

# Assisting the Recovery of School Education in Natural Disaster Emergencies: Roles of a Local Teacher Training University in Tohoku

Takashi ODA

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# Assisting the Recovery of School Education in Natural Disaster Emergencies — Roles of a Local Teacher Training University in Tohoku

Takashi ODA\*

**Abstract:** This paper reports the actions taken by the Miyagi University of Education, the only national teacher training college in Tohoku, following the 2011 Tohoku earthquake and tsunami. The present work discusses how the university utilized its existing resources and focused on international networking as an educational institution to incorporate itself into several volunteering programs. The paper also examines the lessons the university learned from the disaster, including the promotion of disaster risk reduction (DRR) education in pre-service teacher training.

**Keywords:** disaster recovery, university, pre-service training, ESD

## Introduction

This paper presents the actions taken by the Miyagi University of Education (MUE) after the 2011 Great East Japan Earthquake and Tsunami in Tohoku, a northeastern area of Japan. MUE played an important role in assisting the recovery of school education immediately after the disaster and has reformed itself as an institution by presenting important lessons for its own students through volunteering activities and the inclusion of disaster risk education programs in the curriculum over the past four years. Based on the lessons learned since the disaster, we discuss the roles of this teacher training university located in the disaster-hit area and its new institutional orientation following the calamity.

## MUE and 2011 disaster

The Great East Japan Earthquake and Tsunami (magnitude 9.0) caused more than 20,000 casualties in Japan, a country with relatively strong natural disaster preparedness. Miyagi was the hardest-hit prefecture, and the coastal Tohoku prefectures of Iwate and Fukushima also suffered significant losses. In terms of school-related damage, Miyagi prefecture incurred many casualties. Miyagi borders Fukushima prefecture to the south, which experienced additional issues pertaining to the nuclear power plant accident caused by the earthquake and tsunami. As the social, economic, and political center of the Tohoku region, the city of Sendai, the capital of Miyagi prefecture, has attracted many residents and businesses, and it has served as a leading city for the recovery of Tohoku.

MUE, located in Sendai, is Tohoku's only national teacher training college and was established by becoming independent from the teacher training function of the Tohoku University Faculty of Education in 1965. Over the past 50 years, MUE has dedicated itself to the training of pre-service teachers and leaders in broader areas of society related to education, particularly in the Tohoku region. In the latter half of this 50-year history, MUE has contributed to addressing global issues such as environmental concerns and sustainability, as later presented in detail.

This tradition continues to date: of freshmen students at MUE, 70 percent aim to become teachers, with lesser proportions hoping to become civil servants or work in other education-related businesses, according to a recent survey. Of the 2013

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\* Center for Disaster Education & Recovery Assistance, Miyagi University of Education

graduating class, 60 percent actually became teachers. Approximately 90 percent of MUE students are from the Tohoku area. Among those who actually became teachers, 70 percent were from Iwate, Miyagi, and Fukushima, the prefectures most affected by the 2011 disaster. Therefore, it is highly likely that these students became involved in the recovery process after their graduation. Over the past five decades, MUE has nurtured partnerships with the local education community, including schools and prefectural and municipal boards of education, and it maintains strong ties with these institutions, as well as with its alumni. These ties allowed MUE to develop its assistance program, as will be mentioned later.

Many members of the campus community suffered from the 2011 disaster. Table 1 shows the results of surveys conducted over the past four years asking what kind of damage the students endured from the disaster. Some students lost immediate family members, while others have faced economic hardship as a result of parental unemployment, housing damage, and evacuation from the nuclear accident security zone. It should be noted that this survey does not reflect the damages to faculty and staff members or their relatives. Considering such figures would increase of the significant impacts of the disaster on the members of the community.

**Table 1.** Damage to students at the Miyagi University of Education

	All students in 2011, including graduate students (master course)	New students entered in 2012 (current 3rd graders)	New students entered in 2013 (current 2nd graders)	New students entered in 2014 (current 1st graders)
Family dead within the 2nd degree	24	3	4	6
Householder lost his/her job	22	1	5	2
Householder ordered to stay home over 3 months	4	3	0	0
Significant decrease in family income caused by the disaster	64	12	5	3
Moderate decrease in family income caused by the disaster	40	3	12	7
Slight decrease in family income caused by the disaster	79	11	18	7
Temporary relocation from the student's family home	98	10	4	6
Family still staying in temporary accommodations	34	8	3	8
Residence completely destroyed	53	16	14	17
Residence half destroyed	141	25	28	27
Residence partially destroyed	343	92	55	38
Residence located within the security zone (20 km from Fukushima No.1 nuclear power plant)	9	1	1	1
Residence located within the deliberate evacuation zone	4	3	0	2
Residence located within the emergency evacuation preparation zone	14	6	5	2
No specific effect	662	163	175	204
Other	52	15	10	22
Unanswered		28	34	16
<b>TOTAL</b>	<b>1643</b>	<b>400</b>	<b>373</b>	<b>368</b>

