of communities, in sustainability challenges. Three specific cases are introduced to report on how Japanese universities have responded, and are attempting to respond, to human and natural disasters including severe environmental pollution incidents in the 1960s and the GEJE in 2011. Based on the reports from these areas, we discuss possibilities and challenges for universities to transform their education for the resilience of communities now and in the future.

Promoting the interaction between communities and people: a case study of a university EE centre in the area afflicted by the Great East Japan Earthquake

Over the years, the Miyagi University of Education (MUE) has been training teachers capable of using their knowledge and skills in the classroom to address the complex environmental and socio-economic challenges facing the citizens of the Tohoku region, especially Miyagi Prefecture. Although it suffered significant infrastructural damage at the time of the GEJE and a considerable number of students suffered emotional distress because they hailed from the affected areas, MUE continues to contribute to building the resilience of the local communities and people through community participation and the training of competent teachers using education theory and practice premised on integrating EE/ESD into the curriculum as a sub-major. The aim is to equip pre-service teachers to master the approaches of implementing locally relevant and culturally appropriate lessons on resilience building in the classroom after graduation. A range of important

topics are covered (MEXT 2007) and disaster risk reduction (DRR) education has become an essential component of this curriculum, especially after the GEJE.

The MUE Environmental Education Center promotes EE research and contributes to the local community through EE projects based on fieldwork and past research results (MUE Website 2016a). After the GEJE, the centre concentrated its educational research and practice efforts on disaster recovery in the most affected areas in the region, with many teachers and students of MUE volunteering to assist the needy. Activities students participated in include engagement in relief supplies, support for the operation of evacuation centres and schools affected by the disaster, and disposal of wreckage (Oda 2015). Thus the resultant social interaction between the university community and the local communities was seen as an important approach to re-building community resilience.

This pedagogy of social participation was further boosted during the 2015 WCRRR when: (1) the WCRRR Office established at MUE coordinated several DRR activities that included MUE and other organisations aiming to help the communities cope with the disasters; (2) MUE co-organized a symposium on the GEJE and DRR education; (3) educational trips were organized and students from the disaster-stricken areas introduced their cities to the visitors on the bus; and (4) MUE organized a public forum in Sendai to introduce the university's various activities on DRR (MUE Website 2016b) and EE/ESD. Against the backdrop of the theoretical knowledge students obtained during lectures, the ability of the trainee teachers to engage in critical inquiry, reflexivity and self-reflection was enhanced by relating the acquired practical experiences coupled with the emotional attachment some of them had to the affected areas. Other centres in MUE including the Center for Disaster Education and Recovery Assistance continue to play equally important roles in the disaster recovery.

This change in educational approach marks a significant shift from the past. For example, during the Interuniversity Network Supporting the UNESCO Associated School Project Network (ASPUnivNet) workshop of October 2010, organized in MUE's Affiliated Elementary School, an open class on DRR was conducted followed by a panel discussion involving mainly educators (ASPUnivNet 2010). Yet it was at Okawa Elementary School in the nearby city of Ishinomaki that 74 pupils and 10 teachers perished on March 11, 2011. By failing to move the pupils to a safer zone, the teachers either failed to exercise their critical thinking skills by not questioning assumptions and accepting the existing evacuation rules at face value or they lacked these skills altogether (Kingston 2016).

Despite the significant contributions made by MUE towards community resilience building, areas for improvement include: (1) further strengthening of

the curriculum content regarding *progressive* pedagogies and competencies, such as critical thinking, creativity and imagination, use of alternative solutions and accountability to enhance the capacity of the trainee teachers; (2) as a Secretariat to several EE/ESD initiatives including Greater Sendai Regional Centre of Expertise on ESD and ASPUnivNet, MUE should find a more efficient way to synergize some of their activities, particularly regarding DRR education; and (3) as the Ministry of Education, Culture, Sports, Science and Technology plans to promote ESD through the ASPnet schools post-Decade for ESD, MUE has an opportunity to strongly advocate for more emphasis on DRR education.