Compiled from the students career committee's new student questionnaires in 2012, 2013, and 2014, and research on the actual student situation in 2012 at the Miyagi University of Education

MUE itself suffered approximately 500 million yen in property damage, including the university's coastal field seminar facility located at the southern border of Miyagi prefecture, which was completely washed away by the tsunami. On the main campus in Sendai, the damage included building cracks, fallen ceilings, and broken equipment.

Many lives and living environments were destroyed by this disaster, and its personal and institutional affects led us to recognize the importance of providing individual assistance, both direct and indirect, to those who were affected. This realization drove the establishment of recovery assistance programs for the educational communities in Miyagi. The programs launched at MUE made full use of its relatively small and closely networked campus community, consequently also providing learning and human development opportunities to this community.

## 2011 disaster and schools

Here, we discuss the impacts of the 2011 disaster on local schools. Many schools and teachers played important roles in saving lives throughout Tohoku during and after the 2011 disaster. Table 2 summarizes the effects of 3.11 on school environments and roles that such schools played.

**Table 2** Effects of 3.11 on school environments

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### **Human Casualties** as of Sept 1, 2014

Deaths: 19,074

Missing: 2633

Injuries: 6,219

### **School-related**

Students deaths (K-high school): 617 (see Kazumi 2013)

Casualties due to school building collapse: None

### **School Facilities**

Schools with some damage: 7,988 (22 prefectures, from Hokkaido to Wakayama)

Public Schools with some damage: 6,284 (K-high school and special needs)

Severe damage (rebuilding or major restoration necessary): 193

Inundated by tsunami: 131

Schools with students present at the time: 113

Schools projected in inundation zone of hazard map: 53

Schools projected in non-inundation of hazard map: 69

Schools not on hazard map: 9

35% evacuated to high floor or roof, 32% backyard hill or higher ground

31% designated evacuation center

### **Evacuation Shelter**

Schools used as evacuation shelters: 622 (maximum on March 17, 2011)

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Sources: National Institute for Educational Policy Research (2012), Kazumi (2013)

Schools in Japan are often designated as primary evacuation sites and shelters for the following reasons: 1) schools have a more even geographic distribution in communities than do other public buildings, and 2) schools have larger grounds and stricter building structures than do private properties. Among the over 20,000 casualties from the 3.11 earthquake and tsunami, 617 schoolchildren were lost, and many teachers were killed by the events. Among the 7,988 schools in 22 prefectures reportedly damaged by the 3.11 disaster, 193 schools suffered severe damage requiring rebuilding or major restorations. Most building damage were found with old building code (pre. year 1981). A total of 131 schools were inundated by the tsunami, including 113 schools in which students were present at the time of the disaster. Of these schools, 53 were included in the tsunami inundation zone on the governmental hazard map, while 69 were not included in this zone. According to one survey, 35 percent of schools evacuated children to a high floor or school roof, 32 percent to a backyard hill, and 31 percent to designated evacuation centers.

For example, Arahama Elementary School in Sendai survived as the only strong and tall building in the coastal Arahama community. Photo 1 shows evacuees on the roof of this school; approximately 320 evacuees, including many from the local community, spent up to two days on the roof.



**Photo 1.** Sendai City Arahama Elementary School

Source: City of Sendai

Japanese schools contributed to saving many lives after 3.11, with 622 school facilities used as evacuation shelters at the peak of the aftermath on March 17, 2011. While some school buildings survived the disaster, other damaged schools had to be closed or relocated, and some of their students have been placed in temporary housing. Some evacuated children had to

study in the gymnasiums of other schools: the picture below shows junior high school classes in a school gymnasium in Sendai, with different simultaneous classes divided by cardboard walls (photo 2). The stability of the learning environment was vastly compromised, and students had to cope with these conditions.



**Photo 2.** Junior high school classes in Sendai being temporarily conducted in a school gymnasium

Source: City of Sendai

### New role for recovery in emergency in education

The stability of the learning environment is a serious concern among educators in recovering Tohoku, and those engaged in volunteering programs hope to positively impact these children. The results of an MUE survey (table 3) conducted immediately after the disaster in 2011 show that over half of the student population became involved in some sort of volunteering activities, providing help from debris removal to the operation of evacuation shelters.

**Table 3.** Miyagi University of Education student engagement in volunteering in 2011

Support school operation	26%
Wreckage disposal	15.5%
Operate evacuation centers	12.3%
Sort relief supplies	12.3%

(Of these volunteers, 42.4% did their recovery assistance in Sendai.)

Among these volunteers, roughly a quarter provided assistance to school operations. Due to the growing demand for more systematic student volunteering programs, the Center for Disaster Education & Recovery Assistance was established

in June 2011. The center consists of a volunteer assistance division and a research and development division. In addition to understanding the continuously changing situation of the disaster-hit areas and looking into their recovery support needs, the Research and Development Division conducts a variety of research to examine the school experiences of the disaster and disseminates these insights for future disaster risk reduction at schools by publishing researcher reports, including this Bulletin. The center has published, although mostly in Japanese, more than 30 reports related to schools and the 2011 Tohoku disaster<sup>i</sup>.

More practically, the center coordinates several assistance programs to help local schools recover. To date, in collaboration with teacher training universities all over Japan, MUE has coordinated over 4,500 student volunteers in the disaster-hit areas. The most popular volunteering program engages pre-service education students in student tutoring at elementary and junior high schools in the areas hit by the Tohoku disasters (Photo 3). The volunteers also include visitors from other teacher training programs nationwide. The center coordinates school visits, arranges travel and accommodations, and manages safety (including insurance coverage) for these volunteers.

From a more educational perspective, pre-volunteering seminars are provided to instruct students how to interact with affected children. For example, students should not actively ask children questions about their experiences of the disaster, which would remind them of the calamities in 2011. Some students have the opportunity to provide feedback to their peers and faculty after volunteering. The center hired several retired school principals as coordinators to arrange school visits, as well as to provide advice to volunteering students before and after their service.

These programs were possible thanks to existing MUE partnerships with the local education community. To implement a variety of educational programs such as open seminars, joint research and practices, and practicums, and more recently, training for renewing teaching licenses and in-service training, MUE has established Memoranda of Understanding and/or Agreement with many education-related organizations. Through these official partnerships, the faculty and staff have developed close working relationships with other institutions, which contributed to the coordination of post-disaster recovery assistance programs.



Photo 3. Students tutoring volunteers at a school  
Source: Center for Disaster Education & Recovery Assistance,  
Miyagi University of Education

affected by the disaster gives these volunteers unforgettable unique experiences in their pre-service capacity building process.

The student participants also visit severely affected coastal areas to listen to principals and teachers of schools that were damaged or used as emergency shelters about their experiences and decision-making during the crisis. Hence, this volunteer program both assists affected schools and provides essential disaster risk reduction (DRR) lessons for future professional educators.

MUE, as the only national teacher training college in Tohoku, has valued the positive educational effects of the program on its students and visitors who will become teachers in the future. Interacting directly with children and teachers

### Shifting gears toward DRR education in pre-service training

Although special attention must be given to student survivors, who may suffer psychological impacts from involvement in these volunteering programs, we observed that students with actual disaster experience, including those who lost friends and

<sup>i</sup> More details can be found at <http://fukkou.miyakyo-u.ac.jp/report/report.html>

family, played leading roles. One student who lost her mother from the tsunami mentions in a book MUE published that she heals her mind by actually helping others who suffered and wants to give back by volunteering (MUE Student Volunteers 2014).

At MUE's professional graduate school, a DRR and DRR education course replaced an existing "School Education and Teaching Study" course in October 2014. The program has enrolled approximately 20 pre-service master's students and in-service teachers to learn specific topics regarding DRR in schools.

A new discussion has begun regarding how a teacher training program can provide DRR education so that future teachers are prepared. While thousands of lives have been saved by teachers and schools serving as educational institutions and local shelters, a tragic accident exception occurred in Ishinomaki, Miyagi Prefecture, contributing to the loss of 74 pupils and 10 teachers. A third-party examination board recommended that the Ministry of Education and teacher training institutions mandate disaster prevention programs in their pre-service programs. While pioneering examples were limited, MUE began to consider how best it could utilize the various strengths of the faculty and professionals on its small campus for effective DRR management and education lessons.