Facilitating critical perspectives and multiple viewpoints to understand a disaster and its background: a case study of university-community collaboration in Fukushima

Towa District of Nihonmatsu City in Fukushima Prefecture is a rural community located approximately 40 km northwest of Fukushima Daiichi Nuclear Power Station. Radioactive substances discharged from the plant were partly blocked by mountains of 800 to 1000 m in height to the east of the district, allowing it to avoid the governmental evacuation order. However, land and air contamination in the district has seriously threatened the lives and businesses of local farmers, who have actively promoted organic agriculture since before the incident.

Strong network capabilities nurtured through activities of the Committee for Organic Farming and Community Development in Towa has enabled both internal and external collaboration since right after the disaster. Towa attracted a number of supporters including students and researchers from several universities, one of which is Tokyo University of Agriculture and Technology (TUAT). First, Towa and the TUAT research team, in which students also participated, started working together to ascertain the actual situation of radiation pollution and to find possible solutions. Later, TUAT also began organizing study visits to Towa for its students.

For example, the Education Program for Field-oriented Leaders in Environmental Sectors (FOLENS), which provided an add-on curriculum for TUAT postgraduate students under both the Faculty of Agriculture and Faculty of Engineering, organized a special course to visit Towa (FOLENS 2012). The course provided a series of pre-visit lectures and workshops for students and faculty to learn about the situation of the radiation contamination and to critically discuss environmental, social, and economic problems related to the nuclear power plant accident. Through this, they gained a broader understanding of the incident and its background. During the field visit, students and faculty stayed at local farms. They learned directly from farmers' experiences and thoughts, while helping their work and sitting around a dining table together. In addition, they conducted a

'participatory community study' called '*arumono sagashi*,' which literally means 'discovering what already exists' in Japanese. It is an approach for empowering local people and communities through identifying local characteristics and unique features that was originally developed in Minamata, known as a site that has experienced one of the most severe pollution cases in Japanese history, to overcome its tragedy (Yoshimoto 2008). Students created a local map recording what they found interesting – including geographical, cultural, and human resources in the community – by walking around and talking with people. Based on their findings, students presented the maps and proposals for community recovery to the local residents at the end of the visit.

Through a series of lectures and discussions and direct contact with the realities of a community facing the incident, students and faculty gained an opportunity to critically review the incident from various aspects. They began to realize the multiple complexities of the issues including ecological destruction and social injustice behind the scenes. For locals, having students and faculty in their community provided an opportunity to express their views, review their own situation, and redesign their future taking multiple aspects into account. For both visitors and locals, such an educational collaboration can be a valuable opportunity to develop a holistic and critical understanding of a disaster and its background, which is indispensable for them to raise their own voices and design their own vision of a resilient community.

Transforming the experience of environmental pollution into educational resources: a case study in the mission of Yokkaichi University

Yokkaichi City, the largest city in Mie Prefecture, is known as the site of one of the four major Japanese environmental pollution cases. From 1959 to the mid-1970s, the local residents suffered various environmental pollution incidents and 'Yokkaichi Asthma,' caused by the sulphur oxide discharged from the petrochemical complex in the coastal area (ICETT 1994).

In 2012, Yokkaichi University, a private university founded in 1988 with strong support from Yokkaichi City, introduced a new lecture course 'Yokkaichi Pollution (*Yokkaichi Kougai-ron*)' as a compulsory subject for students majoring in environmental science. The course not only examines the situation of the pollution at the time but also the historical background of Yokkaichi and the social structure that caused pollution-related illnesses, especially the construction of the petrochemical complex, from the standpoint of environmental sociology. Guest speakers, such as patients officially certified as pollution victims and others, are invited to talk about their real life experiences. Facing a curriculum reform in

2017, the Yokkaichi Pollution course is scheduled to expand as one of the three compulsory subjects for all students who study at the Faculty of Environmental and Information Sciences, not only for the ones majoring in environmental science. This will double the student attendance including overseas students from countries experiencing regional economic growth, such as China, Indonesia, Nepal, Sri Lanka, Vietnam and Bangladesh.