#### **MUE's role in global links**

MUE, one of two national universities in Sendai, has developed international networks in the area of education. MUE has official partnerships with 10 sister schools and 2 educational institutions. Using this existing regional and international network, the university has tried to share its experience with its international partners. Students, faculty, and staff members have exchange programs in which they share lessons learned from the disaster.

On an ad-hoc basis, MUE takes various opportunities to share lessons with its international partners. For instance, MUE has worked with Japan International Cooperation Agency (JICA) for its group training, teaching 14 educators from 7 countries about Japan's educational governance and programs. The trainees of the program had opportunities to learn about the recovery process and new DRR programs being conducted at the affected schools. The trainees also made site visits to the affected areas and interacted with survivors living in temporary housing. Through this international program, MUE promoted exchange between researchers and practitioners in the fields of DRR education and evacuation shelter operation.

Such activities also have positive impacts on student development; some students themselves experience raised awareness toward disaster prevention and recovery due to more global perspectives. In November 2013, students who were actively engaged in volunteering in Tohoku collaborated in a workshop to provide assistance to people in the Philippines by raising money and donating to Philipino educators affected by the typhoon disaster. The students said they wanted to give back to those who helped them in 2011.

#### **- New roles of ESD and Post-DESD and HFA -**

MUE's global partnerships have expanded over the past decade since the inception of Education for Sustainable Development (ESD) programs. ESD is a type of education conducted in various fields, such as environment, development, humanity, peace, multiculturalism, and DRR, to conquer various global issues. ESD has become an important part in the advancement of DRR education.

MUE has been actively engaged in building a network with the international education community through the initiatives of environmental education and ESD and promoting UNESCO Associated School Project (UNESCO ASP). MUE operates the administrative functions of an RCE (Regional Centre of Expertise), a hub network to promote ESD regionally. The Greater Sendai RCE is the only RCE in Tohoku. Based on the successful achievements of Kesennuma, one of the coastal cities severely affected by the 2011 tsunami, MUE has been dedicated to the promotion of ESD programs through the UNESCO

Associated School Network (ASPnet) since 2008 and has begun and maintained a network of universities that support ASP schools and universities nationwide.

Disaster-related education has grown as a major component of ESD, particularly since March 2011. At the UNESCO World Conference to review and commemorate the decade of ESD (DESD) held in November 2014, the Aichi-Nagoya declaration on ESD was issued, clearly reaffirming that ESD can serve as a vital means of DRR implementation.

There is a growing demand for the development of specific measures and strategies to effectively foster DRR within the ESD context. Coincidentally, the 3rd World Conference on Disaster Risk Reduction (WCDRR) will be held in Sendai on March 14-18, 2015. World leaders and high-level policymakers in DRR will review the decade of the Hyogo Framework for Action (HFA 2005-2015) adopted at the 2nd World Conference in Kobe in 2005.

MUE will co-host a forum on March 16, 2015, “Fostering DRR through Education for Sustainable Development” with the Ministry of Education, Culture, Sports, Science, and Technology (MEXT) and the Japanese National Commission for UNESCO. The forum will discuss DRR education within the context of ESD.

As leading promoters of ESD, the organizers will present practical DRR educational programs from local elementary, junior high, and high schools. Practitioners in both fields are invited to explore the contribution of ESD to DRR and develop a framework from their common ground to create a better future for children. This program represents a great crossover of DRR and ESD practitioners accomplished by exercising the history, experience, and strengths of MUE.

## Concluding remarks

The unexpected 2011 disaster that hit the teacher training institution caused the campus community a lot of pain and despair, and some are still recovering. While overcoming these predicaments, some important beneficial programs were developed. The 2011 disaster established vital new roles for MUE in disaster recovery and DRR education as a regional hub for educators and a global link in the area of educational practices through its valued networks. Some of the volunteer programs at the affected schools need to grow as service-learning programs within the broader DRR lessons to be taught for the students at MUE. Working closely with local and international partners, including neighboring Tohoku University’s International Research Institute of Disaster Science (IRIDeS), is a great opportunity to develop a new DRR education program for educators. A closer dialog between ESD practitioners and DRR specialists will also foster the effective implementation of DRR education through recovery assistance by this teacher training college in the affected region.

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