‘Yokkaichi Studies (*Yokkaichi-gaku*)’ also started as a part of the liberal arts education at the university. Taught omnibus, it covers traditional events in the region as well as history, culture, local industry, and Yokkaichi Pollution, followed by a one-day field trip to the ‘Yokkaichi Pollution and Environmental Museum (*Yokkaichi Kougai to Kankyo Miraikan*, YPEM)’ to deepen the students’ understanding. Recently opened in March 2015, YPEM is located on the second floor of the Yokkaichi Municipal Museum. Through the field trip, students can review the historical facts of Yokkaichi and the emergence of the severe air pollution in chronological order by following the exhibition route. On the same day, students make an additional visit to the deeply affected coastal area to listen to the words of surviving witnesses on the spot. This is to provide a realistic experience of the proximity of the petrochemical complex to the local community. As a new EE hub for not only Yokkaichi University but also citizens, YPEM serves an important role providing a straightforward report of the Japanese experiences and some hints leading to the solution of human disasters (Kaminaga 2015).

The outbreak of pollution-related illness, in this case, Yokkaichi Asthma, is to be memorized as a ‘negative legacy’ of Japanese economic growth and ‘a lesson for the future’ (The Open Research Center for Minamata Studies 2016) both domestic and overseas. For example, as a pioneer, Kumamoto Gakuen University has offered ‘Minamata Studies’ to all freshmen of the Faculty of Social Welfare since 2002. Minamata, which exists as the site of one of the four major Japanese environmental pollution cases, suffered untold water pollution during the same period when Yokkaichi suffered intensive air pollution. Utilizing Yokkaichi’s experience and the new museum as educational resources, the mission of Yokkaichi University is to offer the next generation an education for resilience and sustainability.

Conclusions

In order for universities to meaningfully contribute to sustainable futures they will need to facilitate active and critical community engagement that lead to mindful resilience. The three reports above have described the challenges of universities in Japan facilitating education for resilience with communities confronting different situations associated with natural and anthropogenic disasters. In Miyagi, which suffered serious damage caused by the GEJE and following tsunami,

MUE EE Centre promotes social interaction between the university and the local communities. Through DRR education activities in partnership with communities, it re-builds community resilience and enhances critical thinking skills in trainee teachers. In a rural community in Fukushima facing radiation pollution due to the nuclear power plant collapse, TUAT collaborates with local farmers in research and education. The study visits for its students and faculty allow both visitors and locals gain a holistic and critical understanding of the realities to develop their vision of resilient communities. In Yokkaichi, which experienced one of Japan's most serious cases of pollution, Yokkaichi University provides lecture courses to aid students to learn from this local experience. Transforming this past tragedy into an educational resource, the university encourages the next generation to engage in a critical review of the past for solving and preventing human disasters and creating resilient communities.

From these cases, one common key for transforming university EE/ESD towards resilience emerges – the close university-community interaction to critically address the 'realities' of multiple issues including social, economic, and political injustice and ecological destruction that lie behind disasters. As discussed earlier, pressure for communities and people to stay 're-silent' still apparently exists in Japanese society; some of these issues become hidden as taboo under the complexity of power relations and are often associated with emotional confrontations. To realise university EE/ESD to promote community resilience we need to face, in close partnership with local communities, the realities that sometimes reveal 'inconvenient truths' in order to support a process of empowerment for learners including communities, students and faculty.

Japanese EE in the present stage must strive for a new approach while engaging in discussion based on self-reflection regarding past EE with researchers all over the world. The mission of EE and ESD is to empower people to fully participate in creating their own futures. Resilience brought about by top-down communication does not lead to true empowerment, but often to complacency, psychic numbing and apathy. The EE/ESD of universities we aim for should enable learners to lead the transformation of society for sustainability and resilience by raising their own voices, asking difficult questions and demanding answers.

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